4.9 TRANSPORTATION

4.9.1 INTRODUCTION

This section describes the existing transportation setting and analyzes the potential impacts of the proposed Green Valley II Mixed-use project ("proposed project") on transportation. The analysis focuses on potential impacts of the proposed project on intersections, pedestrian and bicycle facilities, and transit service. Regulations and policies applicable to traffic and transportation are also described in this section. The section is based on a *Transportation Impact Analysis* prepared by Fehr & Peers, dated August 2019. The report is included in **Appendix 4.9** of this Draft EIR.

4.9.2 ENVIRONMENTAL SETTING

This subsection describes the existing condition of the transportation system that serves the project site, including roadway facilities, pedestrian and bicycle facilities, transit service, traffic volumes, and intersection operations.

4.9.2.1 Existing Transportation Network

Regional and Local Roadways

The location of the project and the surrounding roadway network are shown in **Figure 4.9-1, Project Location and Study Area**. Direct automobile access to the project site is provided by Business Center Drive. Local access to the site is provided via Suisun Valley Road, Pittman Road, Neitzel Road, Mangels Boulevard, Green Valley Road, Lopes Road and Cordelia Road. Regional access to the project site is provided via Interstate 80, Interstate 680 and State Route 12.

Business Center Drive is an east-west, four-lane divided arterial roadway that currently runs from the Green Valley Technical Plaza driveway in the west to Suisun Creek in the east; east of Suisun Creek, Business Center Drive transitions onto Suisun Parkway, which terminates at the I-80/Suisun Parkway-Chadbourne Road interchange. The posted speed limit near the project site is 40 miles per hour, and parking is prohibited along the roadway. The average daily traffic (ADT) in the vicinity of the project site is about 11,300 vehicles per day. A connection for the western end of Business Center Drive and the western end of Mangels Boulevard is currently under construction and anticipated to be open to traffic in winter 2019. The I-80/I-680/SR 12 interchange improvement project (detailed below) includes a further extension of Business Center Drive to a new SR 12/ Red Top Road interchange; this extension is expected to be completed in the Year 2035 time horizon.

SOURCE: Fehr & Peers, 2019

FIGURE **4.9-1**

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Project Location and Study Area

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Suisun Valley Road is a two-to-six-lane arterial roadway that extends from the Wooden Valley area of Napa County in the north to the I-80/Suisun Valley Road-Pittman Road interchange in the south. Suisun Valley Road transitions onto Pittman Road at the interchange. The interchange is expected to be modified as part of the I-80/I-680/SR 12 interchange improvement project; a direct westbound I-80 on ramp will be provided as part of the removal of the Neitzel Road connection to Green Valley Road. Near the project site, the posted speed limit is 40 miles per hour, and parking is prohibited on both sides of the roadway. The ADT in the vicinity of the project site is about 12,700 vehicles per day.

Pittman Road is a two-to-four-lane arterial roadway that extends from the I-80/Suisun Valley Road-Pittman Road interchange in the north to Cordelia Road in the south. The posted speed limit near the interchange is 35 miles per hour, and parking is prohibited on both sides of the roadway. The ADT in the vicinity of the project site is about 12,200 vehicles per day.

Neitzel Road is a two-lane, one-way arterial roadway that extends from the I-80/Suisun Valley Road/Pittman Road interchange in the east to Business Center Drive in the east. The roadway serves as the connection between westbound I-80 and Green Valley Road as the I-80 Green Valley Road interchange does not include a direct off-ramp to Green Valley Road. Likewise, since a direct on-ramp to westbound I-80 is not provided at the I-80/Suisun Valley Road-Pittman Road interchange, Neitzel Road conveys traffic to the westbound I-80 on-ramp at Green Valley Road. Neitzel Road is anticipated to be abandoned and removed as part of the I-80/I-680/SR 12 interchange improvement project. The posted speed limit near the interchange is 50 miles per hour, and parking is prohibited on both sides of the roadway.

Mangels Boulevard is an east-west, four-lane divided arterial extending from Antiquity Drive in the west, to Westamerica Drive in the east. West of Vintage Valley Drive, the width of the roadway is reduced to two lanes in each direction with a wide median. The speed limit along Mangels Boulevard is posted at 40 miles per hour, and no parking is allowed on this facility. A direct connection between westbound Business Center Drive and westbound Mangels Boulevard is afforded via a one-way only roadway; a connection between eastbound Mangels Boulevard and eastbound Business Center Drive may be made via southbound Westamerica Drive. The ADT in the vicinity of the project site is about 6,000 vehicles per day.

Green Valley Road is a north-south, four-lane divided arterial extending from the I-80/Green Valley Road interchange in the south to the Green Valley Country Club area in the north. Green Valley Road transitions onto Lopes Road south of the interchange, which continues towards Red Top Road and Benicia. The I-80/ Green Valley Road interchange will be modified as part of the I-80/I-680/SR interchange improvement project; the primary change along Green Valley Road will be the construction of a direct

westbound I-80 off-ramp to Green Valley Road. Green Valley Road has a speed limit of 45 miles per hour, and street parking is prohibited on this facility. Class II bike lanes are provided along both sides of Green Valley Road between the I-80 Green Valley Road interchange and Eastridge Drive. The ADT in the vicinity of Business Center Drive is about 23,000 vehicles per day.

Lopes Road is a north-south, two-to-four-lane arterial extending from the I-80/Green Valley Road interchange in the north to the City of Benicia in the south. The roadway connects the project area (via Green Valley Road and Business Center Drive) to areas of industrial and residential along the west side of I-680. The posted speed limit in the project study area is 40 miles per hour. The ADT in the vicinity of Cordelia Road is about 12,000 vehicles per day.

Cordelia Road is an east-west, two-lane arterial extending from an industrial area west of Lopes Road to Suisun City in the east. The roadway connects the Cordelia neighborhood with I-680 (via Lopes Road and Central Way) and I-80 (via Pitman Road). The posted speed limit in the project study area is 35 miles per hour. The ADT in the vicinity of Lopes Road is about 8,700 vehicles per day.

Interstate 80 (I-80) is an east-west, 12-lane freeway extending from San Francisco to the California-Nevada state line via Vallejo, Fairfield, and Sacramento. The facility connects the project site to the San Francisco Bay Area, to the center of Fairfield and to the Sacramento metropolitan area. Connections to the project site are made through interchanges at Green Valley Road and Suisun Valley Road-Pittman Road. I-80 is multiplexed with State Route 12 near the project site.

Interstate 680 (I-680) is a north-south, four-lane freeway extending from Fairfield to San Jose via Benicia, Walnut Creek and Fremont. The facility connects the project site to the outer East San Francisco Bay region with further connections to Silicon Valley. Connections to the project site are made through interchanges at Cordelia Road and Suisun Valley Road-Pittman Road via I-80.

State Route 12 (SR 12) is an east-west, four-lane expressway extending from Sebastopol to San Andreas via Santa Rosa, Napa, Fairfield and Lodi. The facility connects the project site to Sonoma, Napa and San Joaquin Counties. SR 12 is multiplexed with I-80 near the project site.

I-80/I-680/SR 12 interchange project

The proposed I-80/I-680/SR 12 interchange project would substantially alter the travel patterns in the study area. The interchange project is comprised of seven construction packages; Package 1 (improvements at the I-80/Green Valley Road/SR 12 interchange complex) was opened to traffic in 2017. To understand which packages would likely be constructed by Year 2035, transportation improvement funding data was reviewed from the Solano Transportation Authority's Comprehensive Transportation

Plan (the County of Solano's financially constrained transportation plan) and the Plan Bay Area regional transportation funding list (the Metropolitan Transportation Commission's Bay Area-wide financially constrained transportation plan). After reviewing these key regional funding documents it was determined that it would be reasonable to assume that Packages 1-5 of the project would be completed by Year 2035. A similar assumption was made for the cumulative analysis for the Jayo residential project, now known as the Harvest and Bloom project. In general, Packages 1-5 of the interchange project include:

- Package 1: I-80/Green Valley Road interchange improvements, ramp braiding between the westbound I-80 on-ramp from Green Valley Road and the westbound I-80 to westbound SR 12 connector (completed in 2017)
- Package 2: Upgraded eastbound SR 12 to eastbound I-80 connector, and construction of new I-680/Red Top Road interchange
- Package: 3 Realigned westbound I-80 to southbound I-680 connector, new westbound I-80 on-ramp at Suisun Valley Road, new westbound I-80 off-ramp at Green Valley Road, and removal of Neitzel Road
- Package 4: Realigned northbound I-680 to eastbound I-80 connector
- Package 5: Reconstruction of I-80/Red Top Road interchange, realignment of Red Top Road to a new SR 12/Red Top Road interchange, and an extension of Business Center Drive west to the new SR 12/Red Top Road interchange

Packages 6 and 7 of the interchange improvement project consist of HOV direct connectors between I-80 and I-680 (Package 6) and construction of connectors from northbound I-680 to westbound I-80 and from eastbound I-80 to southbound I-680. These packages serve traffic bypassing the study intersections, and therefore the effects of not incorporating these later-stage packages into the Year 2035 analysis is expected to be minimal and not change the overall conclusions of the analysis presented below.

Packages 1-4 of the I-80/I-680/SR 12 improvement project includes modifications to study intersection lane configurations at the following intersections[1]:

- Intersection #3: Business Center Drive/Neitzel Road: removal of intersection
- Intersection #4: Green Valley Road/I-80 westbound Ramps
  - Northbound approach: 1 left turn lane, 3 through lanes
  - Southbound approach: 2 through lanes, 1 through-right turn shared lane

[1] As identified in the *Traffic Operations Report for the I-80/I-680/SR 12Interchange Project Report (August 2010).*

  - Westbound approach: 1 left turn lane, 1 left turn-through-right turn shared lane, 1 right turn lane

- Intersection #5: Green Valley Road/I-80 eastbound Ramps
  - Northbound approach: 2 left turn lanes, 3 through lanes
  - Southbound approach: 3 through lanes, 1 right turn lane
  - Eastbound approach: 2 left turn lanes, 1 right turn lane

Public Transit

This section summarizes local and regional public transit connectivity in the study area. Public transit systems that serve the study area and surrounding areas are introduced below**.**

- **Fairfield and Suisun Transit (FAST):** Fairfield and Suisun Transit provides local and regional bus service throughout the City of Fairfield with regional connections to eastern Solano County, Davis, Sacramento, Walnut Creek BART, Pleasant Hill BART and El Cerrito del Norte BART. A total of three FAST routes directly serve the study area.
- **Solano County Transit (SolTrans):** Solano County Transit provides regional bus service between the Cities of Fairfield and Vallejo, with connections to the Vallejo Ferry Terminal. One SolTrans route directly serves the study area.

Public transit services within the project study area and that traverse through study intersections are displayed on **Figure 4.9-2, Existing Public Transit Routes**. The project site is located approximately one mile east of the Cordelia Library transit mini-hub and about 0.30 miles south of a street-side stop at Suisun Valley Road/Kaiser Drive.

Bicycle Facilities

Bikeway planning and design in California typically relies on guidelines and design standards established by California Department of Transportation (Caltrans) in the Highway Design Manual (Chapter 1000: Bikeway Planning and Design). Caltrans provides for four distinct types of bikeway facilities, as described below.

- **Class I Bikeways (Shared-Use Path)** provide a completely separate right-of-way and are designated for the exclusive use of bicycles and pedestrians, with vehicle and pedestrian cross-flow minimized. In general, bike paths serve corridors where on-street facilities are not feasible or where sufficient right-of-way exists to allow them to be constructed.
- **Class II Bikeways (Bicycle Lanes)** are dedicated lanes for bicyclists generally adjacent to the outer vehicle travel lanes. These lanes have special lane markings, pavement legends, and signage. Bicycle lanes are typically five (5) feet wide. Adjacent vehicle parking and vehicle/pedestrian cross-flow are permitted.

- **Class III Bikeways (Bicycle Route)** are designated by signs or pavement markings for shared use with pedestrians or motor vehicles, but have no separated bike right-of-way or lane striping. Bike routes serve either to: a) provide a connection to other bicycle facilities where dedicated facilities are infeasible, or b) designate preferred routes through high-demand corridors.

- **Class IV Bikeways (Cycle Tracks or "Separated" Bikeways)** provide a right-of-way designated exclusively for bicycle travel within a roadway and are protected from other vehicle traffic by physical barriers, including, but not limited to, grade separation, flexible posts, inflexible vertical barriers such as raised curbs, or parked cars.

Existing bicycle facilities in the study area are displayed on **Figure 4.9-3, Existing Bicycle Facilities**. An existing Class I shared-use path, the Fairfield Linear Park Trail, is located approximately 1.2 miles east of the project site. Class II bicycle lanes are provided along Mangels Boulevard from Westamerica Drive to Vintage Valley Drive. The City of Fairfield General Plan Circulation Element notes that Class II bicycle lanes are proposed to be installed along Suisun Valley Road.

Pedestrian Facilities

Pedestrian facilities consist of sidewalks, crosswalks, and pedestrian signals at signalized intersections. The pedestrian environment was evaluated along the connecting roadways that directly serve the project site and adjacent roadways that connect to transit stops and/or nearby destinations in the greater study area.

Pedestrian connectivity in the vicinity of the project site is provided by a network of sidewalks and crosswalks that serve the Business Center Drive, Mangels Boulevard, Westamerica Drive and Suisun Valley Road corridors. Major gaps in the sidewalk network exist along the following corridors:

- Business Center Drive between Westamerica Drive and Suisun Valley Road (both sides of the roadway)

- Business Center Drive between the proposed South (project) Driveway and the Partnership Healthcare project site (both sides of the roadway)

- Westamerica Drive between Mangels Boulevard and Business Center Drive (sidewalk not provided on east side of roadway)

- Suisun Valley Road south of Business Center Drive, including through the I-80/Suisun Valley Road interchange (both sides of the roadway)

In the immediate vicinity of the project, full sets of crosswalks are provided at Westamerica Drive/Mangels Boulevard and Suisun Valley Road/Business Center Drive. Crosswalks are not currently provided at Westamerica Drive/Business Center Drive.

SOURCE: Fehr & Peers, 2019

FIGURE **4.9-2**

Existing Public Transit Routes

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SOURCE: Fehr & Peers, 2019

FIGURE **4.9-3**

Existing Bicycle Facilities

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4.9.2.2 Traffic Operations Analysis

Intersection Operations during typical weekday AM and PM peak hours were evaluated under Existing conditions at the following 16 intersections.

- Mangels Boulevard/Green Valley Road
- Business Center Drive/Green Valley Road
- Business Center Drive/Neitzel Road
- I-80 westbound ramps/Green Valley Road
- I-80 eastbound ramps/ Green Valley Road
- Mangels Boulevard/Westamerica Drive
- Business Center Drive/Center Project Driveway-Westamerica Drive
- Business Center Drive/South Project Driveway-NorthBay Driveway
- Westamerica Drive/ Suisun Valley Road
- Business Center Drive/ Suisun Valley Road
- I-80 westbound ramps-Neitzel Road/Suisun Valley Road
- I-80 eastbound ramps/ Pittman Road
- Central Way/ Pittman Road
- Central Way/ Cordelia Road
- Lopes Road/ Cordelia Road
- Lopes Road/ Bridgeport Avenue

The General Plan LOS standard applies to PM Peak Hour operations only. Therefore, PM peak hour intersection LOS analysis is the basis for the CEQA transportation analysis for the proposed project; the AM peak hour intersection LOS analysis is provided for informational purposes only.

Intersection Operation Analysis Method

The operations of roadway facilities are described with the term "level of service" (LOS). LOS is a qualitative description of traffic flow from a vehicle driver's perspective based on factors such as speed, travel time, delay, and freedom to maneuver. Six levels of service are defined ranging from LOS A (free-

flow conditions) to LOS F (over capacity conditions). LOS E corresponds to operations "at capacity." When volumes exceed capacity, stop-and-go conditions result and operations are designated LOS F.

The City of Fairfield General Plan and the City's Guidelines for Transportation Impact Reports note the following PM Peak Hour LOS standards for intersections in the City of Fairfield:

- Arterial streets – LOS D standard
- Collector streets – LOS C standard
- Local streets – LOS B standard
- Highest functional classification at an intersection controls the classification of the intersection (e.g., at the intersection of an arterial and a collector, the intersection would be classified as arterial)

Signalized Intersections

The method described in Chapter 18 of the Transportation Research Board's 2010 Highway Capacity Manual (2010 HCM) was used to conduct the level of service calculations for the signalized study intersections. This method is used to estimate the control delay experienced by motorists at an intersection. Control delay includes the initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. The average control delay for signalized intersections was calculated using the Synchro 9 traffic analysis software and correlated to a LOS designation as shown in **Table 4.9-1**, **Signalized Intersection Level of Service Definitions**.

Table 4.9-1
Signalized Intersection Level of Service Definitions

LOS	Description	Average Control Delay Per Vehicle (Seconds)
A	Very low delay. At signalized intersections, most vehicles do not stop.	≤ 10
B	Generally good progression of vehicles. Slight delays.	> 10 – 20
C	Fair progression. At signalized intersections, increased number of stopped vehicles.	> 20 – 35
D	Noticeable congestion. At signalized intersections, large portion of vehicles stopped.	> 35 – 55
E	Poor progression. High delays and frequent cycle failure.	> 55 – 80
F	Oversaturation. Forced flow. Extensive queuing.	> 80

Source: Highway Capacity Manual, Transportation Research Board, 2010

The proposed project would have significant impacts to signalized intersection operations if:

- For intersections operating acceptably prior to the implementation of the project: the project would create a significant impact if it would cause the intersection to degrade below its PM Peak Hour LOS standard:
  - Arterial streets – LOS D standard
  - Collector streets – LOS C standard
  - Local streets – LOS B standard
  - Highest functional classification at an intersection controls the classification of the intersection (e.g., at the intersection of an arterial and a collector, the intersection would be classified as arterial)
- For intersections operating unacceptably prior to the implementation of the project: the project would create a significant impact if it would result in an increase of greater than 5.0 seconds in the average delay at the intersection (critical movements for arterial intersections)

Unsignalized Intersections

The method described in Chapter 19 of the 2010 HCM was used to conduct the level of service calculations for the side-street stop-controlled intersections. The method described in Chapter 20 of the 2010 HCM was used to conduct the level of service calculations for the all-way stop-controlled intersections. The average control delay for unsignalized intersections was also calculated using the Synchro 9 traffic analysis software. For side-street stop-controlled intersections, the worst movement (for multi-lane approaches) or worst approach (for single-lane approaches) delay was used to determine the LOS for the intersection, using the LOS designations shown in **Table 4.9-2, Unsignalized Intersection Level of Service Definitions**. For all-way stop-controlled intersections, the whole-intersection average delay was used to determine the LOS for the intersection.

Table 4.9-2
Unsignalized Intersection Level of Service Definitions

LOS	Description	Average Control Delay Per Vehicle (Seconds)
A	No delay for stop-controlled approaches.	≤ 10
B	Operations with minor delay.	> 10 – 15
C	Operations with moderate delays.	> 15 – 25
D	Operations with some delays.	> 25 – 35
E	Operations with high delays, and long queues.	> 35 – 50
F	Operation with extreme congestion, with very high delays and long queues unacceptable to most drivers.	> 50

Source: Highway Capacity Manual, Transportation Research Board, 2000, 2010, 6th Edition.

Non-standard Unsignalized Intersections

The intersection of Lopes Road/Cordelia Road is a three-way stop-controlled intersection, which is a special case of a side-street stop-controlled intersection. The methods provided in Chapter 19 and Chapter 20 of the 2010 HCM are not applicable to this type of intersection control. Therefore, an approximation method was developed to estimate delay at this intersection. This approximation method uses the available 2010 HCM calculation methodologies and is based on existing volume patterns, existing congestion patterns, projected future volumes patterns, and the estimated number and pattern of project trips at the intersection trips. [2]

Existing Intersection Volumes and Lane Configurations

The operations of the study intersections are evaluated for the highest one-hour volume during the weekday morning (7:00 AM to 9:00 AM) and weekday afternoon (4:00 PM to 6:00 PM) periods. Existing peak hour intersection counts were conducted at the study intersections in late October 2017 and February 2018 on clear days with area schools in-session. These counts formed the basis of the Existing Conditions intersection operations analysis.

Existing lane configurations and types of intersection control devices were confirmed through field observations. **Figure 4.9-4** presents the existing weekday AM and PM peak hour turning movement volumes, lane configurations, and traffic control devices used in the Existing Conditions analysis. **Figures 4.9-5a and 4.9-5b** presents existing weekday AM and PM peak hour bicycle and pedestrian volumes at the study intersections.

Freeway Operations Analysis Method

The service level for a freeway section is based on vehicle density expressed as passenger cars per mile per lane (pcpmpl). **Table 4.9-3** presents a summary of the relationship between density and level of service for freeway sections and ramp junctions.

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[2] Refer to Appendix 4.9 for a complete description of the approximation method used for analysis of Lopes/Cordelia Road. It should be noted that the determination of CEQA intersection operations impacts at side-street stop-controlled intersections is based on three criteria involving intersection delay and intersection volumes. The approximation approach described above is related to only one criterion, and all three criteria must be met for a project's impact to be deemed significant. Since the eastbound approach volumes are shifted to the westbound approach, the net effect of this approximation approach is that the analysis would be conservative – it would overestimate the potential project impact at the intersection by concentrating the eastbound approach volume and westbound approach volume onto a single-lane, stop-controlled approach.

Table 4.9-3
Freeway Segment Level of Service Definitions

LOS	Description	Basic Mainline Segment Density Criteria[1]	
A	Free-flow speeds prevail. Vehicles are almost completely unimpeded in their ability to maneuver within the traffic stream.	< 11.0	≤ 10.0
B	Free-flow speeds are maintained. The ability to maneuver with the traffic stream is only slightly restricted.	> 11.0 to 18.0	> 10.0 to 20.0
C	Flow with speeds at or near free-flow speeds. Freedom to maneuver within the traffic stream is noticeably restricted, and lane changes require more care and vigilance on the part of the driver.	> 18.0 to 26.0	> 20.0 to 28.0
D	Speeds decline slightly with increasing flows. Freedom to maneuver with the traffic stream is more noticeably limited, and the driver experiences reduced physical and psychological comfort.	> 26.0 to 35.0	> 28.0 to 35.0
E	Operation at capacity. There are virtually no usable gaps within the traffic stream, leaving little room to maneuver. Any disruption can be expected to produce a breakdown with queuing.	> 35.0 to 45.0	> 35.0
F	Represents a breakdown in flow.	> 45.0	v/c > 1.0

Source: Highway Capacity Manual, Transportation Research Board, 2000, 2010, 6th Edition.
[1] Density in passenger cars per mile per lane (pcpmpl)

The Solano Transportation Authority (STA) is the Congestion Management Agency (CMA) for Solano County. The I-80 and I-680 freeways are defined as roadways to be monitored as part of the Congestion Management Program (CMP). The STA CMP notes the LOS benchmark for the CMP roadway system is LOS E (i.e. a density below 45 pcpmpl for basic type segments or a volume-to-capacity ratio of 1.0 or less for all other segment types). Based on the CMP definitions of acceptable LOS, and CEQA freeway impact significance thresholds used for other projects in Solano County, the project would create a significant impact related to public transit service if either of the following criteria are met:

- For segments operating acceptably (LOS E or better) prior to the implementation of the project: the project would create a significant impact if it would cause the freeway segment to degrade to LOS F.
- For segments operating unacceptably (LOS F) prior to the implementation of the project: the project would create a significant impact if the project would add peak hour trips in excess of 1.0 percent of the general purpose lane capacity (about 2,000 vehicles per hour per lane per the 2010 HCM and Caltrans District 4 traffic operations analysis policy) on the segment.

4.9.2.3 Existing Intersection Operations

Existing intersection lane configurations and peak hour turning movement volumes were used to calculate the levels of service for the study intersections during the weekday AM and weekday PM peak hours for Existing Conditions. The results of the LOS analysis using the Synchro software program for signalized study intersections under Existing Conditions are presented in **Table 4.9-4**.

Table 4.9-4
Existing Conditions – Study Intersection LOS Summary

Intersection	Intersection Control[1]	Peak Hour[2]	Avg Delay[3]	LOS[4]
1. Mangels Boulevard/ Green Valley Road	Signal	AM PM	21.5 21.2	C C
2. Business Center Drive/ Green Valley Road	Signal	AM PM	34.4 48.0	C C
3. Business Center Drive/ Neitzel Road	AWSC	AM PM	15.6 14.1	C B
4. I-80 westbound ramps/ Green Valley Road	Signal	AM PM	5.1 4.6	A A
5. I-80 eastbound ramps/ Green Valley Road	Signal	AM PM	13.8 15.8	B B
6. Mangels Boulevard/ Westamerica Drive	Signal	AM PM	13.8 13.9	B B
7. Business Center Drive/Center Project Driveway-Westamerica Drive	Signal	AM PM	10.2 7.9	B A
8. Business Center Drive/South Project Driveway-NorthBay Driveway	SSSC	AM PM	0.2 (15.7) 0.6 (13.6)	A (C) A (B)
9. Westamerica Drive/ Suisun Valley Road	Signal	AM PM	14.0 10.9	B B
10. Business Center Drive/ Suisun Valley Road	Signal	AM PM	22.3 20.7	C C
11. I-80 westbound ramps-Neitzel Road/Suisun Valley Road	Signal	AM PM	90.7 21.1	F C
12. I-80 eastbound ramps/ Pittman Road	Signal	AM PM	16.8 12.9	B B
13. Central Way/ Pittman Road	Signal	AM PM	14.2 16.7	B B
14. Central Way/ Cordelia Road	SSSC	AM PM	5.9 (12.1) 6.4 (17.7)	A (B) A (C)
15. Lopes Road/ Cordelia Road	SSSC[5]	AM PM	>120 (>120) **>120 (>120)**	F (F) **F (F)**

Intersection	Intersection Control[1]	Peak Hour[2]	Avg Delay[3]	LOS[4]
16. Lopes Road/ Bridgeport Avenue	SSSC	AM PM	>120 (>120) **111.7 (>120)**	F (F) **F (F)**

Source: Fehr & Peers, January 2019.
Notes:
1. AWSC = All-Way Stop-Controlled, SSSC = Side-Street Stop-Controlled
2. AM = Weekday morning peak hour, PM = Weekday evening peak hour
3. Whole intersection average delay reported for signalized intersections and all-way stop-controlled intersections. Side-street stop-controlled delay presented as Whole Intersection Average Delay (Worst Movement Delay). Delay calculated per HCM 2010 methodologies.
4. LOS designation per HCM 2010.
5. Analyzed as side-street stop-controlled after applying approximation process described in Section 2.5.3.
*** General Plan LOS standard applies to PM Peak Hour operations only.*
***Bold** indicates unacceptable operations.*

4.9.2.4 Existing Freeway Operations

Existing freeway operations were analyzed for the AM and PM peak hours. The Existing Conditions operations analysis is summarized below in **Table 4.9-5.** All study freeway segments operate at LOS E or better (the standard for peak hour freeway operations in the study area) under Existing Conditions.

Table 4.9-5
Existing Freeway Segment Peak Hour Levels of Service

	Segment	Peak Hour	Density	LOS[2]
Westbound I-80				
1	Truck Scales on-ramp to Suisun Valley Road off-ramp	AM PM	21.5 16.7	C B
2	Suisun Valley Road off-ramp	AM PM	28.5 24.5	D C
3	Suisun Valley Road off-ramp to Southbound I-680 connector off-ramp	AM PM	19.6 14.8	C B
4	Southbound I-680 connector off-ramp	AM PM	22.3 16.9	C B
5	Southbound I-680 connector off-ramp to Northbound I-680 connector on-ramp	AM PM	14.9 10.8	B A
Eastbound I-80				
6	Green Valley Road/Southbound I-680 connector off-ramp to Northbound I-680 connector/Green Valley Road on-ramp	AM PM	14.7 17.7	B B
7	Northbound I-680 connector/Green Valley on-ramp	AM PM	21.9 29.5	C D
8	Suisun Valley Road off-ramp	AM PM	29.3 32.4	D D
9	Suisun Valley Road off-ramp to Suisun Valley Road on-ramp	AM PM	19.3 25.6	C C
10	Suisun Valley Road on-ramp	AM PM	24.0 29.5	C D
11	Suisun Valley Road on-ramp to Truck Scales off-ramp	AM PM	21.0 28.6	C D

Segment		Peak Hour	Density	LOS[2]
Southbound I-680				
12	South of I-80	AM	29.6	D
		PM	24.9	C
13	South of Gold Hill Road	AM	25.5	C
		PM	21.4	C
Northbound I-680				
14	South of Gold Hill Road	AM	17.7	B
		PM	28.6	D
15	South of I-80	AM	23.5	C
		PM	34.4	D

Source: Fehr & Peers, January 2019.
Notes:
[1] GP = General Purpose Lane, HOV = High-Occupancy Vehicle Lane
[2] LOS based on 2010 HCM
***Bold** indicates unacceptable operations.*

4.9.3 REGULATORY FRAMEWORK

Existing transportation policies, laws, and regulations that would 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 requirements.

4.9.3.1 State Laws and Regulations

Senate Bill 743

Senate Bill 743, passed in 2013, (Steinberg, 2013), required the Office of Planning and Research (OPR) to update *CEQA Guidelines* to include new transportation impact-related evaluation metrics that are in line with the state's goal of reducing greenhouse gas emissions by developing sustainable communities that are based on denser infill development, reduced reliance on individual vehicles, and improved mass transit. OPR undertook a 5-year long process of revising the *CEQA Guidelines* and regulatory changes to the *CEQA Guidelines* that implement SB 743 were approved on December 28, 2018. These changes to the guidelines identify vehicle miles traveled (VMT) as the most appropriate metric to evaluate a project's transportation impacts. With the California Natural Resources Agency's certification and adoption of the changes to the *CEQA Guidelines*, automobile delay, as measured by "level of service" and other similar metrics, generally no longer constitutes a significant environmental effect under CEQA. (Pub. Resources Code, § 21099, subd. (b)(3).) Although agencies may begin the use of new metrics whenever they so choose, July 1, 2020 is the statewide implementation date. As the revised guidelines were certified very recently, as of the preparation of this Draft EIR, neither the STA nor the City of Fairfield have developed standards or adopted thresholds to use to evaluate traffic impacts based on new metrics. However, OPR has published a technical advisory that includes suggested thresholds that a lead agency may use to

evaluate a project's traffic impact based on VMT (OPR 2018) which County and City officials are reviewing.

California Department of Transportation

The California Department of Transportation (Caltrans) is responsible for operating and maintaining the State highway system. According to the *Guide for the Preparation of Traffic Impact Studies* (Caltrans 2002), the existing LOS should be maintained if a freeway facility is currently operating at an unacceptable LOS (e.g., LOS F). A project impact is said to occur if the project degrades LOS from an acceptable to unacceptable level. A project impact may also occur when the addition of project trips exacerbates existing LOS F conditions and leads to a perceptible increase in density on freeway mainline segments or ramp junctions, or a perceptible increase in service volumes in a weaving area. In addition, a project impact is said to occur when the addition of project trips causes a queue on the off-ramp approach to a ramp terminal intersection to extend beyond its storage area and onto the freeway mainline.

Caltrans prepares a TCR, which is a long-range (20-year) planning document, for each state highway. The purpose of each TCR is to identify existing route conditions and future needs and includes a concept LOS standard.

4.9.3.2 Local Plans and Policies

City of Fairfield General Plan

The Circulation Element is a required element of local general plans and is closely linked to all other general plan elements. The goal of the Circulation Element is to "create and maintain an efficient, safe, and coordinated multi-modal circulation system that reduces environmental and social impacts of transportation systems, serves the needs of a variety of users and meets the social, economic development, and urban design needs of the community."

Transportation related objectives from the Circulation Element are listed below.

- **Objective CI 1:** Establish a circulation system that is consistent with the land use patterns of the City.
- **Objective CI 2:** Achieve a coordinated regional and local transportation system that minimizes traffic congestion and efficiently serves users.
- **Objective CI 3:** Street and highway improvements shall provide adequate and appropriate levels of service for all streets in Fairfield.
- **Objective CI 4:** Adequately finance street and highway improvements.

- **Objective CI 5:** Provide adequate parking and loading facilities while encouraging alternative means of transportation.
- **Objective CI 6:** Develop Transportation Systems Management (TSM) programs for the Fairfield area in order to reduce the amount of peak hour congestion on City streets.
- **Objective CI 7:** Develop a transit network capable of satisfying both local and regional travel demand.
- **Objective CI 8:** Preserve the future availability of the Travis Air Force Base facility.
- **Objective CI 9:** Support bicycling as a safe method of everyday transportation for all people in Fairfield. Bicycle facilities should link residences, major activity centers, employment, public services, recreational facilities, and regional bicycle routes.
- **Objective CI 10:** Provide pedestrian facilities throughout the City to encourage walking as an alternative to short distance vehicle travel.
- **Objective CI 11:** Develop a vehicular circulation system that is safe and sensitive to adjoining land uses
- **Objective CI 12:** Contribute towards improving the air quality of the region through more efficient use of private vehicles and increased use of alternative transportation modes.
- **Objective CI 13:** Continuously evaluate the City's transportation system for implementation of General Plan objectives, policies, and goals, including "complete streets" concepts.

4.9.4 IMPACTS AND MITIGATION MEASURES

4.9.4.1 Significance Criteria

In accordance with Appendix G of the *California Environmental Quality Act (CEQA) Guidelines*, the impact of the proposed project related to transportation would be considered significant if it would:

- Conflict with program, plan, ordinance or policy addressing the circulation system, including transit roadway, bicycle, and pedestrian facilities
- Conflict with or be inconsistent with *CEQA Guidelines* section 15064.3 subdivision (b (effective July 1, 2020);
- Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment); or
- Result in inadequate emergency access.

4.9.4.2 Methodology

The impacts of the proposed project to the surrounding transportation system were based on applicable guidelines defined by the City of Fairfield, using the City's Guidelines for Transportation Impact Reports. The operation of 16 study intersections were evaluated with LOS calculations for the weekday morning (AM) and evening peak periods for the following scenarios.

Scenario 1: Existing Conditions

Scenario 2: Existing Plus Project

Scenario 3: Existing plus Approved Projects (EPAP) without Project

A description of the methods used to estimate the amount of traffic generated by the proposed project is provided below. Project-specific impacts are described under **Section 4.9.4.3, Project Impacts and Mitigation Measures**.

Scenario 1: Existing Conditions

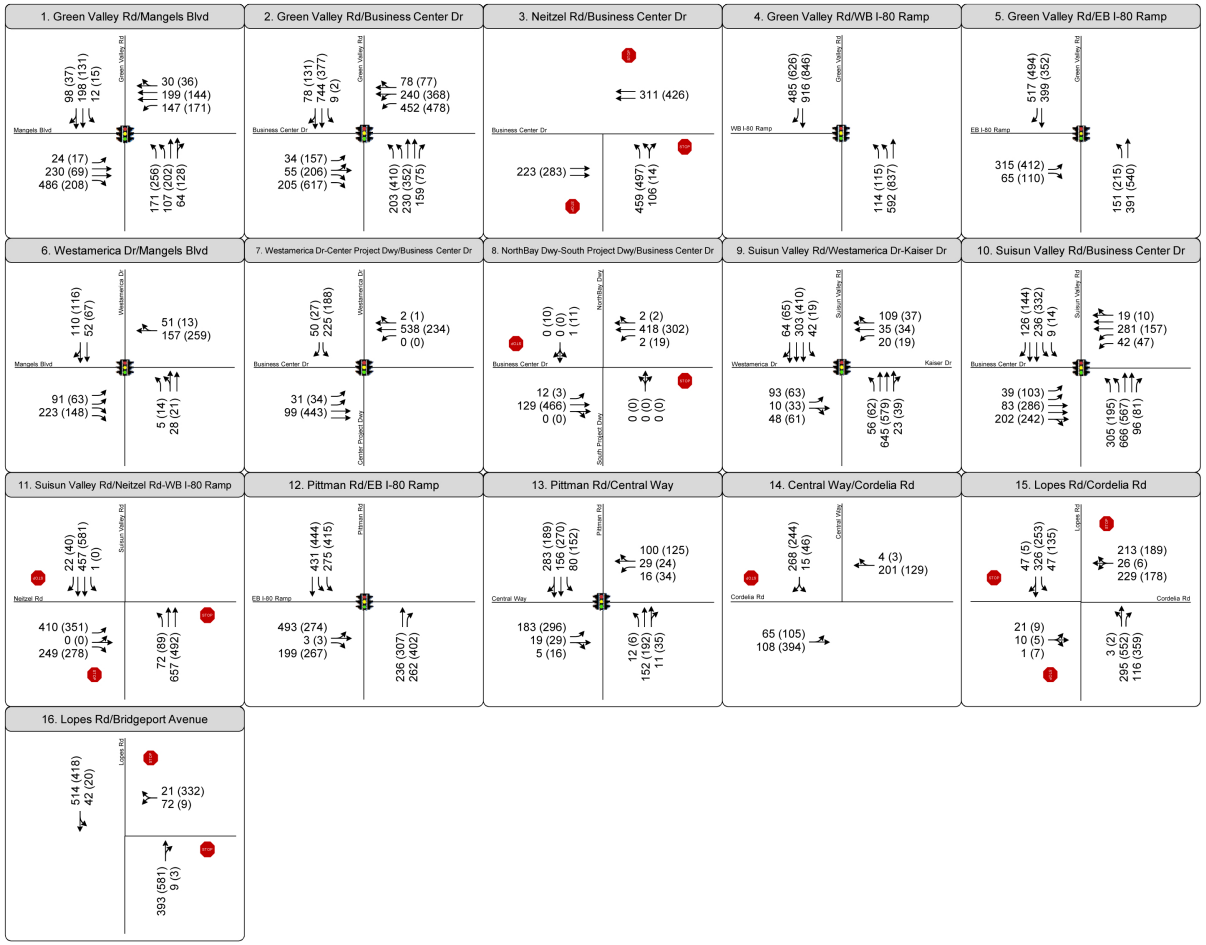
The analysis of existing conditions was based on traffic counts provided by the City of Fairfield reflecting data collected in Fall of 2017, supplemented by counts conducted in February 2018 for intersections where other data was not available. The existing conditions assessment also includes a description of key area roadways and an assessment of bicycle, pedestrian, public transit facilities and services near the site.

Scenario 2: Existing Plus Project

This traffic scenario provides an assessment of operating conditions under existing conditions with the addition of project-generated traffic and transportation network infrastructure proposed by the project, which includes roadway connections to the site from Business Center Drive, and signal modifications at the Business Center Drive/Westamerica Drive/Project Driveway intersection to accommodate the addition of a fourth leg. The impacts of the proposed project on existing baseline traffic operating conditions were identified.

Scenario 3: Existing plus Approved Projects (EPAP) without Project

Existing volumes and transportation system plus traffic generated by approved, proposed, and built but not yet occupied projects. Trip generation, distribution and assignment for these projects based on previously completed studies or manually completed based on data from the ITE *Trip Generation Manual, 10th Edition* and locations of complementary land uses.



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# Study Intersection	AM (PM) Peak Hour Traffic Volume
	Lane Configuration
	Stop Sign
	Signalized

SOURCE: Fehr & Peers, 2019

FIGURE **4.9-4**

Existing Conditions Peak Hour Intersection Traffic Volumes, Lane Configurations and Traffic Controls

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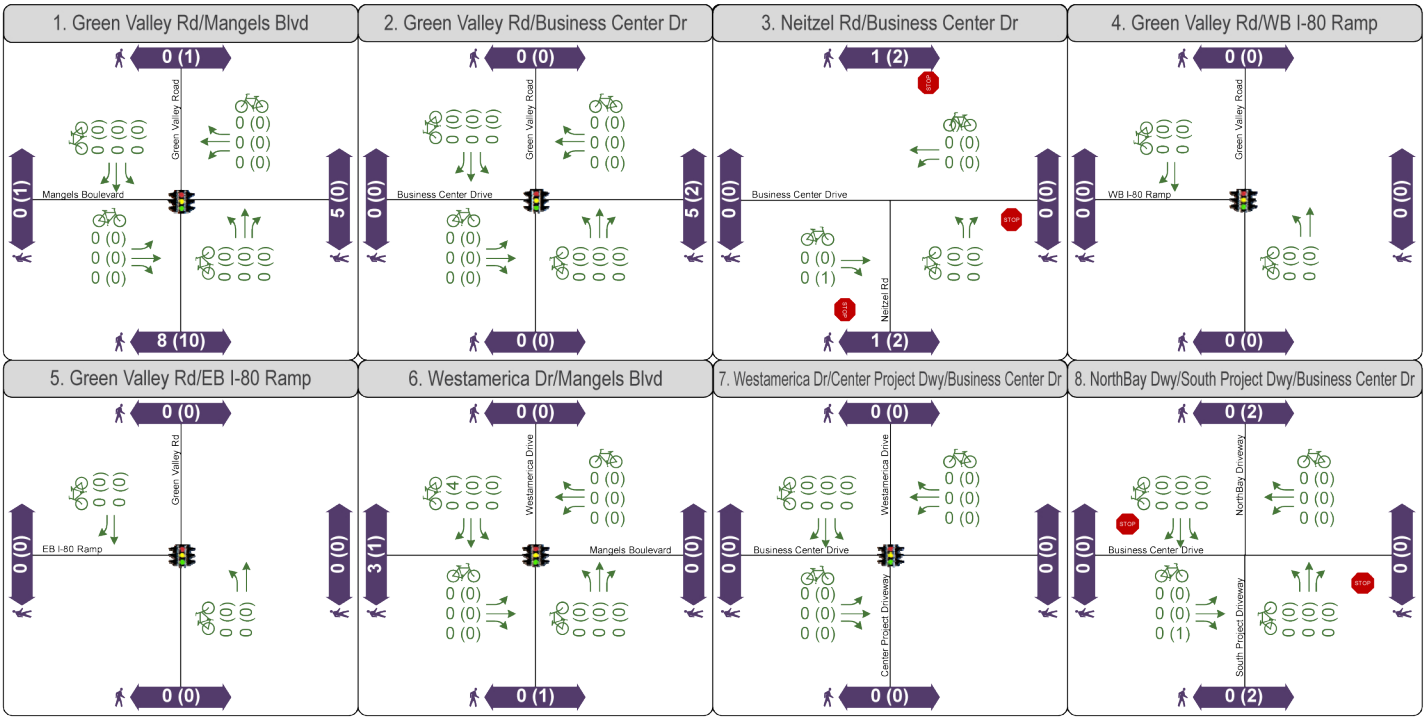

SOURCE: Fehr & Peers, 2019

FIGURE **4.9-5a**

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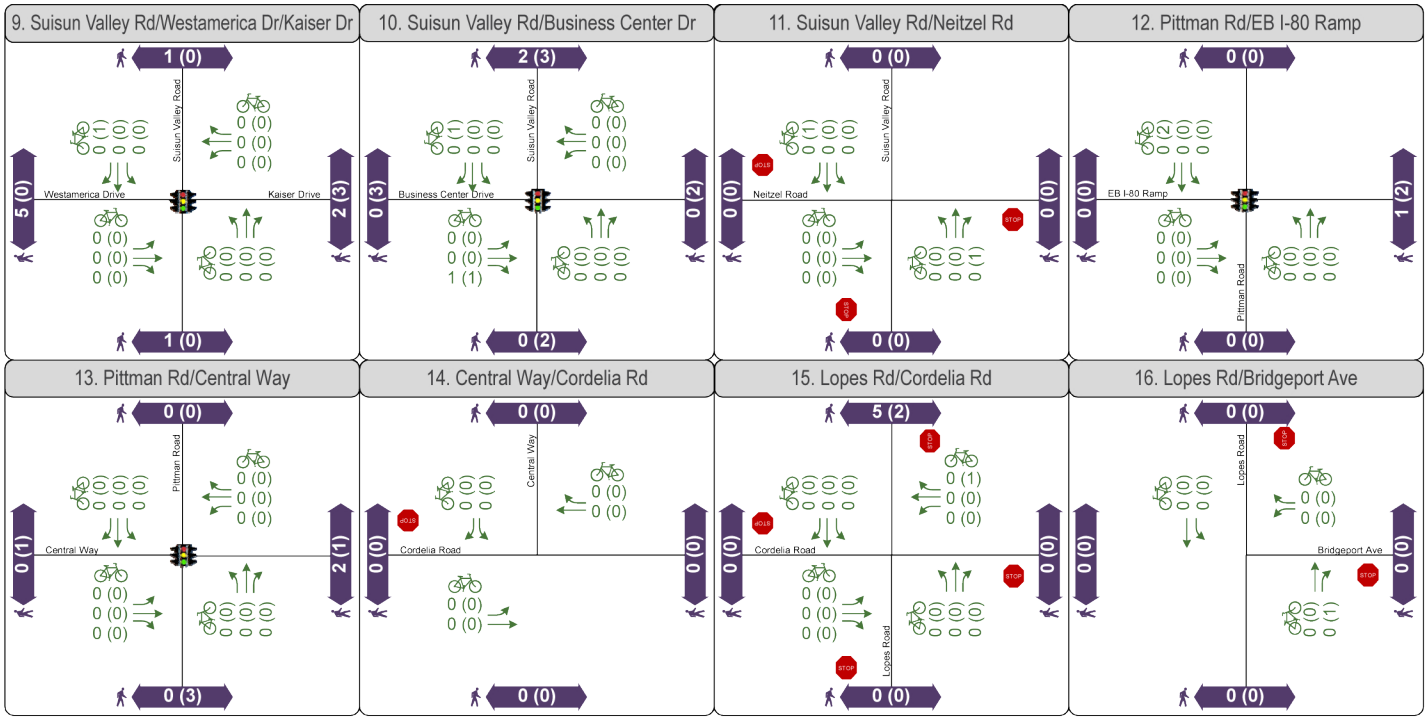
Existing Conditions Peak Hour Bicycle and Pedestrian Volumes (AM)



SOURCE: Fehr & Peers, 2019

FIGURE **4.9-5b**

Existing Conditions Peak Hour Bicycle and Pedestrian Volumes (PM)

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City of Fairfield staff confirmed that the proposed Mangels Boulevard/Business Center Drive connection (currently under construction as of January 2019) would be open to traffic later in winter 2019. Therefore, the effects of this extension (volume shifts along the Mangels Boulevard, Green Valley Road and Business Center Drive corridors) have been considered in the analysis. The Jayo Residential Project TIA (Fehr & Peers, January 2016) – now a part of the Harvest and Bloom Development – included the effects of the traffic volume shifts, and these volume shifts were applied in the EPAP Conditions analysis scenario.

City staff have also noted that the installation of a signal at the intersection of Business Center Drive/ Neitzel Road (Intersection 3) was completed in May 2019. Therefore, the EPAP Conditions analysis assumes that the intersection has been converted from all-way stop-controlled operations to signalized operations.

Project Traffic Estimates

The amount of traffic expected to be generated on the study roadway system by the proposed project is estimated using a three-step process: (1) project trip generation, (2) trip distribution, and (3) trip assignment. The first step estimates the amount of project-generated traffic that would be added to the roadway network. The second step estimates the direction of travel to and from the project site. During the third step, the new trips are assigned to specific street segments and intersection turning movements.

Project Trip Generation

The typical starting point in the trip generation calculation process relies on data from the ITE *Trip Generation Manual, 10th Edition*. The *Trip Generation Manual* includes trip generation data for a variety of land use types. In estimating the trips generated, the apartment portion of the project was analyzed using Land Use Code 220 (Low-Rise Apartments[3]) and the retail portion of the site was analyzed using Land Use Code 820 (Shopping Center).

The *Trip Generation Manual* notes that the data included in the *Manual* reflect freestanding sites where nearly all trips generated by the site are automobile trips. As the proposed project is a mixed-use site, solely relying on the estimates from data in the *Trip Generation Manual* could overestimate the number of trips generated by the project.

3 Low-rise building are generally defined as having a maximum of 4-stories, and up to of 115 feet in height.

Trip Distribution Assumptions and Background

The geographic distribution of vehicle trips generated by the project is based on the locations of complementary land uses, the street system serving the project, and existing travel patterns in the area. Two mobile device data sources, also known as "Big Data," were consulted to refine the trip distribution for residential trips using I-80, I-680, Lopes Road, and other key study area roadways. The first data source reflects the movements of GPS-equipped vehicles. The second data source reflects the movements of smartphones and other internet-enabled devices that run applications that include location-based services (LBS). The GPS data is indicative of vehicle trips, and the LBS data is indicative of person trips; the LBS data must be factored to convert person trips to vehicle trips. Data from both sources are anonymized and aggregated per federal law. The locational accuracy of the underlying data is typically within the standard GPS positional accuracy of about 15 feet.

GPS and LBS data was sourced for trips with an origin or destination in the residential community surrounding the project site on the north side of I-80, whose primary freeway access point is the I-80/Suisun Valley Road-Pittman Road interchange. This includes trips with an origin or destination from the single family residences along Bridle Ridge Drive, single family residences along Oakwood Drive, and the various multifamily/apartment residential units along Business Center Drive, Westamerica Drive, and Kaiser Drive. The data collection process specifically excluded non-residential uses in this area, including Solano Community College. The GPS and LBS data was obtained for Tuesdays, Wednesdays and Thursdays in months with school in session for the November 2017 through October 2018 time period.

The LBS data included observations of nearly 7,000 person trips with an origin or destination in the residential area surrounding the project site. The LBS data revealed that most trips us the I-80 and I-680 freeways and that about five percent of trips use Lopes Road towards Rodriguez High School. The GPS data included observations of about 1,000 vehicle trips. While this is not as a robust sample size as the LBS data, the GPS data confirmed that most trips use the I-80 and I-680 freeways, and that about three percent of trips use Lopes Road towards Rodriguez High School.

The LBS and GPS data are samples of mobile devices in the study area, and are not to be used verbatim in the setting of trip distribution patterns. As noted previously, other sources of trip distribution data were considered, including the City's travel demand model, the street system serving the project, locations of complementary land uses, and existing travel patterns.

Based on the data sources and community feedback, the final trip distribution assumptions for residential trips include seven percent of trips using the Lopes Road corridor, thus providing a conservative

assumption for the number of potential project trips traveling through the most congested intersections along the Green Valley Road/Lopes Road corridor.

Trip Generation Estimates

Following the methods and assumptions described above, an estimate of the number of trips generated under the proposed project was prepared, as presented in **Table 4.9-6**. Based on the trip generation estimates, the proposed project will generate 209 trips during the AM peak hour (56 inbound/153 outbound) and a total of 290 trips during the PM peak hour (159 inbound/131 outbound).

Table 4.9-6
Project Trip Generation

			AM Peak Hour			PM Peak Hour		
Land Use	**Quantity[1]**	**Daily**	**In**	**Out**	**Total**	**In**	**Out**	**Total**
Apartment[2]	270 du	2,000	45	149	194	90	53	143
Retail[3]	22.6 ksf	2,190	13	8	21	87	94	181
Subtotal before Reductions		4,190	58	157	215	177	147	324
Internal Capture Reduction		-70	-2	-4	-6	-18	-16	-34
Net New Project Trips		4,120	56	153	209	159	131	290
Net New Apartment Trips		1,965	44	147	191	81	44	126
Net New Retail Trips		2,155	12	6	18	78	86	164

Source: Fehr & Peers, 2019
Notes:
1. 1 du = 1 dwelling unit; 1 ksf = 1,000 square feet gross leasable area
2. Apartment trip generation based on ITE Trip Generation Manual, 10th Edition Land Use Code 220 (Low-Rise Apartments)
3. Retail trip generation based on ITE Trip Generation Manual, 10th Edition Land Use Code 820 (Shopping Center)

These trips will be assigned to the roadway network and summed with background traffic volumes to determine the potential impacts of the proposed project.

MXD+ Trip Generation Methodology

The MXD+ trip generation methodology, developed in a cooperative effort between the US Environmental Protection Agency (EPA) and Fehr & Peers, was used to estimate the number of internalized project trips. The MXD+ methodology is based on travel survey data gathered from 239

mixed-use developments (MXDs) in six major metropolitan regions, and correlated with the characteristics of the sites and their surroundings. The peak hour trip internalization reduction estimated from the MXD+ methodology was about three percent for the AM peak hour and 10 percent for the PM peak hour. This difference in reduction percentages between the AM and PM peak hours is reasonable because retail uses generally have a larger potential for trip generation in the PM peak hour than in the AM peak hour.

The MXD+ methodology also calculates an estimate of the reduction for trips made by walking, bicycling or transit. While some project trips are expected to be made by walking, bicycling or transit, reductions for these modes were not included in the trip generation calculation to reflect the project's suburban location and the lack of high-frequency transit service. Ultimately, not including a reduction for trips made by walking, bicycling and transit results in a more conservative trip generation calculation.

The retail portion of the site is expected be occupied by uses that serve the area surrounding the project site in lieu of uses that draw trips regionally. Locally-serving retail may serve trips that are already passing by the site (pass-by trips) or divert retail trips that are already occurring (diverted trips). These pass-by and diverted trips are not new trips as they are already occurring, and typically the number of retail trips generated by a project are reduced by a pass-by and diverted trip percentage to account for pass-by and diversion effects. Data from the ITE *Trip Generation Manual* suggests that retail projects of similar size may have pass-by and diverted trip percentages exceeding 40 percent. Given the uncertainty of the tenants of for the retail space at this time, and the large amount of expected growth in the study area over time, a pass-by and diverted trip percentage has not been applied to the trip generation calculation. This assumption is conservative as it assumes that all retail trips are new trips.

Transportation Demand Management

Transportation Demand Management (TDM) strategies are designed to reduce vehicle travel demand, with an emphasis on reducing demand during the peak periods of travel. At a project level, TDM strategies have historically been used to reduce employee commute trips associated with non-residential uses. The number of feasible TDM strategies for residential projects is substantially less than those for employment uses. Typical residential project TDM strategies include providing secure bicycle parking on-site, enhancing nearby transit stops, improving bicycle and pedestrian connections, and modifying parking pricing strategies.

Research regarding the effectiveness of TDM strategies for residential projects is limited, and the effectiveness of strategies are heavily dependent on the location of the project, the provision of connecting bicycle, pedestrian and transit facilities, and the land use mix of the area surrounding the project. Because

of the uncertainty of the feasibility of TDM strategies for the site, and the uncertainty of the effectiveness of TDM strategies, if implemented, no trip generation reductions have been taken for the implementation of TDM strategies.

Project Trip Distribution and Assignment

The geographical distribution of trips generated by the project is based on the locations of complementary land uses, the street system serving the project, and existing travel patterns in the area. The general directions of approach and departure assumed for the project trips are illustrated on **Figure 4.9-6** (for residential trips) and **Figure 4.9-7** (for retail trips). Using this trip distribution pattern, the traffic generated by the project was assigned to the street network.

To reflect transportation patterns associated with the I-80/I-680/SR 12 interchange improvement project, a trip assignment pattern was developed. **Figures 4.9-8a** and **4.9-8b** present the project-generated peak hour traffic volumes at the study intersections during the weekday AM and PM peak hours in the near term and the far term, respectively.

Scenario 4: Existing plus Approved Projects (EPAP) with Project

This traffic scenario provides an assessment of operating conditions under EPAP with the addition of project-generated traffic and transportation network infrastructure proposed by the project. The impacts of the proposed project on EPAP baseline operating conditions were identified.

Vehicle Miles Traveled (VMT)

Senate Bill 743 (SB 743), signed by Governor Brown in 2013, directed Office of Planning and Research (OPR) to develop revisions to the *CEQA Guidelines*:

> "establishing criteria for determining the significance of transportation impacts of projects within transit priority areas . . . that promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses" and to "recommend potential metrics to measure transportation impacts that may include, but are not limited to, *vehicle miles traveled*, vehicle miles traveled per capita, automobile trip generation rates, or automobile trips generated."
>
> (Pub. Res. Code, § 21099(b)(1), emphasis added.)

On January 3, 2019, the comprehensive amendments to the *CEQA Guidelines* went into effect. The amended Guidelines include a new section 15064.3 to implement SB 743, which establishes vehicle miles

of travel (VMT) thresholds as the most appropriate measure of transportation impacts under CEQA; and shifting away from the level of service (LOS) analysis. In December 2018, OPR also issued a Technical Advisory on Evaluating Transportation Impacts in CEQA, containing technical recommendations regarding assessment of VMT, thresholds of significance, and mitigation measures for implementation of section 15064.3. The technical advisory suggests a significance threshold for VMT that is based on state mandated greenhouse gas emission reduction targets.[4]

The VMT thresholds under section 15064.3 do not take effect until July 1, 2020, unless the lead agency adopts the VMT metrics earlier. The City of Fairfield has not established any standards or thresholds on VMT and the VMT thresholds are not in effect at this time in the City. Since there are no standards in effect on VMT analysis, the VMT data below (beginning on page 4.8-46) is provided for general information and disclosure purposes only. No determination on the significance of VMT impacts is made in this document because none is legally required. Further, environmental impacts associated with the VMT of the Project are analyzed in the Air Quality, Greenhouse Gas, and Energy sections of this Draft EIR.

4.9.4.3 Project Impacts and Mitigation Measures

Impact TRANS-1: **Development of the proposed project would not conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities. (*Significant and unavoidable LOS impacts, Less than significant with mitigation for pedestrian facilities, Less than significant CMP impacts)***

The traffic impact analysis below examines transportation conditions in the study area under existing conditions and identifies the project's impacts under this scenario. An assessment of the proposed project's contribution to near-term and long-term cumulative impacts is included in **Section 4.9.4.4 Cumulative Impacts and Mitigation Measures**.

4 The technical advisory recommends a quantitative per capita or per employee VMT that is fifteen percent below that of existing development as a possible threshold of significance that would comply with the State's long-term greenhouse gas emission reduction goals.

Existing Plus Project Conditions

Impacts under Existing Plus Project Intersection Conditions

As shown in **Table 4.9-6**, the proposed project would result in the addition of 209 AM peak hour vehicle trips and 290 PM peak hour vehicle trips on the study area road network. The effects of these additional vehicle trips on intersection levels of service were calculated for the Existing plus Project condition, and the resulting levels of service are presented in **Table 4.9-7, Existing and Existing Plus Project Intersection LOS Summary**.

Table 4.9-7
Existing and Existing Plus Project Intersection LOS Summary

				Existing Conditions		Existing Plus Project Conditions	
	Intersection	Intersection Control	Peak Hour[1]	Avg Delay[2]	LOS[3]	Avg Delay[2]	LOS[3]
1	Mangels Boulevard/ Green Valley Road	Signalized	AM PM	21.5 21.2	C C	21.5 21.3	C C
2	Business Center Drive/ Green Valley Road	Signalized	AM PM	34.4 48.0	C D	35.5 50.3	D D
3	Business Center Drive/ Neitzel Road	AWSC	AM PM	15.6 14.1	C B	16.6 14.9	C B
4	I-80 westbound ramps/ Green Valley Road	Signalized	AM PM	5.1 4.6	A A	5.4 4.7	A A
5	I-80 eastbound ramps/ Green Valley Road	Signalized	AM PM	13.8 15.8	B B	13.9 16.9	B B
6	Mangels Boulevard/ Westamerica Drive	Signalized	AM PM	13.8 13.9	B B	14.0 13.4	B B
7	Business Center Drive/ Center Project Driveway-Westamerica Drive	Signalized	AM PM	10.2 7.9	B A	15.1 17.0	B B
8	Business Center Drive/ South Project Driveway-NorthBay Driveway	SSSC	AM PM	0.2 (15.8) 0.6 (13.7)	A (C) A (B)	1.7 (17.9) 1.2 (19.3)	A (C) A (C)
9	Westamerica Drive/ Suisun Valley Road	Signalized	AM PM	14.0 10.9	B B	14.0 10.9	B B
10	Business Center Drive/ Suisun Valley Road	Signalized	AM PM	22.3 20.7	C C	22.3 21.9	C C
11	I-80 westbound ramps-Neitzel Road/Suisun Valley Road	AWSC	AM PM	90.7 21.1	F C	115.1 24.6	F C
12	I-80 eastbound ramps/ Pittman Road	Signalized	AM PM	16.8 12.9	B B	17.2 13.5	B B
13	Central Way/ Pittman Road	Signalized	AM PM	14.2 16.7	B B	14.4 16.8	B B

	Intersection	Intersection Control	Peak Hour[1]	Existing Conditions Avg Delay[2]	Existing Conditions LOS[3]	Existing Plus Project Conditions Avg Delay[2]	Existing Plus Project Conditions LOS[3]
14	Central Way/ Cordelia Road	SSSC	AM	5.9 (12.1)	A (B)	6.1 (12.2)	A (B)
			PM	6.4 (17.7)	A (C)	6.7 (18.3)	A (C)
15	Lopes Road/ Cordelia Road	SSSC[4]	AM	>120 (>120)	F (F)	>120 (>120)	F (F)
			PM	**>120 (>120)**	**F (F)**	**>120 (>120)**	**F (F)**
16	Lopes Road/ Bridgeport Avenue	SSSC	AM	>120 (>120)	F (F)	>120 (>120)	F (F)
			PM	**111.7 (>120)**	**F (F)**	**>120 (>120)**	**F (F)**

Source: Fehr & Peers, 2019.
Notes:
[1]AM = Weekday morning peak hour, PM = Weekday evening peak hour
[2] Whole intersection average delay reported for signalized intersections and all-way stop-controlled intersections. Side-street stop-controlled delay presented as Whole Intersection Average Delay (Worst Movement Delay). Delay calculated per HCM 2010 methodologies.
[3]LOS designation per HCM 2010.
4. Analyzed as side-street stop-controlled after applying approximation process
*** General Plan LOS standard applies to PM Peak Hour operations only.*
***Bold** indicates unacceptable operations. **Bold and highlighted** indicates a significant impact.*

Presently, two intersections operate below the City's LOS standard:

- Intersection 15: Lopes Road/Cordelia Road
- Intersection 16: Lopes Road/Bridgeport Avenue

Table 4.9-7 indicates that the addition of project related traffic could result in a significant impact to the operations of intersection 15 and 16, which are currently operating below the City's LOS standard.

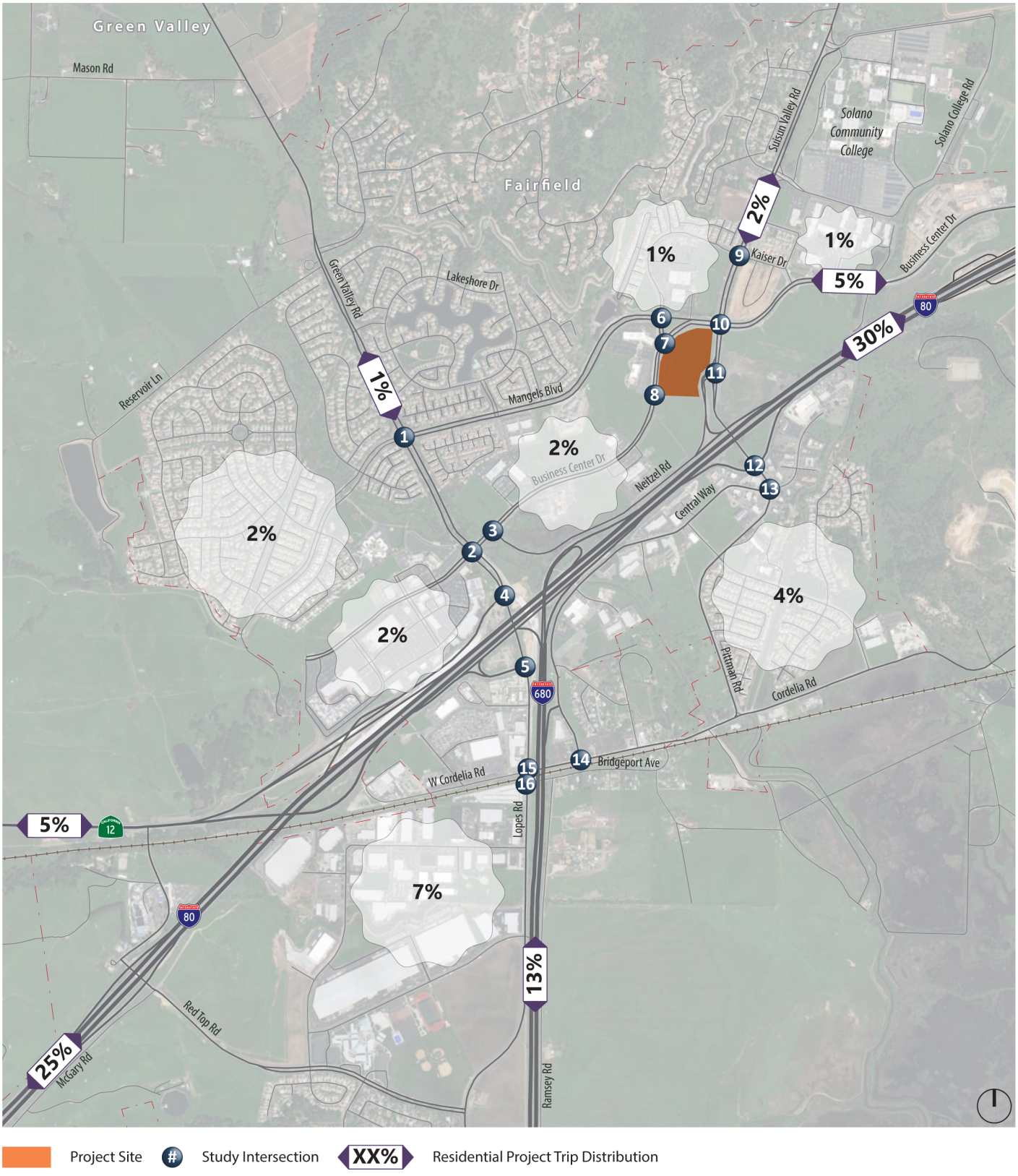
Intersection 15: Lopes Road/Cordelia Road

Although the intersection of Lopes Road / Cordelia Road operates at an overall LOS F during the PM Peak Hour, and peak hour traffic signal warrants are met, the proposed project would add less than 10 trips to the westbound approach in the PM peak hour. Therefore the impact at this intersection in the PM peak hour is less than significant based on the 10 trips added threshold described above in **Section 4.9.2.2**.

Intersection 16: Lopes/Bridgeport Avenue

The addition of project trips to Lopes Road/Bridgeport Avenue in the PM peak hour would exacerbate LOS F operations in the PM peak hour by adding more than 10 trips northbound through the intersection. Therefore, a significant impact would occur at this intersection in the PM peak hour. **Mitigation Measure TRANS-1a** is proposed, which requires the project applicant to pay a fair share contribution towards the construction of a signal and other improvements at the intersection. Alternatively, improvements may be funded through payment into the City's Development Impact Fee (DIF) program. Construction of these

improvements would result in acceptable traffic operations (LOS D or better) at the intersection (40.6 seconds of delay in the PM peak hour). Acceptable operations would also occur at Lopes Road/Cordelia Road after signalization (49.9 seconds of delay in the PM peak hour). While the improvements would mitigate the impact, the construction of the improvements would require substantial additional funding and coordination with the Union Pacific Railroad, and thus the impact is considered ***significant and unavoidable***.



SOURCE: Fehr & Peers, 2019

FIGURE **4.9-6**

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Project Trip Distribution — Residential

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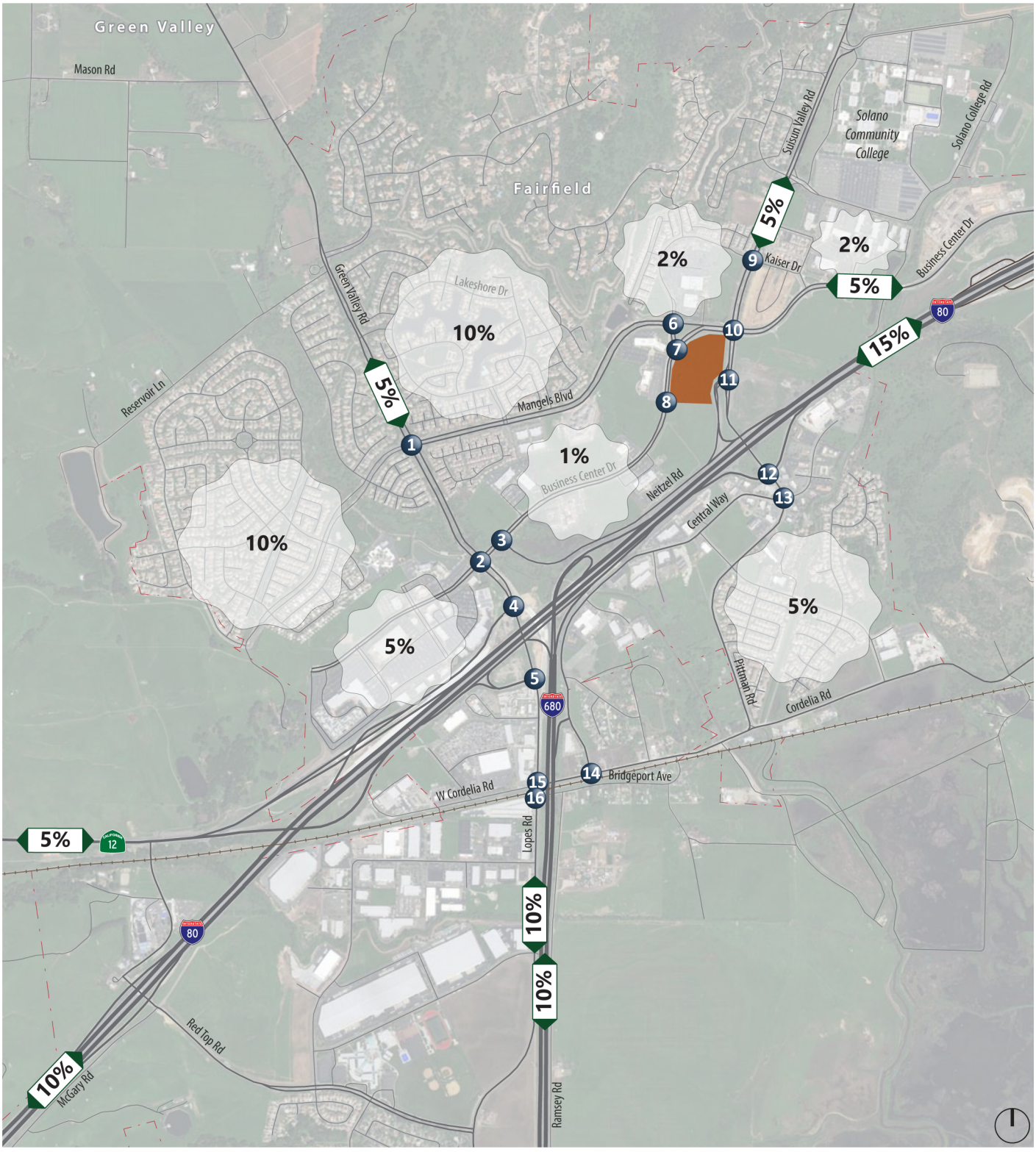

SOURCE: Fehr & Peers, 2019

FIGURE **4.9-7**

IMPACT SCIENCES

Project Trip Distribution — Retail

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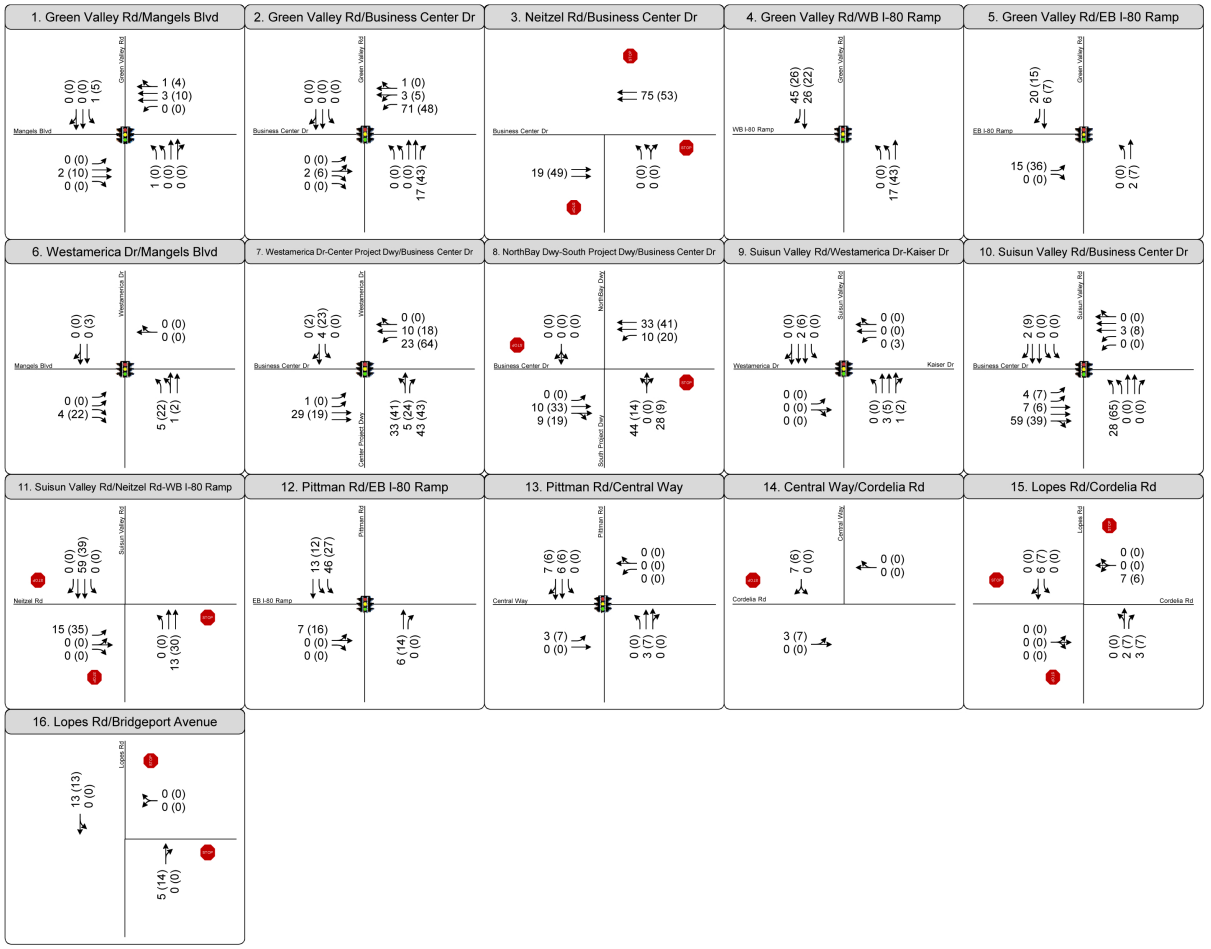

LEGEND

# Study Intersection	AM (PM) Peak Hour Traffic Volume
	Lane Configuration
	Stop Sign
	Signalized

SOURCE: Fehr & Peers, 2019

FIGURE **4.9-8a**

Near-Term Project Trip Assignment

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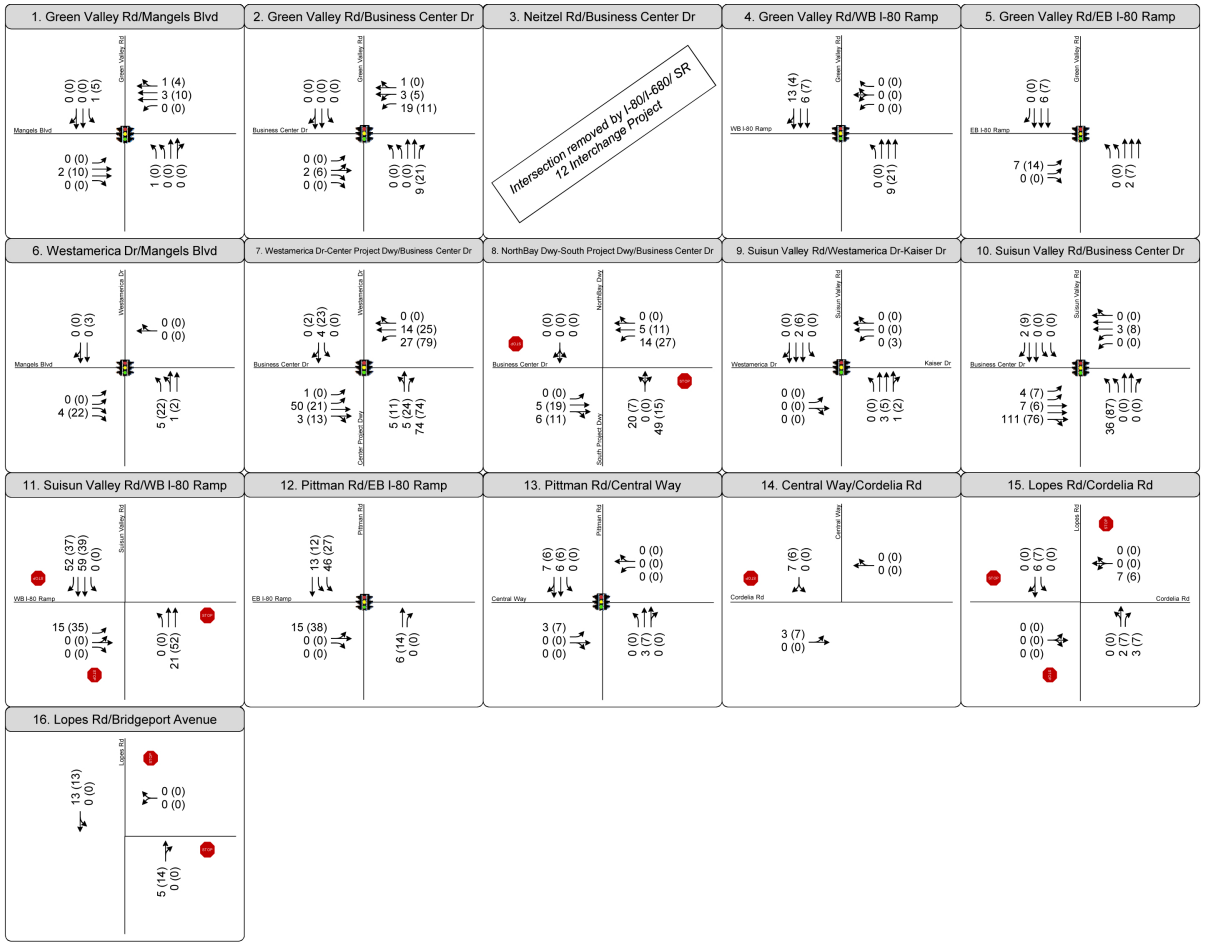


LEGEND

# Study Intersection	AM (PM) Peak Hour Traffic Volume
	Lane Configuration
	Stop Sign
	Signalized

SOURCE: Fehr & Peers, 2019

FIGURE **4.9-8b**

Far-Term Project Trip Assignment

IMPACT SCIENCES

Impacts on Freeway Segments and Ramps under Existing Plus Project Intersection Conditions

As shown in **Table 4.9-8, Existing and Existing Plus Project Conditions - Freeway Segments LOS Summary**, adding the proposed project freeway traffic would not worsen operations on any of the study freeway segments or ramps from LOS D or better. Therefore, the proposed project would have a less than significant impact on freeway operation under Existing plus Project conditions.

Table 4.9-8
Existing and Existing Plus Project Conditions –Freeway Segment LOS Summary

Segment	Segment Type	Peak Hour	Existing Conditions		Existing Plus Project Conditions	
			Density	LOS[1]	Density	LOS[1]
Westbound I-80						
1. Truck Scales on-ramp to Suisun Valley Road off-ramp	Diverge	AM PM	21.5 16.7	C B	21.6 16.8	C B
2. Suisun Valley Road off-ramp	Diverge	AM PM	28.5 24.5	D C	28.5 24.8	D C
3. Suisun Valley Road off-ramp to Southbound I-680 connector off-ramp	Basic	AM PM	19.6 14.8	C B	19.6 18.8	C B
4. Southbound I-680 connector off-ramp	Major Diverge	AM PM	22.3 16.9	C B	22.3 16.9	C B
5. Southbound I-680 connector off-ramp to Northbound I-680 connector on-ramp	Basic	AM PM	14.9 10.8	B A	14.9 10.8	B A
Eastbound I-80						
6. Green Valley Road/Southbound I-680 connector off-ramp to Northbound I-680 connector/Green Valley Road on-ramp	Basic	AM PM	14.7 17.7	B B	14.7 17.7	B B
7. Northbound I-680 connector/Green Valley on-ramp	Major Merge	AM PM	21.9 29.5	C D	21.9 29.6	C D
8. Suisun Valley Road off-ramp	Diverge	AM PM	29.3 32.4	D D	29.3 32.5	D D
9. Suisun Valley Road off-ramp to Suisun Valley Road on-ramp	Basic	AM PM	19.3 25.6	C C	19.3 25.6	C C
10. Suisun Valley Road on-ramp	Merge	AM PM	24.0 29.5	C D	24.4 29.7	C D
11. Suisun Valley Road on-ramp to Truck Scales off-ramp	Basic	AM PM	21.0 28.6	C D	21.2 28.7	C D
Southbound I-680						
12. South of I-80	Basic	AM PM	29.6 24.9	D C	29.8 25.1	D C

Segment	Segment Type	Peak Hour	Existing Conditions		Existing Plus Project Conditions	
			Density	LOS[1]	Density	LOS[1]
13. South of Gold Hill Road	Basic	AM	25.5	C	25.7	C
		PM	21.4	C	21.5	C
Northbound I-680						
14. South of Gold Hill Road	Basic	AM	17.7	B	17.7	B
		PM	28.6	D	28.8	D
15. South of I-80	Basic	AM	23.5	C	23.6	C
		PM	34.4	D	34.7	D

Source: Fehr & Peers, 2019.
Notes:
[1] LOS based on 2010 HCM
*Results in **bold** denotes unacceptable operations.*

Existing Plus Project Signal Warrant Analysis

The peak-hour signal warrants (Warrant 3A and Warrant 3B) from the *Manual on Uniform Traffic Control Devices* (MUTCD) were used to evaluate unsignalized intersections that operate unacceptably under Existing Plus Project Conditions to determine if a traffic signal is warranted. The following unsignalized intersections meet either Warrant 3A or Warrant 3B in the PM peak hour:

- Intersection 15: Lopes Road/Cordelia Road
- Intersection 16: Lopes Road/Bridgeport Avenue

Impacts on Pedestrians and Bicycle Facilities under Existing Plus Project Intersection Conditions

The proposed project would have a significant impact on alternate transportation programs for pedestrian, bicycle, and transit facilities and services if an element of the proposed project would conflict with existing or planned pedestrian, bicycle, and transit services.

The project site plan, detailed on **Figure 3.0-4**, shows a sidewalk along the Business Center Drive frontage of the site that would connect to the existing pedestrian facilities at Business Center Drive/Suisun Valley Road. A crosswalk is included at the Business Center Drive/Westamerica Drive-Center Driveway intersection. However, the site plan does not show the addition of a crosswalk across Business Center Drive at this location. Given the locally-serving retail uses proposed as part of the project and the existing office and residential uses on the other side of Business Center Drive from the project, it is likely that pedestrian***s will*** cross Business Center Drive at the Business Center Drive/Westamerica Drive-Center Driveway intersection. Therefore, the lack of a crosswalk would conflict with the City Objective **CI 10:**

Provide pedestrian facilities throughout the City to encourage walking as an alternative to short distance vehicle travel.

Mitigation Measure TRANS-1b is proposed which requires installation of a crosswalks and pedestrian signals at the Business Center Drive/Westamerica Drive-Center Driveway intersection. With Implementation of **Mitigation Measure TRANS-1b**, impacts would be less than significant.

Impacts on Public Transit Service under Existing Plus Project Intersection Conditions

The project site is served by three local Fairfield and Suisun Transit (FAST) bus routes and one Solano County Transit (SolTrans) regional bus routes; the nearest public transit stop is located at Suisun Valley Road/Kaiser Drive. Access to this stop would be provided via the proposed sidewalk along the Business Center Drive frontage of the project site and the public sidewalk network along Suisun Valley Road.

While the project may result in an increase in public transit demand, the increase in public transit demand is not expected to result in over-capacity conditions on transit. Transit services in the study area were observed to operate with excess capacity that could accommodate the small increase in public transit demand generated by the proposed project. The proposed project would not disrupt existing public transit services or preclude planned public transit facilities or services. Therefore, the impact to the public transit system is less than significant.

Mitigation Measures:

TRANS-1a The project applicant shall pay a fair share contribution to be included as part of the Development Review Conditions of Approval to fund construction of the following improvements at the intersection of Lopes Road/Bridgeport Avenue:

- Signalize the Lopes Road/Bridgeport Avenue/Cordelia Road intersection complex, including:
    - Split phases for all approaches at Lopes Road/Cordelia Road
    - Split phases for all approaches at Lopes Road/Bridgeport Avenue
    - Clustered intersection phasing with overlaps provided for movements crossing the railroad tracks.
- Modify southbound approach at Lopes Road/Bridgeport Avenue to include one through lane and one southbound left turn lane

- Modify northbound approach at Lopes road/Bridgeport Avenue to include one through lane and one through-right turn shared lane

- Install four-quadrant railroad crossing gates to prevent motorists from entering the conflict area when a train preemption event occurs

Alternatively, improvements listed above may be funded through payment into the City's Development Impact Fee (DIF) program if the improvements are part of an identified project in the DIF.

Significance after Mitigation: Since the intersection operates unacceptably under Existing Conditions and meets the Peak Hour signal warrant under Existing Conditions, the project applicant shall pay a fair share contribution towards the construction of a signal and other improvements at the intersection. Alternatively, improvements may be funded through payment into the City's Development Impact Fee (DIF) program. While the improvements would mitigate the impact, the construction of the improvements would require substantial additional funding and coordination with the Union Pacific Railroad, and thus the impact is considered ***significant and unavoidable***.

TRANS-1b The project shall install a crosswalk connecting the existing curb ramp at the southwest corner of Business Center Drive/Westamerica Drive-Center Driveway to the proposed curb ramp at the southeast corner of Business Center Drive/Westamerica Drive-Center Driveway. The project shall install pedestrian signal heads for this crossing and retime the signal at this location to account for the pedestrian signal phase at this location.

Significance after Mitigation:

Pedestrian impacts would be less than significant with mitigation.

Existing Plus Approved Projects (EPAP) with Project Conditions

The traffic impact analysis below examines transportation conditions in the study area under existing plus approved project conditions and identifies the project's impacts under this scenario. An assessment of the proposed project's contribution to near-term and long-term cumulative impacts is included in **Section 4.9.4.4 Cumulative Impacts and Mitigation Measures**.

Impacts under Existing Plus Approved Projects (EPAP) Intersection Conditions

The effects of additional vehicle trips on intersection levels of service were calculated for the EPAP condition, and the resulting levels of service are presented in **Table 4.9-9, Existing Plus Approved Projects (EPAP) Conditions Intersection LOS Summary**.

Table 4.9-9
Existing Plus Approved Projects (EPAP) Conditions Intersection LOS Summary

	Intersection	Intersection Control[1]	Peak Hour[2]	EPAP without Project Conditions		EPAP with Project Conditions	
				Avg Delay[3]	LOS[4]	Avg Delay[2]	LOS[3]
1	Mangels Boulevard/ Green Valley Road	Signalized	AM	21.3	C	21.3	C
			PM	19.3	B	19.4	B
2	Business Center Drive/ Green Valley Road	Signalized	AM	44.6	D	47.4	D
			PM	**91.6**	**F**	**95.2**	**F**
3	Business Center Drive/ Neitzel Road	AWSC	AM	8.3	A	8.5	A
			PM	8.1	A	8.2	A
4	I-80 westbound ramps/ Green Valley Road	Signalized	AM	6.9	A	7.3	A
			PM	6.2	A	6.5	A
5	I-80 eastbound ramps/ Green Valley Road	Signalized	AM	18.1	B	19.1	B
			PM	25.0	C	28.7	C
6	Mangels Boulevard/ Westamerica Drive	Signalized	AM	14.7	B	14.9	B
			PM	13.7	B	14.0	B
7	Business Center Drive/ Center Project Driveway-Westamerica Drive	Signalized	AM	11.4	A	16.8	B
			PM	9.1	A	18.9	B
8	Business Center Drive/ South Project Driveway-NorthBay Driveway	SSSC	AM	0.6 (21.8)	A (C)	2.0 (25.4)	A (D)
			PM	0.9 (17.3)	A (C)	1.6 (25.5)	A (D)
9	Westamerica Drive/ Suisun Valley Road	Signalized	AM	15.2	B	15.2	B
			PM	11.8	B	11.9	B
10	Business Center Drive/ Suisun Valley Road	Signalized	AM	25.0	C	25.6	C
			PM	23.7	C	25.2	C
11	I-80 westbound ramps-Neitzel Road/Suisun Valley Road	AWSC	AM	>120	F	>120	F
			PM	**37.1**	**E**	**47.5**	**E**
12	I-80 eastbound ramps/ Pittman Road	Signalized	AM	21.3	C	23.2	C
			PM	15.3	B	16.3	B
13	Central Way/ Pittman Road	Signalized	AM	16.0	B	16.0	B
			PM	17.8	B	18.0	B
14	Central Way/ Cordelia Road	SSSC	AM	6.6 (13.4)	A (B)	6.7 (13.6)	A (B)
			PM	9.5 (25.4)	A (D)	10.0 (26.7)	B (D)

	Intersection	Intersection Control[1]	Peak Hour[2]	EPAP without Project Conditions Avg Delay[3]	EPAP without Project Conditions LOS[4]	EPAP with Project Conditions Avg Delay[2]	EPAP with Project Conditions LOS[3]
15	Lopes Road/ Cordelia Road	SSSC[5]	AM	>120 (>120)	F (F)	>120 (>120)	F (F)
			PM	**>120 (>120)**	**F (F)**	**>120 (>120)**	**F (F)**
16	Lopes Road/ Bridgeport Avenue	SSSC	AM	>120 (>120)	F (F)	>120 (>120)	F (F)
			PM	**>120 (>120)**	**F (F)**	**>120 (>120)**	**F (F)**

Source: Fehr & Peers, 2019.
Notes:
1. AWSC = All-Way Stop-Controlled, SSSC = Side-Street Stop-Controlled
2. AM = Weekday morning peak hour, PM = Weekday evening peak hour
3. Whole intersection average delay reported for signalized intersections and all-way stop-controlled intersections. Side-street stop-controlled delay presented as Whole Intersection Average Delay (Worst Movement Delay). Delay calculated per HCM 2010 methodologies.
4. LOS designation per HCM 2010.
5. Analyzed as side-street stop-controlled after applying approximation process.
*** General Plan LOS standard applies to PM Peak Hour operations only.*
***Bold** indicates unacceptable operations. **Bold and highlighted** indicates a significant impact.*

The following intersections are projected to not meet their respective PM peak hour LOS standards under EPAP without Project Conditions:

- Intersection 2: Business Center Drive/Green Valley Road
- Intersection 11: I-80 westbound ramps-Neitzel Road/Suisun Valley Road
- Intersection 15: Lopes Road/Cordelia Road
- Intersection 16: Lopes Road/Bridgeport Avenue

The addition of project related traffic would worsen the operations of Intersections 2, 11, 15, and 16 which are currently operating deficiently under Existing Conditions, but it would not result in new PM Peak Hour LOS deficiencies at other study intersections.

Intersection 2: Business Center Drive/Green Valley Road

The intersection at Business Center Drive/Green Valley Road is projected to operate at a deficient LOS F during the PM peak hour in the EPAP without Project condition. The addition of project traffic would increase average peak hour delay, but by less than the 5.0 seconds required to result in a significant impact. Therefore, this impact would be less than significant and no mitigation is required.

Intersection 11: I-80 westbound ramps-Neitzel Road/Suisun Valley Road

The addition of project trips to I-80 westbound ramps-Neitzel Road/Suisun Valley Road in the PM peak hour would exacerbate LOS E operations in the PM peak hour by increasing the average control delay at the intersection by more than 5.0 seconds. Therefore, a significant impact would occur in the PM peak hour. Implementation of **Mitigation Measure TRANS-1c** below which involves signalization of the intersection and associated geometric improvements would result in acceptable traffic operations (LOS D or better) at the intersection (10.4 seconds of delay in the PM peak hour) under EPAP with Project conditions. Benefits to AM peak hour operations would also occur, with the intersection operating at LOS B (14.6 seconds of delay).

Intersection 15: Lopes Road/Cordelia Road

Although the intersection of Lopes Road/Cordelia Road operates at an overall LOS F during the PM Peak Hour, the proposed project would add less than 10 trips to the westbound approach in the PM peak hour. Therefore, this project would cause a less than significant impact to this intersection.

Intersection 16: Lopes Road/Bridgeport Avenue

The addition of project trips to Lopes Road/Bridgeport Avenue in the PM peak hour would exacerbate LOS F operations by adding more than 10 trips to the northbound movement at the intersection. Therefore, a significant impact would occur in the PM peak hour. **Mitigation Measure TRANS-1a** above, which includes signalization of Lopes Road/Bridgeport Avenue, signalization of Lopes Road/Cordelia Road, and associated geometric improvements, shall be implemented to reduce impacts. Implementation of **Mitigation Measure TRANS-1a** would result in acceptable traffic operations (LOS D or better) at the intersection (51.9 seconds of delay in the PM peak hour).

Impacts on Freeway Segments and Ramps under EPAP Conditions

The EPAP Conditions freeway analysis includes traffic volume growth due to adjacent development as well as regional growth in traffic volumes. As shown in **Table 4.9-10, Existing Plus Approved Projects (EPAP) Conditions – Study Freeway Segment LOS Summary**, all freeway segments would operate at an acceptable LOS (LOS E or better) after the addition of project generated trips. Therefore, the proposed project would have a less than significant impact on freeway operation under EPAP with Project conditions.

Table 4.9-10
Existing Plus Approved Projects (EPAP) Conditions
Study Freeway Segment LOS Summary

Segment	Segment Type	Peak Hour	EPAP without Project Conditions		EPAP with Project Conditions	
			Density	LOS[1]	Density	LOS[1]
Westbound I-80						
1. Truck Scales on-ramp to Suisun Valley Road off-ramp	Diverge	AM PM	22.6 17.6	C B	22.7 17.7	C B
2. Suisun Valley Road off-ramp	Diverge	AM PM	28.5 24.8	D C	28.7 25.0	D C
3. Suisun Valley Road off-ramp to Southbound I-680 connector off-ramp	Basic	AM PM	20.6 15.5	C B	20.6 15.5	C B
4. Southbound I-680 connector off-ramp	Major Diverge	AM PM	23.4 17.6	C B	23.4 17.6	C B
5. Southbound I-680 connector off-ramp to Northbound I-680 connector on-ramp	Basic	AM PM	15.6 11.1	B B	15.6 11.1	B B
Eastbound I-80						
6. Green Valley Road/Southbound I-680 connector off-ramp to Northbound I-680 connector/Green Valley Road on-ramp	Basic	AM PM	15.4 18.4	B C	15.4 18.4	B C
7. Northbound I-680 connector/Green Valley on-ramp	Major Merge	AM PM	23.2 31.9	C D	23.3 32.0	C D
8. Suisun Valley Road off-ramp	Diverge	AM PM	29.6 34.2	D D	29.7 34.4	D D
9. Suisun Valley Road off-ramp to Suisun Valley Road on-ramp	Basic	AM PM	20.2 27.2	C D	20.2 27.2	C D
10. Suisun Valley Road on-ramp	Merge	AM PM	25.0 31.2	C D	25.3 31.4	C D
11. Suisun Valley Road on-ramp to Truck Scales off-ramp	Basic	AM PM	22.3 31.0	C D	22.5 31.1	C D
Southbound I-680						
12. South of I-80	Basic	AM PM	32.0 26.6	D D	32.0 26.6	D D
13. South of Gold Hill Road	Basic	AM PM	27.3 22.6	D C	27.3 22.6	D C
Northbound I-680						
14. South of Gold Hill Road	Basic	AM PM	18.6 30.6	C D	18.7 30.9	C D
15. South of I-80	Basic	AM PM	24.8 37.4	C E	24.9 37.7	C E

Segment	Segment Type	Peak Hour	EPAP without Project Conditions		EPAP with Project Conditions	
			Density	LOS[1]	Density	LOS[1]

Source: Fehr & Peers, 2019.
Notes:
[1] LOS based on 2010 HCM
Results in **bold** *denotes unacceptable operations.*

Existing Plus Approved Projects (EPAP) Signal Warrant Analysis

The following unsignalized intersections, which operate at unacceptable levels in the Existing condition, and meet Peak Hour Signal Warrants in the Existing condition, are projected to continue operating at deficient levels and peak hour signal warrants would continue to be satisfied:

- Intersection 11: I-80 westbound ramps-Neitzel Road/Suisun Valley Road
- Intersection 15: Lopes Road/Cordelia Road
- Intersection 16: Lopes Road/Bridgeport Avenue

Impacts on Pedestrians, Bicycle Facilities, and Public Transit Service under EPAP Conditions

EPAP without Project and EPAP with Project conditions for pedestrian facilities, bicycle facilities, and public transit service would generally be equivalent to Existing Conditions and Existing Plus Project conditions. Discussion regarding project impacts to these modes of transportation under Existing with Project Conditions is provided **Impact TRANS-1** above. Similar to Existing Plus Project conditions, the impacts to pedestrian, bicycle and transit modes are expected to be less than significant (for bicycles and public transit) or less than significant with implementation of **Mitigation Measure TRANS-1b** (for pedestrians) under EPAP with Project Conditions.

Mitigation Measures:

TRANS-1b The project shall install a crosswalk connecting the existing curb ramp at the southwest corner of Business Center Drive/Westamerica Drive-Center Driveway to the proposed curb ramp at the southeast corner of Business Center Drive/Westamerica Drive-Center Driveway. The project shall install pedestrian signal heads for this crossing and retime the signal at this location to account for the pedestrian signal phase at this location.

TRANS-1c I-80 westbound ramps-Neitzel Road/Suisun Valley Road is an all-way stop-controlled intersection that operates unacceptably in the PM peak hour under both EPAP

Conditions and EPAP with Project conditions. The intersection meets the Peak Hour Signal Warrant under EPAP Conditions for the PM peak hour.

The project applicant shall pay a fair share contribution to be included as part of the Development Review Conditions of Approval to fund construction of the following improvements at the intersection of I-80 westbound ramps-Neitzel Road/Suisun Valley Road:

- Signalize the intersection, including:
    - Northbound and southbound protected left turn phases
    - Eastbound and westbound split phases
- Modify southbound right turn movement to remove the high-speed channelizer island and install a standard right turn pocket

Alternatively, improvements listed above may be funded through payment into the City's Development Impact Fee (DIF) program if the improvements are part of an identified project in the DIF.

Significance after Mitigation: Since the intersection operates unacceptably under EPAP (without Project) Conditions and meets the Peak Hour signal warrant under EPAP (without Project) Conditions, the project applicant shall pay a fair share contribution towards the construction of a signal and other improvements at the intersection. Alternatively, improvements may be funded through payment into the City's Development Impact Fee (DIF) program. City staff have confirmed that the project is eligible for inclusion into the City's Capital Improvements Program (CIP), and thus the project impact is considered ***less-than-significant with mitigation***.

Impact TRANS-2: The proposed project would not conflict or be inconsistent with *CEQA Guidelines* § 15064.3, subdivision (b). (*Less than Significant*)

As stated earlier, neither the City of Fairfield nor the Solano Transportation Authority (STA) have adopted the VMT approach to traffic impact analysis, and neither agency has established standards or thresholds that may be used to evaluate the significance of the project's effect on VMT. The schedule set forth by the state does not require this analysis to be included in CEQA documents until July 2020. Therefore, this VMT evaluation is included in this EIR for informational purposes only.

CEQA Guidelines Section 15064.3, Determining the Significance of Transportation Impacts, notes the following: "Generally, vehicle miles traveled is the most appropriate measure of transportation impacts. For the purposes of this section, "vehicle miles traveled" refers to the amount and distance of automobile travel attributable to a project." With regard to the criteria for analyzing transportation impacts, the new guideline states for land use projects that VMT exceeding an applicable threshold of significance may indicate a significant impact. In its technical advisory related to VMT approach to traffic impact analysis, OPR suggests that for residential, new developments that have an estimated VMT/per capita that is 15 percent below existing regional VMT per capita would be considered to result in a less than significant traffic impact. For office uses, new developments that would result in VMT 15 percent below existing regional VMT per employee (work tour or home-based work) would be considered to result in a less than significant traffic impact. Local-serving retail may be less than significant when the new development is less than 50,000 square-feet. A significant impact could occur when new retail increases VMT compared to previous shopping patterns.

In the absence of the City or STA adopted VMT threshold, this guidance provided by the state is used below not as a significance threshold but to provide context to the estimated VMT for the project site under existing and plus project conditions.

To conduct the VMT assessment, published data was used from the Metropolitan Transportation Commission (MTC), including data from the MTC travel demand model. The MTC published data was used to establish average VMT per capita values for existing residential uses in Fairfield, Solano County and the nine-county Bay Area. The MTC travel demand model also provides average VMT per capita values for residential areas near the project site.

The existing average VMT per capita for residential uses and employment uses for the City of Fairfield, Solano County and the Bay Area based on the MTC data are presented in **Table 4.9-11**. Home based trips in Fairfield are similar to the Bay Area average, while slightly lower than the County-wide average. Work based trips to jobs in Fairfield are slightly lower than regional averages, potentially indicating that jobs in Fairfield tend to be filled by more local residents.

Data from the MTC travel demand model indicate that the average VMT per capita for the lower Green Valley and lower Suisun Valley residential areas is about 25 VMT per capita per day. This level of vehicle travel is higher than the City of Fairfield average as well as the Bay Area Average.

Table 4.9-11
Existing VMT per Capita

Land Use Type	Fairfield	Solano County	Bay Area
Residence-Based VMT	15.2	16.7	15.3
Work-Based VMT	20.0	22.2	22.7

Source: Fehr & Peers, 2019.

A VMT assessment was not prepared for the proposed commercial uses as the actual uses are unknown. Up to 50,000 square feet of retail uses may be considered to have a less than significant VMT impact as it is expected to be locally serving.

Therefore, the proposed project would contribute to an increase in vehicle miles of travel on a per capita basis since the project would add a housing development that would require residents to travel longer than average distances to meet their daily needs. As there are no thresholds of significance, this analysis is being prepared for informational purposes only.

Mitigation Measures: N/A

Impact TRANS-3: **Development of the proposed project would not substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible use (e.g., farm equipment). (*Less than Significant*)**

Three vehicle access points would be provided to enter and exit the project site – one shared main entrance near the intersection of Business Park Drive and Westamerica Boulevard, a residential-only side entrance at the southwestern corner of the site off Business Center Drive, and a commercial-only side entrance along the northern boundary of the site off Business Center Drive (see **Figure 3.0-4, Site Plan**). Business Center Drive to the south provides access to westbound I-80 and southbound I-680 via Green Valley Road while Business Center east provides access to eastbound I-80 via Suisun Valley Road.

As discussed in **Section 3.0, Project Description**, the design of the proposed project would not cause a permanent alteration to the local vehicular circulation routes and patterns, or impede public access or travel on any public rights-of-way and no design hazards due to a geometric design feature (e.g., sharp

curves or dangerous intersections) or incompatible uses would be created. Further, the final design of the proposed project, including curb cuts, ingress, egress, and other streetscape changes, would be subject to review by the City of Fairfield Department of Public Works, Transportation Division and would be required to comply with all requirements of the Division. As a result, impacts would be less than significant.

Mitigation Measures: No mitigation measures are required.

Impact TRANS-4: **Development of the proposed project would not result in inadequate emergency access. (*Less than Significant*)**

Construction activities may result in temporary partial obstruction of adjacent roadways, however, the project would comply with applicable regulations relating to access.

The proposed project includes the following primary access points: the South Driveway, the Center Driveway and the North Driveway. Retail access points are open access, whereas residential access points are gated. Typically, gated access points include a special code for emergency access; this analysis assumes that emergency access codes are provided.

Under all conditions, the proposed project is not anticipated to degrade roadway operations to the point where emergency vehicles are impacted. As described above, the project would add 209 additional trips in the AM and 290 additional trips in the PM. The addition of these trips would not impede access by emergency vehicles. Therefore, the project does not conflict with existing or planned emergency response routes, nor does it provide inadequate access to accommodate emergency vehicles. The project's impact to external and internal emergency access would be less than significant.

Mitigation Measures: No mitigation measures are required.

4.9.4.4 Cumulative Impacts and Mitigation Measures

Cumulative Impact C-TRANS-1: **Development of the proposed project would conflict with plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities under Long-Term Cumulative (2035) Plus Project Conditions. (*Significant and unavoidable LOS impacts, Less than significant pedestrian impacts, Less than significant CMP impacts*)**

The following cumulative scenarios are evaluated herein:

- **Scenario 5: Cumulative without plus Business Center Drive Extension without Project**
- **Scenario 6: Cumulative plus Business Center Drive Extension plus Project**
- **Scenario 7: Cumulative plus Business Center Drive Extension without Project**
- **Scenario 8: Cumulative plus Business Center Drive Extension with Project**

Scenario 5: Cumulative without plus Business Center Drive Extension without Project

Year 2035 traffic forecasts without the proposed project were developed for Cumulative Conditions by applying traffic volume growth data derived from the City of Fairfield travel demand model and other data sources. The growth data were applied to Existing Conditions volumes to arrive at Year 2035 traffic volumes.

Scenario 6: Cumulative plus Business Center Drive Extension plus Project

This traffic scenario provides an assessment of operating conditions under Cumulative plus Business Center Drive Extension Conditions with the addition of project-generated traffic and transportation network infrastructure proposed by the project. The impacts of the proposed project on Cumulative plus Business Center Drive Extension baseline conditions were then identified.

Scenario 7: Cumulative plus Business Center Drive Extension without Project

Year 2035 traffic forecasts without the proposed project were developed for Cumulative Conditions by applying traffic volume growth data derived from the City of Fairfield travel demand model and other data sources. The model run in this scenario assumes that Package 5 of the I-80/I-680/SR 12 interchange project is completed, including the planned extension of Business Center Drive west to the junction of SR 12 and Red Top Road. The growth rates were applied to Existing Conditions volumes and traffic volume shifts that are expected to occur from the provision of new transportation facilities in the study area were considered.

Scenario 8: Cumulative plus Business Center Drive Extension with Project

This traffic scenario provides an assessment of operating conditions under Cumulative plus Business Center Drive Extension Conditions with the addition of project-generated traffic and transportation network infrastructure proposed by the project. The impacts of the proposed project on Cumulative plus Business Center Drive Extension baseline conditions were then identified.

Future year 2035 cumulative traffic volumes were developed in order to assess the cumulative traffic impacts of the proposed project. The long-term cumulative no project scenario corresponds to a 2035 cumulative horizon that accounts for reasonably foreseeable development projects, transportation improvements, and land use growth consistent with the horizon year of City's General Plan.

Cumulative Baseline Roadway Improvements

As mentioned in **Section 4.9.2.1** above, the proposed I-80/I-680/SR 12 interchange project would substantially alter the travel patterns in the study area.

The Cumulative Conditions analysis was performed assuming two states of completion of the I-80/I-680/SR 12 interchange improvement project:

- Cumulative Conditions: Assumes the construction and associated after-construction effects of interchange improvement Packages 1-4 only.
- Cumulative plus Business Center Drive Extension Conditions: Assumes the construction and associated after-construction effects of interchange improvement Packages 1-5.

Trips generated from the proposed project were added to the cumulative conditions traffic projections (**Figure 4.9-9**) to develop traffic volumes for Cumulative Plus Project condition (**Figure 4.9-10**).

Similarly, trips generated from the proposed project were added to the Cumulative plus Business Center Drive condition traffic projections (**Figure 4.9-11**) to develop traffic volumes for Cumulative plus Business Center Drive with Project condition (**Figure 4.9-12**).

Cumulative 2035 Intersection Conditions

Impacts under Cumulative 2035 Intersection Conditions

Intersection LOS was calculated for the following scenarios: Cumulative with and without Project, and Cumulative plus Business Center Drive with and without Project. **Table 4.9-12** provides the results of the intersection LOS calculations.

Table 4.9-12
Cumulative Conditions Intersection Levels of Service

	Intersection	Control Type[1]	Peak Hour[2]	Without Business Center Drive Extension				Plus Business Center Drive Extension			
				Cumulative without Project Conditions		Cumulative with Project Conditions		Cumulative without Project Conditions		Cumulative with Project Conditions	
				Delay[3]	LOS[4]	Delay[3]	LOS[4]	Delay[3]	LOS[4]	Delay[3]	LOS[4]
1	Mangels Boulevard/ Green Valley Road	Signalized	AM	37.5	D	37.7	D	36.4	D	37.7	D
			PM	24.7	C	25.0	C	24.7	C	25.0	C
2	Business Center Drive/ Green Valley Road	Signalized	AM	>120	F	>120	F	>120	F	>120	F
			PM	**>120**	**F**	**>120**	**F**	**>120**	**F**	**>120**	**F**
3	Business Center Drive/ Neitzel Road	*Intersection Removed by I-80/I-680/SR 12 Interchange Improvement Project*									
4	I-80 westbound ramps/ Green Valley Road	Signalized	AM	36.9	D	37.8	D	33.8	C	34.5	C
			PM	38.2	D	38.5	D	34.7	C	34.8	C
5	I-80 eastbound ramps/ Green Valley Road	Signalized	AM	16.5	B	16.7	B	14.1	B	14.3	B
			PM	41.9	D	48.8	D	34.5	C	34.9	C
6	Mangels Boulevard/ Westamerica Drive	Signalized	AM	18.5	B	18.5	B	18.5	B	18.5	B
			PM	12.6	B	12.9	B	12.6	B	12.9	B
7	Business Center Drive/ Center Project Driveway-Westamerica Drive	Signalized	AM	13.2	B	17.9	B	13.2	B	17.8	B
			PM	14.9	B	31.0	C	14.9	B	31.0	CC

	Intersection	Control Type[1]	Peak Hour[2]	Without Business Center Drive Extension				Plus Business Center Drive Extension			
				Cumulative without Project Conditions		Cumulative with Project Conditions		Cumulative without Project Conditions		Cumulative with Project Conditions	
				Delay[3]	LOS[4]	Delay[3]	LOS[4]	Delay[3]	LOS[4]	Delay[3]	LOS[4]
8	Business Center Drive/ South Project Driveway-NorthBay Driveway	SSSC	AM PM	0.9 (31.4) 1.3 (21.6)	A (D) A (C)	1.8 (36.4) 1.9 (26.0)	A (E) A (D)	0.9 (31.4) 1.3 (21.6)	A (D) A (C)	1.8 (36.4) 1.9 (26.0)	A (E) A (D)
9	Westamerica Drive/ Suisun Valley Road	Signalized	AM PM	17.0 20.6	B C	17.0 20.9	B C	17.0 20.8	B C	17.0 20.9	B C
10	Business Center Drive/ Suisun Valley Road	Signalized	AM PM	32.5 **64.1**	C **E**	39.3 **75.6**	D **E**	32.5 **64.1**	C **E**	39.3 **75.6**	D **E**
11	I-80 westbound ramps-Neitzel Road/Suisun Valley Road	AWSC	AM PM	>120 **>120**	F **F**	>120 **>120**	F **F**	>120 **>120**	F **F**	>120 **>120**	F **F**
12	I-80 eastbound ramps/ Pittman Road	Signalized	AM PM	59.9 **59.6**	E **E**	69.2 **68.1**	E **E**	59.9 **59.6**	E **E**	69.2 **68.1**	E **E**
13	Central Way/ Pittman Road	Signalized	AM PM	19.0 24.2	B C	19.0 24.7	B C	19.0 24.2	B C	19.0 24.7	B C
14	Central Way/ Cordelia Road	SSSC	AM PM	11.0 (26.9) **>120 (>120)**	B (D) **F (F)**	11.4 (27.8) **>120 (>120)**	B (D) **F (F)**	11.0 (26.9) **>120 (>120)**	B (D) **F (F)**	11.4 (27.8) **>120 (>120)**	B (D) **F (F)**
15	Lopes Road/ Cordelia Road	SSSC[5]	AM PM	>120 (>120) **>120 (>120)**	F (F) **F (F)**	>120 (>120) **>120 (>120)**	F (F) **F (F)**	>120 (>120) **>120 (>120)**	F (F) **F (F)**	>120 (>120) **>120 (>120)**	F (F) **F (F)**
16	Lopes Road/ Bridgeport Avenue	SSSC	AM PM	>120 (>120) **>120 (>120)**	F (F) **F (F)**	>120 (>120) **>120 (>120)**	F (F) **F (F)**	>120 (>120) **>120 (>120)**	F (F) **F (F)**	>120 (>120) **>120 (>120)**	F (F) **F (F)**

Intersection	Control Type[1]	Peak Hour[2]	Without Business Center Drive Extension				Plus Business Center Drive Extension			
			Cumulative without Project Conditions		Cumulative with Project Conditions		Cumulative without Project Conditions		Cumulative with Project Conditions	
			Delay[3]	LOS[4]	Delay[3]	LOS[4]	Delay[3]	LOS[4]	Delay[3]	LOS[4]

Source: Fehr & Peers, 2019.

Notes:

[1] AWSC = All-Way Stop-Controlled, SSSC = Side-Street Stop-Controlled

[2] AM = Weekday morning peak hour, PM = Weekday evening peak hour

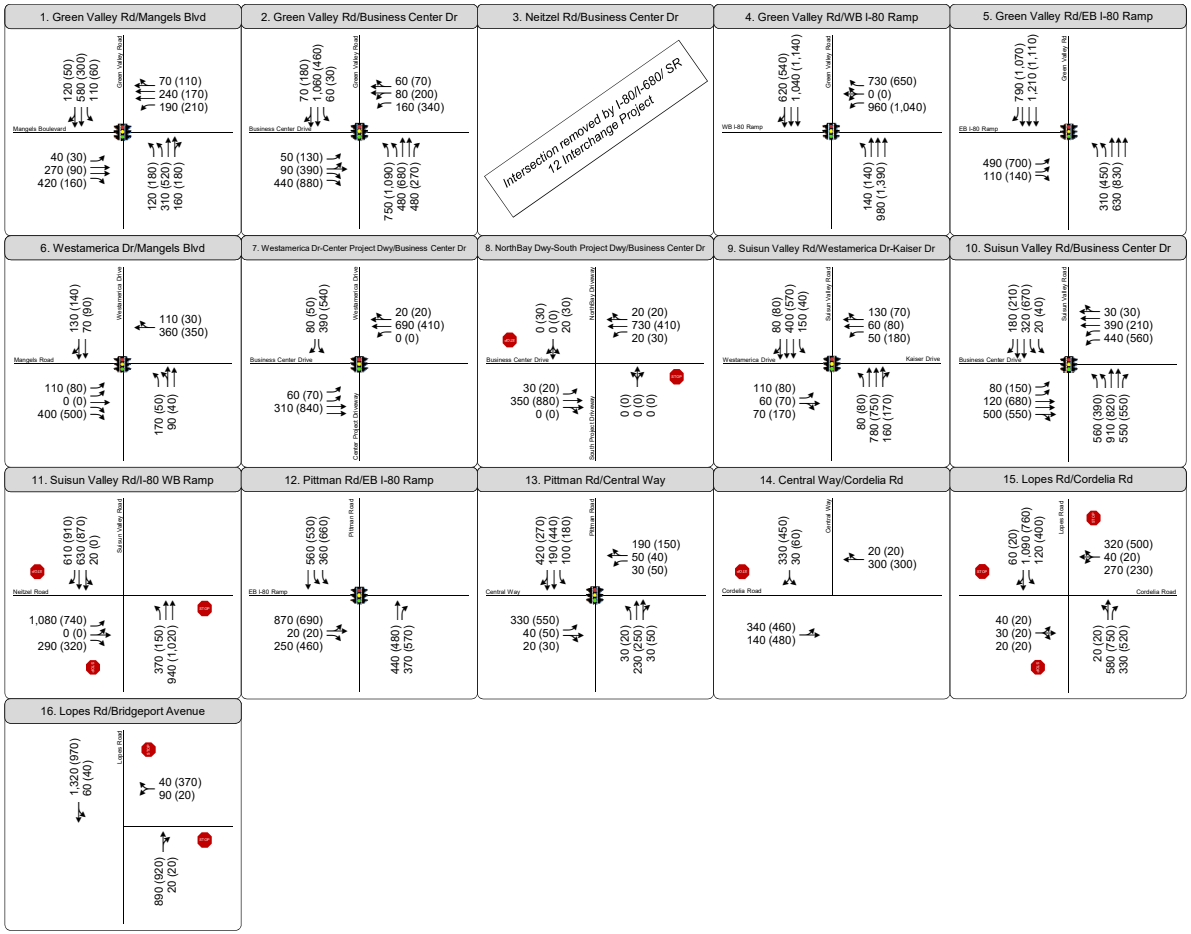
[3] Whole intersection average delay reported for signalized intersections and all-way stop-controlled intersections. Side-street stop-controlled delay presented as Whole Intersection Average Delay (Worst Movement Delay). Delay calculated per HCM 2010 methodologies.

[4] LOS designation per HCM 2010.

[5] Analyzed as side-street stop-controlled after applying approximation process.

*** General Plan LOS standard applies to PM Peak Hour operations only.*

***Bold** indicates unacceptable operations. **Bold and highlighted** indicates a significant impact.*



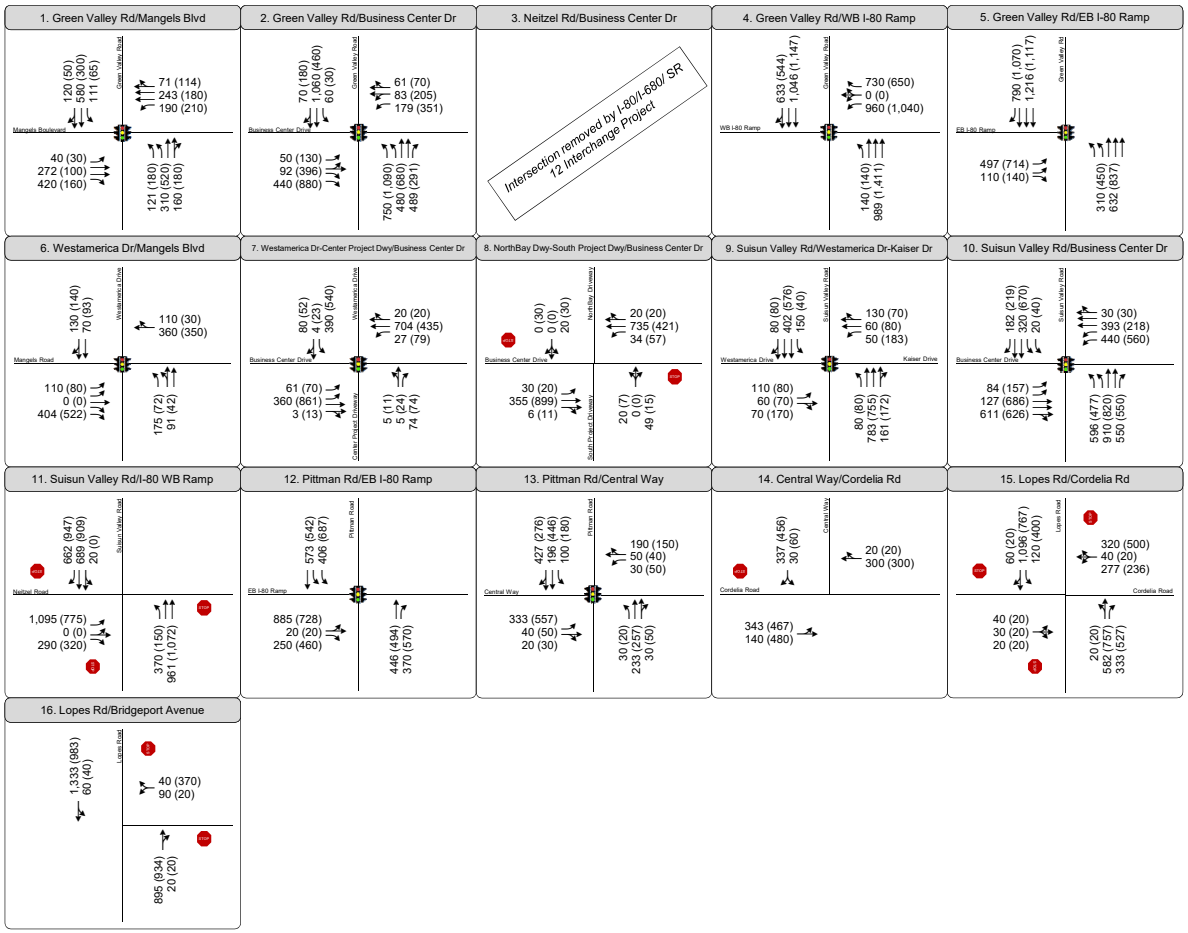
LEGEND

# Study Intersection	AM (PM) Peak Hour Traffic Volume
	Lane Configuration
	Stop Sign
	Signalized

SOURCE: Fehr & Peers, 2019

FIGURE **4.9-9**

Cumulative without Project Conditions Peak Hour Intersection Traffic Volumes, Lane Configurations and Traffic Controls



LEGEND

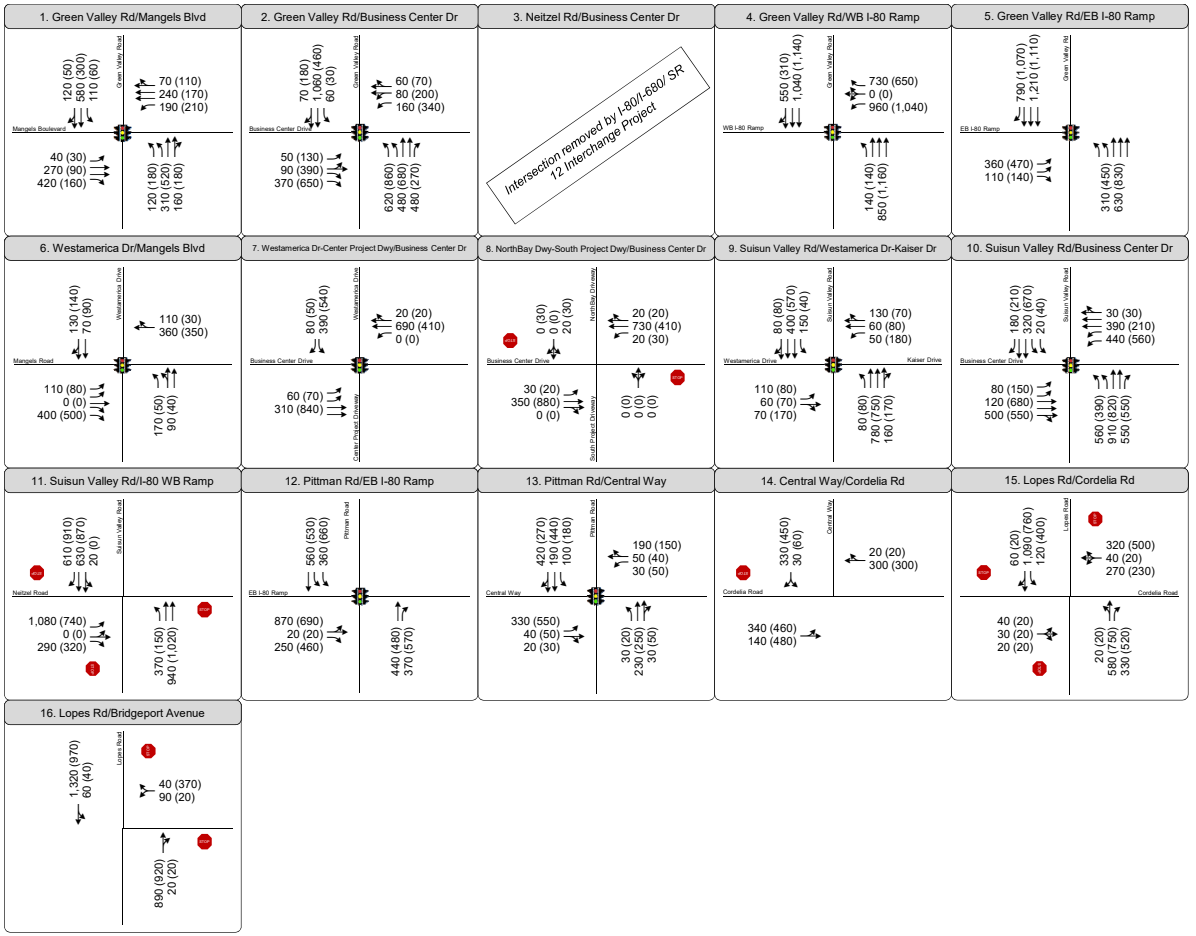
- (#) Study Intersection
- AM (PM) Peak Hour Traffic Volume
- Lane Configuration
- Stop Sign
- Signalized

SOURCE: Fehr & Peers, 2019

FIGURE **4.9-10**

Cumulative Plus Project Conditions Peak Hour Intersection Traffic Volumes, Lane Configurations and Traffic Controls

IMPACT SCIENCES



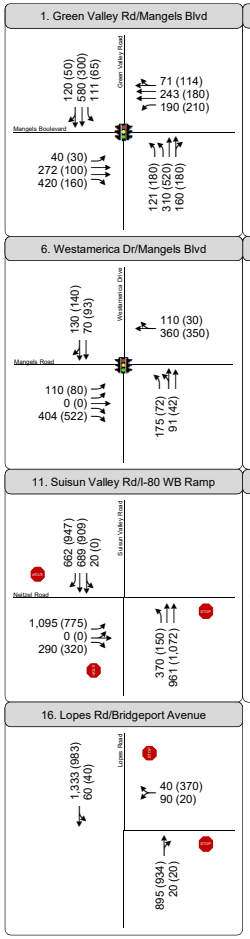
LEGEND

# Study Intersection	AM (PM) Peak Hour Traffic Volume
	Lane Configuration
	Stop Sign
	Signalized

SOURCE: Fehr & Peers, 2019

FIGURE **4.9-11**

Cumulative plus Business Center Drive Extension without Project Conditions Peak Hour Intersection Traffic Volumes, Lane Configurations and Traffic Controls



LEGEND

# Study Intersection	AM (PM) Peak Hour Traffic Volume
	Lane Configuration
	Stop Sign
	Signalized

SOURCE: Fehr & Peers, 2019

FIGURE **4.9-12**

IMPACT SCIENCES

Cumulative plus Business Center Drive Extension with Project Conditions Peak Hour Intersection Traffic Volumes, Lane Configurations and Traffic Controls

The results of the LOS calculations indicate that the following intersections are projected to not meet their respective LOS standards under Cumulative with and without Project conditions, both without and with the Business Center Drive extension:

- Intersection 2: Business Center Drive/Green Valley Road
- Intersection 10: Business Center Drive/Suisun Valley Road
- Intersection 11: I-80 westbound ramps-Neitzel Road/Suisun Valley Road
- Intersection 12: I-80 eastbound ramps/Pittman Road
- Intersection 14: Central Way/Cordelia Road
- Intersection 15: Lopes Road/Cordelia Road
- Intersection 16: Lopes Road/Bridgeport Avenue

The addition of proposed project traffic would worsen the operations of the above intersections, but would not result in new deficiencies.

Intersection 2: Business Center Drive/Green Valley Road

The Business Center Drive/Green Valley Road intersection is projected to operate at a deficient LOS F during the PM peak hour in the Cumulative without Project condition. The addition of project traffic would result in an increase in the whole-intersection average peak hour delay of less than 5.0 seconds. Therefore, the impact would be less than significant and no mitigation is required.

Intersection 10: Business Center Drive/Suisun Valley Road

The addition of project trips to Business Center Drive/Suisun Valley Road in the PM peak hour would exacerbate LOS F operations in the PM peak hour by increasing the average control delay at the intersection by more than 5.0 seconds. Therefore, the impact to this intersection would be significant and the project's contribution would be cumulatively considerable. **Mitigation Measure C-TRANS-1a** shall be implemented which requires a fair share contribution to intersection improvements. Implementation of **Mitigation Measure C-TRANS-1a** would result in a whole-intersection average delay of 52.7 seconds in the PM peak hour, which would reduce the impact to a less than significant level. Benefits to AM peak hour operations would also occur, with the intersection operating at LOS D (40.5 seconds of delay).

Intersection 11: I-80 westbound ramps-Neitzel Road/Suisun Valley Road

The addition of project trips to I-80 westbound ramps-Neitzel Road/Suisun Valley Road in the AM peak hour would exacerbate LOS F operations in the AM peak hour by increasing the average control delay at the intersection by more than 5.0 seconds. The addition of project trips to I-80 westbound ramps-Neitzel Road/Suisun Valley Road in the PM peak hour would exacerbate LOS F operations in the PM peak hour by increasing the average control delay at the intersection by more than 5.0 seconds. Therefore, there would be a significant impact to this intersection and the project's contribution would be cumulatively considerable. **Mitigation Measure TRANS-1c** detailed above shall be implemented which requires construction of a signal and other improvements at this intersection. Implementation of **Mitigation Measure TRANS-1c** would result in acceptable traffic operations (LOS D or better) at the intersection (29.7 seconds of delay in the PM peak hour) under Cumulative with Project Conditions. With mitigation incorporated, this impact would be reduced to a less than significant level.

Intersection 12: I-80 eastbound ramps/Pittman Road

The addition of project trips to I-80 eastbound ramps/Pittman Road in the PM peak hour would exacerbate LOS E operations in the PM peak hour by increasing the average control delay at the intersection by more than 5.0 seconds. Therefore, a significant impact would occur at this intersection and the project's contribution would be cumulatively considerable. **Mitigation Measure C-TRANS-1b** shall be implemented which requires the applicant to pay a fair share contribution to intersection improvements. Implementation of **Mitigation Measure C-TRANS-1b** would result in acceptable traffic operations (LOS D or better) at the intersection in the PM Peak Hour (53.8 seconds of the delay) and the impact would be reduced to a less than significant level. Benefits to AM peak hour operations would also occur, with the intersection operating at LOS D (39.3 seconds of delay).

Intersection 14: Central Way/Cordelia Road

Although the intersection of Central Way/Cordelia Road operates at an overall LOS F during the PM peak hours, the proposed project would add less than 10 trips to the southbound approach at in the PM peak hour. Therefore, the impact at this intersection in the PM peak hour would be less than significant based on the 10 trips added threshold and no mitigation is required. The project's contribution would not be cumulatively considerable.

Intersection 15: Lopes Road/Cordelia Road

Although the intersection of Lopes Road/Cordelia Road operates at an overall LOS F during both peak hours, the proposed project would add less than 10 trips to the westbound approach in the PM peak

hour. Therefore, the impact at this location in the PM peak hour would be less than significant based on the 10 trips added threshold and no mitigation is required. The project's contribution would not be cumulatively considerable.

Intersection 16: Lopes Road/Bridgeport Avenue

Although the intersection of Lopes Road/Bridgeport Avenue operates at an overall LOS F during both peak hours, the proposed project would add less than 10 trips to the northbound approach in the PM Peak Hour. The impact at this intersection in the PM Peak Hour would be less than significant based on the 10 trips added threshold. The project's contribution would not be cumulatively considerable.

The addition of project trips to Lopes Road/Bridgeport Avenue in the PM peak hour would exacerbate LOS F operations in the PM peak hour by adding more than 10 trips to the northbound through movement at the intersection in the cumulative plus business center drive extension with and without project scenario. Therefore, there would be a significant impact at this intersection under Cumulative with Project conditions and the project's contribution would be cumulatively considerable. PM peak hour operations at Lopes Road/Bridgeport Avenue after signalization would improve over "no project" conditions but would still remain at LOS F (217.7 seconds of delay). Similarly, operations at Lopes Road/Cordelia Road after signalization would improve over "no project" conditions but would still remain at LOS F (156.4 seconds of delay). Benefits to AM peak hour operations over "no project" conditions would also occur, with Lopes Road/Bridgeport Avenue operating at 317.7 seconds of delay and improved operations at Lopes Road/Cordelia Road operating at 154.6 seconds of delay.

Since the intersection operates unacceptably under Cumulative (without Project) Conditions and meets the Peak Hour signal warrant under Cumulative (without Project) Conditions, the project applicant shall pay a fair share contribution towards the construction of a signal and other improvements at the intersection. Alternatively, improvements may be funded through payment into the City's Development Impact Fee (DIF) program. While the improvements would mitigate the impact, the construction of the improvements would require substantial additional funding and coordination with the Union Pacific Railroad, and thus the impact is considered ***significant and unavoidable***.

It is noted that the mitigation measures will not preclude implementation of the Cumulative year I-80/I-680/SR 12 interchange improvement projects associated with the I-80/Suisun Valley Road-Pittman Road interchange. The Design Year analysis for the I-80/I-680/SR 12 interchange improvement project assumed that both the Lopes Road/Bridgeport Avenue and Lopes Road/Cordelia Road intersections would be signalized.

Impacts on Freeway Segments and Ramps under Cumulative 2035 Conditions

The current version of the Solano Transportation Authority travel demand model was reviewed to estimate the projected growth rate for freeway volumes in the study area. The STA model suggests a traffic volume growth rate of between 0.3 percent per year to 0.8 percent per year between 2010 and 2040. *The I-80/I-680/SR 12 Interchange PR/ED Design Year Demand Forecasts at Project Gateways (2006)* technical memorandum prepared for the I-80/I-680/SR 12 interchange project suggests a long-term traffic volume growth rate of between 1.9 percent to 2.6 percent per year through 2035. Based on this information, the Cumulative without Project conditions freeway volumes were forecast by applying a 2.0 percent per year straight-line growth rate between Year 2018 and Year 2035.

Cumulative with Project Conditions freeway operations are computed by adding project trips (previously presented on **Figure 4.9-8b**) to the roadway network.

The I-80/I-680/SR 12 interchange improvement project includes a suite of modifications to freeway access and lane configurations in the study area. The I-80/I-680/SR 12 interchange improvement project includes substantial widening along I-80 to accommodate future traffic volume demand growth, a realignment of I-680, and new on and off-ramps at the I-80/Suisun Valley Road and I-80/Green Valley Road interchanges. Similar to the intersection operations analysis, the freeway analysis assumes that a subset of the improvement packages (the first four of seven proposed) will be constructed. The freeway analysis does not reflect the construction of the Business Center Drive extension, as this will divert traffic demand from I-80 in the study area, so an analysis without the Business Center Drive extension represents a more conservative scenario.

Table 4.9-13 presents the results of the freeway operations analysis for the proposed project.

Table 4.9-13
Freeway Segment Peak Hour Levels of Service

			Cumulative without Project Conditions		Cumulative with Project Conditions	
Segment	**Segment Type**	**Peak Hour**	**Density**	**LOS[1]**	**Density**	**LOS[1]**
Westbound I-80						
1. Truck Scales on-ramp to Suisun Valley Road off-ramp	Basic	AM PM	18.0 14.0	C B	18.1 14.9	C B
2. Suisun Valley Road off-ramp	Diverge	AM PM	18.0 14.0	C B	18.1 14.9	C B
3. Suisun Valley Road off-ramp to Suisun Valley Road on-ramp	Basic	AM PM	17.8 13.8	B B	17.8 14.7	B B

Segment	Segment Type	Peak Hour	Cumulative without Project Conditions		Cumulative with Project Conditions	
			Density	LOS[1]	Density	LOS[1]
4. Suisun Valley Road on-ramp	Merge	AM PM	17.6 14.2	B B	17.7 15.1	B B
5. Green Valley Road off-ramp	Diverge	AM PM	17.3 14.0	B B	17.4 14.9	B B
6. Green Valley Road off-ramp to Southbound I-680 connector off-ramp	Basic	AM PM	14.4 10.9	B A	14.4 11.8	B B
Eastbound I-80						
7. Eastbound SR 12 on-ramp to Northbound I-680 connector on-ramp	Basic	AM PM	12.5 15.3	B B	12.6 15.4	B B
8. Northbound I-680 connector on-ramp	Merge	AM PM	16.7 21.5	B C	16.7 21.6	B C
9. Green Valley Road on-ramp	Merge	AM PM	16.4 20.9	B C	16.4 21.0	B C
10. Suisun Valley Road off-ramp	Diverge	AM PM	16.4 20.7	B C	16.4 20.8	B C
11. Suisun Valley Road off-ramp to Suisun Valley Road on-ramp	Basic	AM PM	16.1 21.2	B C	16.1 21.2	B C
12. Suisun Valley Road on-ramp	Merge	AM PM	15.7 21.0	B C	15.8 21.1	B C
13. Suisun Valley Road on-ramp to Truck Scales off-ramp	Basic	AM PM	15.7 20.8	B C	15.8 20.9	B C
Southbound I-680						
14. South of I-80	Basic	AM PM	25.7 22.1	C C	25.8 22.2	C C
15. South of Gold Hill Road	Basic	AM PM	39.2 30.1	E D	39.6 30.3	E D
Northbound I-680						
16. South of Gold Hill Road	Basic	AM PM	23.8 **v/c 1.025[2]**	C **F**	23.9 **v/c 1.029[2]**	C **F**
17. South of I-80	Basic	AM PM	21.0 29.2	C D	21.0 29.4	C D

Source: Fehr & Peers, 2019.
Notes:
[1] LOS based on 2010 HCM
[2] Volume-to-capacity ratio presented in lieu of Density as segment operates at LOS F. Calculated density above 45 pcpmpl.
Results in **bold** *denotes unacceptable operations.*

As shown in **Table 4.9-13**, the majority of freeway segments will operate at an acceptable LOS (LOS E or better) after the addition of project generated trips. The following segment operates at LOS F during the indicated peak hour:

- Cumulative Segment 16 – Northbound I-680 south of Gold Hill Road (PM peak hour)

Cumulative Segment 16 is projected to operate at a volume-to-capacity ratio of 1.025 under Cumulative without Project conditions. Under the proposed project, the segment would operate at a volume-to-capacity ratio of 1.029. The proposed project is anticipated to add less than 40 trips to the segment in the PM peak hour. Therefore, per the STA CMP threshold, the project impact on this segment is less than significant as the project adds trips in an amount less than 1.0 percent of the freeway's general-purpose lane capacity.[5]

All other segments continue to operate at LOS E or better after the addition of project trips. Therefore, the impact to freeway operations would be less than significant under Cumulative with Project conditions and the project would not contribute to a cumulative impact on freeway segments and ramps.

Cumulative 2035 Signal Warrant Analysis

The peak-hour signal warrants (Warrant 3A and Warrant 3B) from the *Manual on Uniform Traffic Control Devices (MUTCD)* were used to evaluate unsignalized intersections that operate unacceptably under Cumulative and Cumulative with Project conditions to determine if a traffic signal is warranted (see Appendix C). The following unsignalized intersections, which operate at unacceptable levels in the existing condition, and meet Peak Hour Signal Warrants in the existing condition, are projected to continue operating at deficient levels and peak hour signal warrants would continue to be satisfied:

- Intersection 11: I-80 westbound ramps-Neitzel Road/Suisun Valley Road
- Intersection 14: Central Way/Cordelia Road
- Intersection 15: Lopes Road/Cordelia Road
- Intersection 16: Lopes Road/Bridgeport Avenue

The above intersections would continue to meet the Peak-Hour Signal Warrant under both project alternatives in the cumulative condition.

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5 Cumulative Segment 16 includes two general purpose lanes. At a capacity of 2,000 vehicles per hour per lane, 1.0 percent of the general purpose lane capacity is 40 vehicles (1% x 2,000 vehicles per hour per lane x 2 lanes = 40 vehicles).

Impacts on Pedestrians, Bicycle Facilities, and Public Transit Service under Cumulative 2035 Conditions

Pedestrian impacts are generally project specific and are not cumulative by nature. As described above, with the addition of improvement proposed as MM TRANS-1b, the project would not conflict with a pedestrian, bicycle or public transit policy. As such, no cumulative impact would occur.

Mitigation Measures:

Implementation of **MM C-TRANS-1a** and **MM C-TRANS-1b.**

C-TRANS-1a The project applicant shall pay a fair share contribution to be included as part of the Development Review Conditions of Approval to fund construction of the following improvements at the intersection of Business Center Drive/Suisun Valley Road:

- Restripe the eastbound approach to include two left turn lanes, two through lanes, and one right-turn only lane.
- Add a right turn overlap phase for the eastbound right turn movement

Significance after Mitigation: Since the intersection operates unacceptably under Cumulative (without Project) Conditions, the project applicant shall pay a fair share contribution towards the construction the improvement at the intersection. Alternatively, improvements may be funded through payment into the City's Development Impact Fee (DIF) program. City staff have confirmed that the project is eligible for inclusion into the City's Capital Improvements Program (CIP), and thus the project impact is considered ***less-than-significant with mitigation***.

C-TRANS-1b The project applicant shall pay a fair share contribution to be included as part of the Development Review Conditions of Approval to fund construction of the following improvements at the intersection of I-80 eastbound ramps/Pittman Road:

- Restripe the eastbound approach to include one left turn lane and one left turn-through-right turn shared lane
- Improve the northbound Pittman Road intersection exit to accommodate two receiving lanes to serve the two lanes turning left on the restriped eastbound approach (improvement may conform to existing infrastructure prior to the I-80/Suisun Valley Road-Pittman Road overcrossing).

Significance after Mitigation: Since the intersection operates unacceptably under Cumulative (without Project) Conditions and meets the Peak Hour signal warrant under Cumulative (without Project) Conditions, the project applicant shall pay a fair share contribution towards the construction of a signal and other improvements at the intersection. Alternatively, improvements may be funded through payment into the City's Development Impact Fee (DIF) program. City staff have confirmed that the project is eligible for inclusion into the City's Capital Improvements Program (CIP), and thus the project impact is considered ***less-than-significant with mitigation***.

It is noted that the mitigation measures will not preclude implementation of the Cumulative year I-80/I-680/SR 12 interchange improvement project associated with the I-80/Suisun Valley Road-Pittman Road interchange. The Design Year analysis for the I-80/I-680/SR 12 interchange improvement project assumed that this intersection would be signalized.

Cumulative Impact C-TRANS-2: **Development of the proposed project, in combination with reasonably foreseeable future developments, would not conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b).** ***(Less than Significant)***

The impact from a project's increase in vehicle miles of travel on a per capita basis is essentially a cumulative impact, further, as the City has not adopted a VMT threshold, no finding can be made regarding VMT.

Mitigation Measures: Not applicable.

Cumulative Impact C-TRANS-3: **Development of the proposed project, in combination with reasonably foreseeable future developments, would not substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).** ***(Less than Significant)***

As mentioned above, the proposed project would not substantially increase hazards due to a geometric design feature. Design hazards are generally site specific and would not combine with other design hazards to create an impact. Therefore, the project would not contribute to a cumulative impact related to design hazards.

Cumulative Impact C-TRANS-4: **Development of the proposed project, in combination with reasonably foreseeable future developments, would not result in inadequate emergency access.** ***(Less than Significant)***

As mentioned above, the design of the proposed project would not hinder access of emergency vehicles. While the proposed project and cumulative project will increase the number of vehicles on roadways in the project area, this would not be expected to impede emergency access. All emergency vehicles are equipped with lights and sirens to signal vehicles to move to the side to let the emergency vehicle through. As the proposed project would not impact emergency access and emergency vehicles throughout the city would be able to maneuver through roadways in an efficient manner, the cumulative impact to emergency access would be less than significant.

4.9.5 REFERENCES

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