4.15 TRANSPORTATION

This section summarizes the findings of the Fairview at Northgate Transportation Impact Analysis (TIA) prepared by Fehr & Peers (December 2019). The TIA considers both short-term (construction) and long-term (operation/implementation) traffic impacts of the project. The TIA was prepared in accordance with criteria set forth by the City of Vallejo (City) and California Department of Transportation (Caltrans), and the Transportation Research Board's 2010 Highway Capacity Manual methodology for intersection level of service (LOS) analysis. The TIA is included in its entirety as Appendix J of this EIR.

Additional data sources included the following:

- Propel Vallejo 2040 General Plan (General Plan).
- Propel Vallejo 2040 General Plan EIR.
- Napa/Sonoma Travel Demand Model.
- Plan Bay Area 2040.
- Caltrans Performance Measurement System Data.

4.15.1 METHODOLOGY AND ASSUMPTIONS

TRAFFIC STUDY AREA

The traffic study area was selected in consultation with City of Vallejo staff based on a review of the project location and the amount of traffic that could be added to intersections in the area. The traffic study area is depicted on **Figure 4.15-1: Project Study Intersections and Trip Distribution**. It encompasses 25 intersections, including 5 new intersections formed by the project driveways, and 2 future intersections to be constructed as part of the planned I-80 at Redwood Parkway interchange improvements. These intersections include the following:

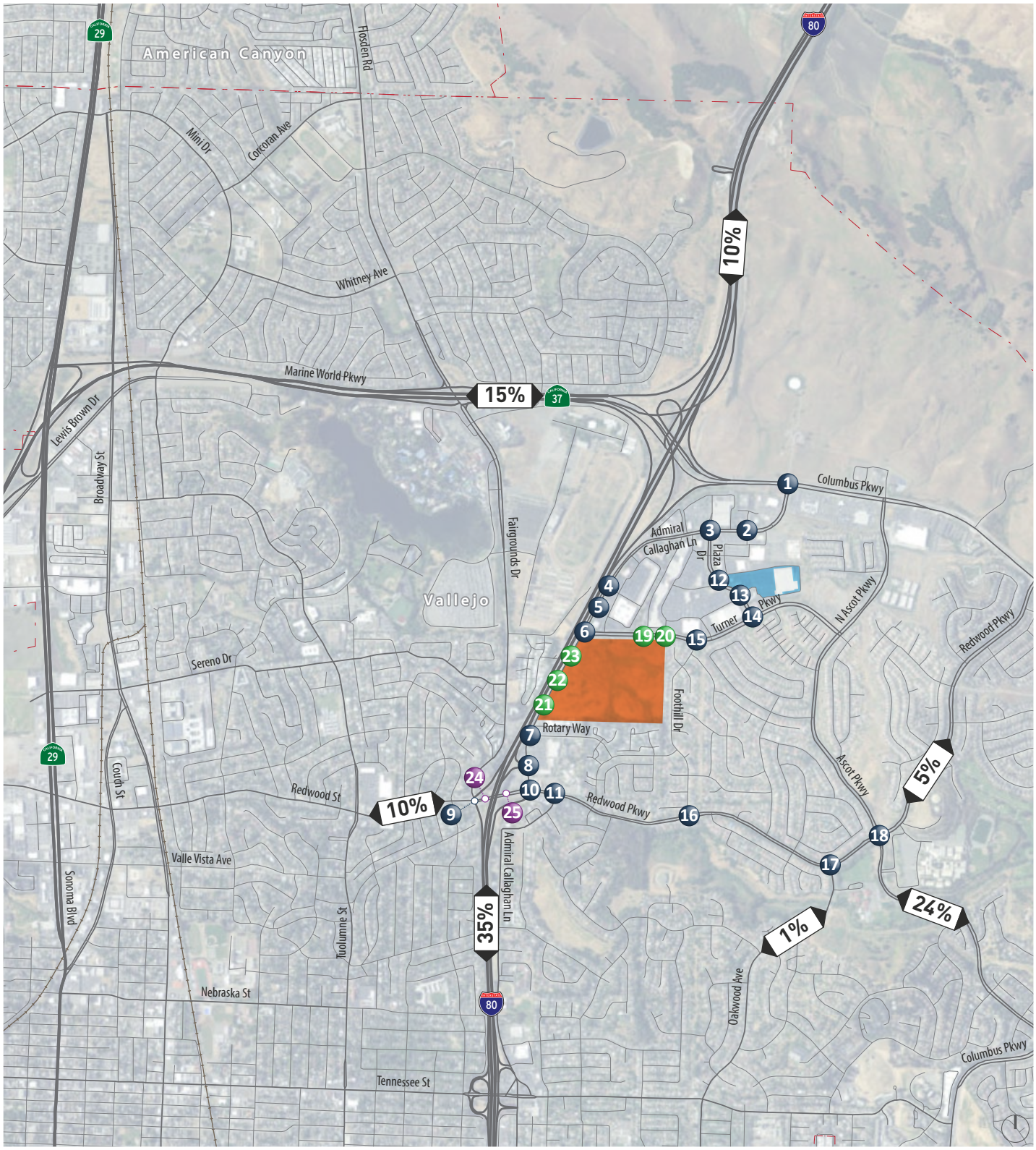
Intersections

1. Admiral Callaghan Lane at Columbus Parkway
2. Admiral Callaghan Lane at Auto Club Drive
3. Admiral Callaghan Lane at Plaza Drive
4. Admiral Callaghan Lane at Vallejo Corners
5. Admiral Callaghan Lane at Target Driveway
6. Admiral Callaghan Lane at Turner Parkway
7. Admiral Callaghan Lane at Rotary Way
8. Admiral Callaghan Lane at I-80 EB Ramps
9. Redwood Street at Fairgrounds Drive at I-80 WB Ramps

10. Redwood Parkway at Admiral Callaghan Lane (N) at I-80 EB Off-Ramp
11. Redwood Parkway at Admiral Callaghan Lane (S)
12. Plaza Drive at Gateway Plaza
13. Plaza Drive at Costco Driveway
14. Plaza Drive at Turner Parkway
15. Turner Parkway at Foothill Drive
16. Redwood Parkway/Foothill Drive
17. Redwood parkway/Oakwood Drive
18. Redwood Parkway/Ascot Parkway
19. Turner Parkway/Western Residential Project Driveway
20. Turner Parkway/Eastern Residential Project Driveway (With project only)
21. Admiral Callaghan Lane/Southern Project Driveway (With project only)
22. Admiral Callaghan Lane/Middle Project Driveway (With project only)
23. Admiral Callaghan Lane/Northern Project Driveway (With project only)
24. Redwood Parkway/I-80 Westbound Ramps (Future intersection: Cumulative (2040) cases only)
25. Redwood Parkway/I-80 Eastbound Ramps (Future intersection: Cumulative (2040) cases only).

Freeway Segments

1. I-80 Westbound East of Columbus Parkway
2. I-80 Westbound between Columbus Parkway and Redwood Parkway
3. I-80 Westbound West of Redwood Parkway
4. I-80 Eastbound East of Columbus Parkway
5. I-80 Eastbound between Columbus Parkway and Redwood Parkway
6. I-80 Eastbound West of Redwood Parkway



Source: Fehr + Peers, 2019

FIGURE 4.15-1: Project Study Intersections and Trip Distribution
Fairview at Northgate Project

Kimley»Horn

STUDY SCENARIOS

Each of the traffic study area intersections and freeway segments have been analyzed for the following scenarios:

- **Existing Conditions.** *Existing Conditions* quantify the current traffic operations at the study locations and are considered the baseline conditions against which changes are measured.
- **Existing with Project Conditions.** The *Existing with Project Conditions* scenario is a hypothetical scenario which assumes that the project would be fully implemented at the present time. This analysis isolates the potential impact of the project from other projects and circulation system improvements and assumes full development of the proposed project with full absorption of project traffic on the existing circulation system. For this scenario, project peak hour traffic volumes are added to the Existing Conditions volumes to obtain the *Existing with Project* traffic volumes.
- **Near-Term (2023 plus Other Approved Projects) without Project Conditions.** The *Near-Term (2023) without Project Conditions* scenario forecasts four years of development in the City and Solano County without the proposed project. The *Near-Term (2023) No Project* scenarios were forecasted using the Napa/Sonoma Travel Demand Model.
- **Near-Term (2023 plus Other Approved Projects) with Project Conditions.** The *Near-Term (2023) with Project Conditions* scenario refers to Year 2023 conditions with the addition of project traffic.
- **Cumulative (2040) without Project Conditions.** The *Cumulative (2040) without Project Conditions* scenario forecasts traffic conditions in Year 2040 associated with development in the City and Solano County without the proposed project. The *Cumulative (2040) No Project* scenarios were forecasted using the Napa/Sonoma Travel Demand Model.
- **Cumulative (2040) with Project Conditions.** The *Cumulative (2040) with Project Conditions* scenario refer to traffic impacts associated with the addition of project-generated traffic to traffic volumes anticipated in 2040.

TRAFFIC IMPACT ANALYSIS METHODOLOGY

Intersection Analysis Methodology

The traffic operations analysis uses the Synchro and Synchro/SimTraffic 9.0 software, based on the procedures outlined in the Transportation Research Board's 2010 Highway Capacity Manual (2010 HCM). Intersection operation inputs include vehicle and pedestrian volumes, lane geometry, signal phasing and timing, pedestrian crossing times, and peak hour factors. For intersections not located on Admiral Callaghan Lane, Redwood Parkway, and Turner Parkway (Intersections #1 - #3, and #12 through #20), isolated intersection analysis using the Synchro software was used. For the remaining intersections (#4 - #11 and #21 - #25), the SimTraffic software was used to analyze the Admiral Callaghan/Redwood Parkway/Turner Parkway network as a system. The average of ten SimTraffic model runs determined the intersection operations for these intersections.

The calculation returns a volume-to-capacity (V/C) ratio that translates into a corresponding Level of Service (LOS). LOS is a quantitative measure of the average delay experienced by a driver at the intersection. LOS ranges from LOS A, representing uncongested, free-flowing conditions, to LOS F, representing severely congested, over-capacity conditions. *Table 4.15-1: Level of Service Definitions - Intersections* provides ranges of delay and volume-to-capacity ratios that correspond to vehicular LOS at intersections.

Table 4.15-1: Level of Service Definitions - Intersections

Level of Service	Signalized Intersections		Unsignalized Intersections	
	Delay (seconds/vehicle)	Volume-to-Capacity Ratio (V/C)	Delay (seconds/vehicle)	Volume-to- Capacity Ratio (V/C)
A	< 10.0	< 1.0	< 10.0	< 1.0
B	> 10.0 to 20.0	< 1.0	> 10.0 to 15.0	< 1.0
C	> 20.0 to 35.0	< 1.0	> 15.0 to 25.0	< 1.0
D	> 35.0 to 55.0	< 1.0	> 25.0 to 35.0	< 1.0
E	> 55.0 to 80.0	< 1.0	> 35.0 to 50.0	< 1.0
F	> 80.0	> 1.0	> 50.0	> 1.0
Source: 2010 *Highway Capacity Manual.*				

Queues

Vehicle queues were evaluated with SimTraffic at intersections along Redwood Parkway and Admiral Callaghan Lane. The SimTraffic 9.0 software was used. The 50th percentile and 95th percentile queues are reported. The 50th percentile queue reflects the typical vehicle queues, while the 95th percentile queue reflects the typical maximum extent of vehicle queues during the hour, occurring two to three times during the hour. Maximum queues may be longer but occur infrequently. It should be noted that the instance of a queue exceeding available storage is not in itself a significant impact based on the significance criteria, but rather a condition reflecting the performance of individual movements at an intersection.

Signal Warrants

Unsignalized study intersections operating below acceptable standards during peak hours were studied to determine whether installation of a traffic control signal is justified. Unsignalized study intersections were evaluated under the Peak Hour Signal Warrant 3 criteria outlined in the 2014 California Manual on Uniform Traffic Control Devices (MUTCD).

To assess the need for signalization of stop-controlled intersections, the MUTCD (Caltrans, 2014) presents ten signal warrants. The Peak Hour Volume Warrant (Warrant 3B) and the Peak Hour Delay Warrant (Warrant 3A) were used as a supplemental analysis tool to assess operations at the unsignalized intersections.

Freeway Analysis Methodology

Freeway facilities (basic, weaving, and merge/diverge segments) were evaluated using the Highway Capacity Software 2010 (HCS 2010). The HCS 2010 implements the procedures defined in the 2010 HCM and takes into consideration peak hour traffic volumes, free-flow speeds, percentage of heavy vehicles, and number of travel lanes. These factors are used to determine the vehicle density, measured in passenger cars per mile per lane. *Table 4.15-2: Level of Service Definitions – Freeway Facilities* provides the relationship between vehicle density and LOS for freeway facilities.

Table 4.15-2: Level of Service Definitions - Freeway Facilities

Level of Service	Density (passenger cars per mile per lane)		
	Basic Segment	**Weaving Segment**	**Merge/Diverge Segment**
A	≤ 11	≤ 10	≤ 10
B	> 11 to 18	> 10 to 20	> 10 to 20
C	> 18 to 26	> 20 to 28	> 20 to 28
D	> 26 to 35	> 28 to 35	> 28 to 35
E	> 35 to 45	> 35	> 35
F	> 45	Demand Exceeds Capacity	Demand Exceeds Capacity

Source: 2010 *Highway Capacity Manual.*

LEVEL OF SERVICE STANDARD AND PERFORMANCE CRITERIA

The City of Vallejo General Plan sets "LOS E or better as an advisory standard to be considered along with, but not to override, metrics for pedestrian, bicycle, transit and emergency access performance."

4.15.2 ENVIRONMENTAL SETTING

REGIONAL

The City is located between the inner Bay Area and the Napa Valley, with access by road, rail, and water. Regional vehicular access to the City is provided by Interstate 80 (I-80), Interstate 780 (I-780), State Route 29 (SR-29), and State Route 37 (SR-37). I-80 runs north and south through the City via the Carquinez Bridge on the south to the City of Richmond and north to the City of Cordelia. SR-37 intersects I-80 north of the project site and provides access to points west such as Sonoma County. I-780 is south of the project site and provides access from the east from the City of Benicia. SR-29 at Sonoma Boulevard roughly parallels I-80 and provides northerly access to Napa County.

Regional transit access within the City includes passenger ferry service provided by San Francisco Bay Ferry that travels from the Vallejo Ferry Terminal to and from San Francisco. Bus service is provided by the Solano County Transit (SolTrans) bus service that among other things, links to the Bay Area Rapid Transit (BART) including its El Cerrito del Norte and Walnut Creek stations. Bus service includes the Napa County Transportation and Planning Agency's VINE bus service to Napa and the El Cerrito del Norte BART station. Park-and-ride facilities, bikeways, and pedestrian facilities also are provided at a local level with additional

connections to facilitate regional transit opportunities. The Napa County Airport is approximately six miles to the north.

LOCAL

Roadways

The Propel Vallejo 2040 General Plan (General Plan) identifies functional roadway classifications, which govern engineering design standards and the level of service on roadways.

- ***Freeways*** provide mobility between Vallejo and regional destinations. Freeways are linked to the City's network via ramps, are fully access controlled, and are divided highways with at least two lanes per direction. Freeway capacities depend primarily on the number of through lanes and the presence of auxiliary lanes (lanes connecting an on-ramp to the downstream off-ramps).
- ***Two-Lane Highways*** provide mobility between Vallejo and regional destinations.
- ***Principal Arterials/State Routes*** provide the highest level of mobility for traffic within the City after freeways and link freeways to other arterials, collectors, and local streets. Principal arterial streets typically have four travel lanes and are generally higher-speed roadways, with ½- to 1-mile signalized intersection spacing.
- ***Arterial Streets*** provide mobility for high traffic volumes between parts of the City, linking collectors to principal arterial streets and freeways. These roadways are typically lower-speed and have lower volumes than principal arterials, and provide two to four lanes, and sometimes six lanes. Arterials typically provide more property access points than principal arterials but are more restricted than collectors or local streets.
- ***Collector Streets*** provide connectivity within the City, linking local roads to arterials. Collectors, along with local streets, provide the highest level of access from private property driveways. Collectors typically have lower speeds than arterials with more closely spaced intersections than arterials.
- ***Local Roadways*** provide direct access to property, and typically have higher intersection spacing and lower speeds than other roadway classes.

Roadways that provide primary circulation near the project site are listed below.

- **Interstate 80 (I-80)** is an east-west freeway that extends from Chicago to San Francisco. Within Vallejo, I-80 is six lanes and is oriented in a north-south direction. I-80 provides access to the project site from the north at Columbus Parkway and from the south at Redwood Parkway.
- **Columbus Parkway** is an east-west four-lane arterial that begins at the terminus of SR-37. North of the project site, Columbus Parkway provides access to the project site at its intersection with Admiral Callaghan Lane. The posted speed limit is 45 miles per hour (mph); on-street parking is prohibited on Columbus Parkway.

- **Turner Parkway** is an east-west four-lane arterial that extends from Ascot Parkway to Admiral Callaghan Lane. Turner Parkway would be the primary access roadway to the residential portion of the project site. The posted speed limit is 40 mph; on-street parking is prohibited.
- **Redwood Parkway** is an east-west four-lane arterial between I-80 and Columbus Parkway. Redwood Parkway provides access to the project site at its intersection with Admiral Callaghan Lane. The posted speed limit is 35 mph; on-street parking is prohibited in the project vicinity.
- **Admiral Callaghan Lane** is a north-south four-lane arterial between Columbus Parkway and Turner Parkway and continues as a two-lane arterial between Turner Parkway and Rotary Way, along the project frontage. South of Rotary Way, Admiral Callaghan Lane widens back out to a four-lane arterial before continuing as a residential street south of Redwood Parkway. Admiral Callaghan Lane would provide primary access to the project's commercial center. The posted speed limit is 35 mph; on-street parking is prohibited near the project site.
- **Plaza Drive** is a north-south four-lane roadway between Admiral Callaghan Lane to the north and Turner Parkway to the south. Plaza Drive provides primary access to the existing Costco store. Although there is no posted speed limit, vehicles generally travel at approximately 30 mph. On-street parking is prohibited on Plaza Drive.

Bicycle and Pedestrian Facilities

Bicycle facilities are typically classified as follows:

- ***Bicycle paths*** (Class I) provide a completely separate right-of-way and are designated for the exclusive use bicycles and pedestrians with vehicle cross-flow minimized.
- ***Bicycle lanes*** (Class II) provide a restricted right-of-way and are designated for the use of bicycles for one-way travel with a striped lane on a street or highway. Bicycle lanes are generally a minimum of five feet wide. Vehicle parking and vehicle/pedestrian cross-flow are permitted.
- ***Bicycle routes*** (Class III) provide right-of-way designated by signs or pavement markings for shared use with motor vehicles. These include "sharrows" or "shared-lane markings" to highlight the presence of bicyclists.
- ***Class IV Bikeways*** (Class IV) 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.

Within the study area, Class II bicycle lanes are provided on Redwood Parkway east of Admiral Callaghan Lane and on Turner Parkway between Admiral Callaghan Lane and Ascot Parkway. Class III "sharrows" are on Admiral Callaghan Lane north of Turner Parkway. The General Plan identifies Admiral Callaghan Lane between Turner Parkway and Redwood Parkway as a future Class II bike lane facility.

Pedestrian facilities include sidewalks, pathways, crosswalks, and pedestrian signals. Sidewalks are provided along all arterials in the traffic study area including Turner Parkway, Plaza Drive, Rotary Way,

Redwood Parkway, Redwood Street, and on the south side of Columbus Parkway. There are sidewalks on the east side of Admiral Callaghan Lane north and south of the project site.

Transit Facilities

Transit service in the area is provided by the San Francisco Bay Ferry, SolTrans, BART/Amtrak, and the Mare Island Causeway Bridge.

San Francisco Bay Ferry. The San Francisco Bay Ferry/Vallejo Route offers ferry service daily between Vallejo and the San Francisco Ferry Building and San Francisco Pier 41. The Vallejo Ferry Terminal is located at 295 Mare Island Way approximately four miles from the project site. Travel time between Vallejo and San Francisco is approximately 60 minutes and approximately 10 minutes between Pier 41 and the Ferry Building. Parking is available at the Vallejo Ferry Terminal. Seasonal service is also available to Oracle Park for select San Francisco Giants' baseball games.

SolTrans. SolTrans provides local and express bus service to the Solano County cities of Vallejo, Benicia, and Fairfield. Express bus service connects to the Contra Costa County communities of El Cerrito, Pleasant Hill, and Walnut Creek, with regional connections to BART. The following bus routes are proximate to the project site.

- *Route 2* operates from approximately 6:00 AM to 8:30 PM on weekdays and from approximately 6:30 AM to 7:00 PM on weekends. The route connects the Vallejo Transit Center, Sereno Transit Center, Solano Community College and Gateway Plaza. Near the project site, there are stops on Plaza Drive, Turner Parkway, and at the Admiral Callaghan Lane/Target Driveway.
- *Route 7* operates from approximately from 6:00 AM to 9:00 PM on weekdays, from approximately 6:30 AM to 8:00 PM on Saturdays, and from approximately 8:30 AM to 8:00 PM on Sundays. The route connects the Vallejo Transit Center with Gateway Place, and businesses, neighborhoods, and schools along Florida Street and Springs Road. Near the project site, stops are located on Redwood Parkway, Admiral Callaghan Lane, Plaza Drive, and at the Admiral Callaghan Lane/ Target Driveway.
- *Route 20* operates from approximately 8:30 AM to 7:00 PM on weekdays only. It connects the Sereno Transit Center with Sutter Solano Medical Center, Gateway Plaza, and downtown Benicia. In the project area, stops are located on Plaza Drive.
- *Route 38* is a school tripper route that operates on weekday mornings. Between approximately 7:00 AM and 7:30 AM, Route 38 connects multiple residential neighborhoods with Beverly Hills Elementary School, Jesse Bethel High School, and Gateway Plaza. Near the project site vicinity, stops are located on Redwood Parkway, Admiral Callaghan Lane, Plaza Drive, and at Admiral Callaghan Lane/Target Driveway.

SolTrans ADA Paratransit bus service is available to qualified, certified persons with disabilities unable to board a regular SolTrans fixed route bus, access a SolTrans bus stop, or otherwise navigate the regular fixed-route bus system due to a disabling condition as defined by the Americans with Disabilities Act

(ADA). SolTrans Paratransit provides a shared ride, origin to destination bus service by advance appointment. Service operates parallel to the fixed route system, during the same hours and days.

BART/Amtrak. BART and Amtrak connections within Solano County include local routes 1 through 8, and 20. Solano Express routes include Routes Y, 80, and 85, and School Tripper routes include 15/17, and 38.

4.15.3 REGULATORY SETTING

FEDERAL

There are no federal regulations applicable to the proposed project.

STATE

California Department of Transportation

The California Department of Transportation (Caltrans) owns and operates the State highway system, which includes the freeways and State routes within California. In Vallejo, Caltrans maintains the freeways (I-80 and I-780), SR-29 (Sonoma Boulevard), and SR-37. The Caltrans Guide for the Preparation of Traffic Impact Studies (December 2002) provides guidance on the evaluation of traffic impacts to State highway facilities. The document outlines when a traffic impact study is needed and what should be included in the scope of the study. The Guide states the following: "Caltrans endeavors to maintain a target LOS at the transition between LOS "C" and LOS "D" on State highway facilities, however, Caltrans acknowledges that this may not be always feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS."

Complete Streets Act

Assembly Bill (AB) 1358, the California Complete Streets Act, became effective January 1, 2011. AB 1358 places the planning, designing, and building of complete streets into the larger planning framework of the General Plan by requiring jurisdictions to amend their circulation elements to plan for multimodal transportation networks.

REGIONAL

Bay Area

Metropolitan Transportation Commission

The Metropolitan Transportation Commission (MTC) is the Bay Area's regional transportation planning agency and federally designated Metropolitan Planning Organization (MPO). MTC is responsible for preparing the Regional Transportation Plan (RTP), a comprehensive blueprint for the development of mass transit, highway, airport, seaport, railroad, bicycle, and pedestrian facilities. The RTP is a 20-year plan that is updated every three years to reflect new planning priorities and changing projections of future growth and travel demand. The long-range plan must be based on a realistic forecast of future revenues, and the

transportation projects taken as a whole must help improve regional air quality. The MTC also screens requests from local agencies for State and federal grants for transportation projects to determine compatibility with the RTP.

Plan Bay Area 2040 (Regional Transportation Plan)

Plan Bay Area 2040 is a State-mandated, integrated long-range transportation and land use plan. As required by Senate Bill (SB) 375, all metropolitan regions in California must complete a Sustainable Communities Strategy (SCS) as part of a RTP. In the Bay Area, the MTC and the Association of Bay Area Governments (ABAG) are jointly responsible for developing and adopting a SCS that integrates transportation, land use and housing to meet greenhouse gas reduction targets set by the California Air Resources Board (CARB).

Solano County

Regional Transportation Improvement Program

The Solano Transportation Authority prepares the Regional Transportation Improvement Program (RTIP) which identifies and prioritizes transportation improvement projects, including roadway and freeway capacity and operational improvements, applicable transit enhancements, and pedestrian and bicycle network improvements. The RTIP is submitted to the Metropolitan Transportation Agency, which prioritizes projects for the entire nine-county Bay Area region and ultimately produces the RTP. The current RTP is Plan Bay Area.

Solano Transportation Authority Comprehensive Transportation Plan

The Comprehensive Transportation Plan (CTP) for Solano County identifies, plans, and prioritizes the transportation needs of Solano County through 2030. Solano County's transportation planning agency, the Solano Transportation Authority (STA), as the Transportation Planning and Congestion Management Agency for Solano County, developed the CTP 2030 in collaboration with its many transportation partners and the public. The CTP identifies overall policies as well as specific policies and projects for key plan elements including: arterials, highways, freeways, transit, and alternative modes.

Solano County Congestion Management Program

The Congestion Management Program (CMP) for Solano County is administered by the STA which acts as the State-mandated Congestion Management Agency (CMA). The CMP network in Vallejo consists of I-80, I-780, SR-37, and SR-29 as well as three key arterial segments: Tennessee Street between Mare Island Way and I-80, Curtola Parkway between Lemon Street and Maine Street, and Mare Island Way between Maine Street and Tennessee Street. I-80 is the closest CMP network road to the project site.

LOCAL

Propel Vallejo General Plan 2040 (General Plan)

The Vallejo General Plan provides information about the transportation needs of Vallejo. The Plan also includes Level of Service (LOS) standards for the City. General Plan transportation and traffic policies and actions relevant to the proposed project are listed below.

Policy CP-1.6	*Active Transportation Network*. Promote the health benefits of walking and bicycling by providing a convenient and safe network of bicycle paths and routes, sidewalks, pedestrian paths, and trails, including connections with major destinations such as civic facilities, educational institutions, employment centers, shopping, and recreation areas.
Policy MTC-2.1	*Safety First.* Prioritize pedestrian, bicycle, and automobile safety over traffic flow.
Policy MTC-2.3	*Emergency Response Routes*. Ensure adequate emergency vehicle access in all areas of Vallejo.
Policy MTC-2.4:	*Citywide Mobility*. Maintain a transportation network that provides mobility for all ages and abilities and for all areas of the community.
Policy MTC-2.5	*Street Classification System*. Maintain a street classification system that establishes user mode priorities and associated performance standards metrics for each type of street.
Action MTC-2.5A	Establish performance standards for each street type that includes adequate emergency vehicle use.
Action MTC-2.5B	Set vehicle Level of Service E or better as an advisory standard to be considered along with, but not to override, metrics for pedestrian, bicycle, transit, and emergency access performance, with the prioritization of metrics to be determined by the street type and context.
Action MTC-2.5C	Include the following considerations in establishing performance metrics: i. quality and connectivity of pedestrian facilities, based on best practice design guidelines including the California Manual on Uniform Traffic Control Devices (MUTCD) and the National Association of City Transportation Officials (NACTO) Urban Street Design Guide; ii. quality and connectivity of the bicycle facilities, based on best practice design guidelines including the California MUTCD, Caltrans Highway Design Manual Chapter 1000, and the NACTO Urban Bikeway Design Guide; iii. quality of the transit facilities and service, based on best practice design guidelines, including the NACTO Transit Street Design Guide,

	as well as on the service capacity and frequency as compared to measured or projected demand; adequacy of emergency access provided, as measured by the efficiency of emergency access routes and the presence or absence of barriers along primary routes.
Action MTC-2.5D	Employ traffic management techniques, adjust traffic signal timing, and install speed management to meet performance standards for all modes of transportation.
Action MTC-2.5E	Continue to collect both City and Regional transportation impact fees so that development makes fair share contribution to improvements needed to maintain established standards for all modes of transportation, including for traffic flow, roadway safety, and pavement condition.
Policy MTC-2.7	*Complete Streets*. Increase accessibility for and use of streets by pedestrians, bicyclists, and transit riders.
Action MTC-2.7B	Seek funding to improve sidewalk conditions, including widening of substandard sidewalks and adding street trees and lighting.
Action MTC-2.7C	Establish City regulations to improve walking and biking opportunities in new development, including features such as sidewalks, signage, streetscape improvements, bike lanes, and secured bicycle parking.
Action MTC-2.7D	Adopt the National Association of City Transportation Officials (NACTO) Urban Street Design Guide and Urban Bikeway Design Guide to direct future improvement projects.
Action MTC-2.7E	Factor in bus operational and access needs when considering the location, planning, and design of site improvements, considering such factors as bus operational needs, proximity of building to streets, and provision of sidewalks, supporting an efficient, reliable, and safe transit system accessible to all.
Action MTC-2.7F	Update City regulations to allow use of sidewalk space for uses such as sidewalk dining or merchandise by adjacent businesses on commercial streets with sufficient width.
Policy MTC-2.8	*Transportation Demand Management*. Decrease dependence on single-occupant vehicles by increasing the attractiveness of other modes of transportation. Coordinate with employers and Action MTC-2.8A transit agencies to encourage and promote the use of shuttles, carpools, vanpools, transit passes, variable work hours, telecommuting, and other methods to reduce vehicle miles traveled (VMT).
Action MTC-2.8B	Partner with major employers and local businesses to study the feasibility of creating one or more Transportation Management Associations (TMA)

	for cost-effective provision of transportation services and commute trip reduction strategies in Vallejo's job centers.
Action MTC-2.8C	As part of the site plan approval process, require development to provide services from a menu of transportation demand management (TDM) strategies that will reduce VMT.
Action MTC-2.8E	As part of the General Plan annual review, include discussion of the progress of TDM improvements and programs, based on establishing methods for monitoring progress.
Action MTC-2.8F	Engage in regional planning efforts that include TDM.
Policy MTC-2.9	*Local Transit*. Encourage increased local transit ridership to work, school, shopping, and recreation.
Action MTC-2.9A	Coordinate with transit providers to facilitate local service that is timely, cost-effective, and responsive to community travel patterns and needs.
Action MTC-2.9B	Work with SolTrans to identify and implement public realm improvements that support increased use of public transit, including inviting sidewalks, ADA-compliant curb ramps, signal priorities, and amenities such as sidewalks, benches, shelters, signage, and real-time schedule systems on key routes.
Action MTC-2.9C	Seek funding for para-transit, neighborhood shuttle, pedi-cab, and other alternative transportation services.
Action MTC-2.9D	Provide informational materials to promote walking and bicycling as healthy, affordable, and fun ways to get around Vallejo.
Policy MTC-2.11	*Sustainable Transportation*. Ensure that circulation improvements can be operated and maintained within existing and future resource limitations.
Goal MTC-3	Interconnected Community. Improve connections within and between Vallejo's neighborhoods for all travel modes.
Policy MTC-3.1	*Coordinated Transportation Planning*. Ensure that improvements to the transportation network support a land use pattern that connects the community and facilitates travel among Vallejo’s neighborhoods.
Action MTC-3.1A	Work with Caltrans, Solano County, SolTrans, and the Solano Transportation Authority to identify and seek funding for improvements that make intra-city travel easier, including for transit, bicycles, and pedestrians.
Action MTC-3.1B	Synchronize improvements to the local street network with planned expansion of the County bicycle network and the regional trail system in Vallejo.

Policy MTC-3.2	*Local Transit*. Encourage improvements in citywide transit service that directly connect major destinations in Vallejo, including commercial districts, job centers, and projected growth areas.
Policy MTC-3.4	*Walking, Biking, and Rolling*. Expand the local bicycle and trail network to provide safe, healthy, attractive options for non-motorized travel among destinations in Vallejo, including for wheelchair users.
Policy MTC-3.5	*Walkability*. Promote a well-designed, interconnected, pedestrian-friendly environment in the Downtown/Waterfront District.
Policy MTC-3.6	*Wayfinding*. Emphasize pedestrian access in the Downtown/Waterfront circulation system.
Policy MTC-3.7	*Shared Streets*. Facilitate access to and through the District by alternatives to the automobile.

4.15.4 EXISTING CONDITIONS

EXISTING TRAFFIC VOLUMES

Counts of vehicles, pedestrians, and bicyclists at the traffic study intersections were collected in November 2017 and late August 2019 for weekday AM, mid-day, PM, and Saturday mid-day two-hour peak periods.[1] Local schools were in session for these counts. Based on these counts, the traffic study area peak hours are typically 8:00 – 9:00 AM for the weekday AM peak hour, 1:00 PM to 2:00 PM for the weekday mid-day peak hour, 4:30 PM to 5:30 PM for the weekday PM peak hour, and 12:30 PM to 1:30 PM for the Saturday mid-day peak hour. Peak Hour Factors[2] were applied to modeling to account for the high traffic volumes hours of the day. Peak hour factors also included pedestrian and bicycle activity. Additional counts were taken in July 2019 from 7 AM – 9 AM to capture the AM peak period traffic associated with the existing Costco gas pumps only.

Intersection Levels of Service

Peak hour intersection analysis was conducted for the traffic study area intersections using the applicable intersection analysis methodology. Existing weekday mid-day (MD) (12:00 PM to 2:00 PM), PM (4:00 PM to 6:00 PM), and Saturday mid-day (SA) peak hour operations are summarized in *Table 4.15-3: Intersection Levels of Service – Existing Conditions*. The table shows that all traffic study area intersections are currently operating at an acceptable level of service (LOS E or better) with the exception of the following intersection:

- Redwood Street/Fairgrounds Drive/I-80 WB Ramps (AM peak hour); and
- Plaza Drive/Costco Driveway (Mid-day, PM, and Saturday mid-day peak hours).

[1] The 2019 counts were obtained to support the addition of intersections 15 – 18 to the analysis, as well as to support the addition of an AM peak hour analysis to the study.

[2] The peak hour factor (PHF) is the hourly volume during the maximum-volume hour of the day divided by the peak 15-minute flow rate within the peak hour; a measure of traffic demand fluctuations within the peak hour.

Table 4.15-3: Intersection Levels of Service – Existing Conditions

Intersection Location	Control[1,2]	Peak Hour	Existing Conditions	
			Delay (seconds)[3]	LOS[3]
1. Admiral Callaghan Ln at Columbus Pkwy	Signal	AM	13.8	B
		MD	17.2	B
		PM	24.0	C
		SA	20.4	C
2. Admiral Callaghan Ln at Auto Club Dr	Signal	AM	14.6	B
		MD	15.1	B
		PM	15.8	B
		SA	17.3	B
3. Admiral Callaghan Ln at Plaza Dr	Signal	AM	25.6	C
		MD	21.8	C
		PM	22.8	C
		SA	38.1	D
4. Admiral Callaghan Ln at Vallejo Corners	Signal	AM	4.7	A
		MD	7.4	A
		PM	8.9	A
		SA	11.8	B
5. Admiral Callaghan Ln at Target Driveway	SSS	AM	1.0 (2.4)	A(A)
		MD	1.7 (3.0)	A (A)
		PM	1.9 (5.4)	A (A)
		SA	2.1 (5.0)	A (A)
6. Admiral Callaghan Ln at Turner Pkwy	Signal	AM	6.6	A
		MD	13.1	B
		PM	15.6	B
		SA	23.8	C
7. Admiral Callaghan Ln at Rotary Way[4]	AWS	AM	9.0	A
		MD	14.9	B
		PM	17.1	C
		SA	21.1	C
8. Admiral Callaghan Ln at I-80 EB Ramps	SSS	AM	2.1 (4.3)	A (A)
		MD	5.7 (11.7)	A (B)
		PM	5.7 (10.9)	A (B)
		SA	7.1 (13.2)	A (B)
9. Redwood St/Fairgrounds Dr at I- 80 WB Ramps	Signal	AM	**95.3**	**F**
		MD	31.7	C
		PM	36.2	D
		SA	38.8	D
10. Redwood Pkwy/Admiral Callaghan Ln (N) at I-80 EB Off-Ramp	Signal	AM	26.5	C
		MD	27.6	C
		PM	26.2	C
		SA	35.9	D
11. Redwood Pkwy at Admiral Callaghan Ln(S)	Signal	AM	8.9	A
		MD	9.9	A
		PM	11.9	B
		SA	11.5	B
12. Plaza Dr. at Gateway Plaza	Signal	AM	48.7	D

Table 4.15-3: Intersection Levels of Service – Existing Conditions

Intersection Location	Control[1,2]	Peak Hour	Existing Conditions	
			Delay (seconds)[3]	LOS[3]
		MD	13.3	B
		PM	12.9	B
		SA	16.8	B
13. Plaza Dr. at existing Costco Driveway	SSS	AM	5.3 (12.0)	A (B)
		MD	**27.0 (97.9)**	**F (F)**
		PM	**21.2 (79.5)**	**F (F)**
		SA	**90.6 (> 150.0)**	**F (F)**
14. Plaza Dr. at Turnover Pkwy	Signal	AM	10.2	B
		MD	13.7	B
		PM	13.4	B
		SA	15.1	B
15. Turner Parkway at Foothill Drive	SSS	AM	2.2 (9.6)	A (A)
		MD	1.9 (12.5)	A (B)
		PM	2 (12.8)	A (B)
		SA	2.1 (14.2)	A (B)
16. Redwood Parkway at Foothill Drive	SSS	AM	1.5 (12.5)	A (B)
		MD	2 (15.3)	A (C)
		PM	2.4 (16.1)	A (C)
		SA	2.1 (18)	A (C)
17. Redwood Parkway at Oakwood Drive	Signal	AM	7.5	A
		MD	10.3	B
		PM	12.2	B
		SA	11.6	B
18. Redwood Parkway/Ascot Parkway	Signal	AM	15.6	B
		MD	15.8	B
		PM	16.6	B
		SA	16.2	B

Notes:

1. Signal = signalized intersection; AWS=all-way stop; SSS=side street stop. MD = weekday mid-day (12:00 PM to 2:00 PM); PM = evening (4:00 PM to 6:00 PM); SA = Saturday mid-day (12:00 PM to 2:00 PM).
2. For side-street stop-controlled intersections, two service levels are listed: Average intersection LOS (LOS for worst side-street movement)
3. **Bold** indicates below-standard service level
4. Note that this intersection is analyzed in the Existing and Existing Plus Project scenarios as an all-way stop, which was the control type in 2017 when most of the traffic counts were taken. It has since been signalized in 2019.

Source: Fehr & Peers, December 2019.

Queues

The 50th and 95th percentile vehicle queues were estimated using SimTraffic 9.0 for all controlled movements at Intersections 4 through 11. It should be noted that the instance of a queue exceeding available storage is not in itself a significant impact based on the significance criteria, but rather a condition reflecting the performance of individual movements at an intersection. Vehicle queues exceed the storage capacity at the following intersections:

- **Intersection 6:** Admiral Callaghan Lane at Turner Parkway: westbound left and northbound through/right during the Saturday mid-day peak hour.
- **Intersection 7:** Admiral Callaghan Lane at Rotary Way: westbound right during the weekday midday and Saturday mid-day peak hours; westbound left during the weekday PM peak hour; and northbound through/right during the Saturday mid-day peak hour.
- **Intersection 8:** Admiral Callaghan Lane at I-80 EB Ramps: northbound left during all peak hours; and northbound through and through/right during the weekday AM and weekday PM peak hour.
- **Intersection 9:** Redwood Street/Fairgrounds Drive at I-80 WB Ramps: south-westbound left during all peak hours; eastbound right and southbound left during the weekday AM and weekday PM peak hour; and westbound left during the weekday and Saturday mid-day peak hour, westbound through and through/right during the weekday AM peak hour.
- **Intersection 10:** Redwood Parkway/Admiral Callaghan Lane (N) at I-80 EB Off-Ramp: southbound right during the weekday AM, weekday PM and Saturday mid-day peak hours; and eastbound left during the weekday AM and Saturday mid-day peak hour.
- **Intersection 11:** Redwood Parkway at Admiral Callaghan Lane (S): northbound left during the three peak hours.

Signal Warrant Analysis

The Project was evaluated for the need to signalize stop-controlled intersections using the California Manual of Uniform Traffic Control Devices (MUTCD) (Caltrans, 2014) and considered existing traffic conditions and those that would occur if the Project is constructed, which are discussed in the impacts section further below. The unsignalized intersection of Intersection #13: Plaza Drive/Costco Driveway currently experiences high levels of delay for vehicles turning on to Plaza Drive. Intersection #13: Plaza Drive/Costco Driveway currently meets peak hour signal warrants during the Weekday Midday, Weekday PM, and Saturday Midday peak hours. The volumes are much lower in the Weekday AM peak hour and as a result the intersection does not meet peak hour signal warrants. Intersection #8: Admiral Callaghan Lane/I-80 Northbound Ramps experiences higher demand in the northbound left movement in the AM peak hour, and as a result meets peak hour signal warrants in this peak hour only. The I-80 Northbound Ramps are planned to be relocated from Intersection #8 as part of the future reconfiguration of the interchange. The unsignalized intersection at Intersection #5: Admiral Callaghan Lane/Target Driveway does not currently meet peak hour signal warrants.

Freeway Segment Levels of Service

Existing I-80 freeway segment operations are summarized in *Table 4.15-4: I-80 Weekday PM Levels of Service – Existing Conditions*. This table indicates that all freeway segments are currently operating at an acceptable level of service (LOS E or better) as set by Caltrans.

Table 4.15-4: I-80 Weekday PM Levels of Service – Existing Conditions

Segment	Existing Conditions		
	Volume	Density[1]	LOS
1. Westbound – East of Columbus Pkwy	3,520	16.4	B
2. Westbound – Between Redwood Pkwy and Columbus Pkwy	4,510	21.6	C
3. Westbound – West of Redwood Pkwy	4,690	31.0	D
4. Eastbound – East of Columbus Pkwy	4,890	29.9	D
5. Eastbound – Between Redwood Pkwy and Columbus Pkwy	2,980	18.9	C
6. Eastbound – West of Redwood Pkwy	5,240	35.0	D

MD = weekday mid-day (12:00 PM to 2:00 PM); PM = evening (4:00 PM to 6:00 PM); SA = Saturday mid-day (12:00 PM to 2:00 PM).

1. Density Reported in Passenger Cars per Mile Per Lane

Source: Caltrans PeMS Database, September 2018; Fehr & Peers, December 2019.

4.15.5 STANDARDS OF SIGNIFICANCE

SIGNIFICANCE CRITERIA AND THRESHOLDS

Based upon the criteria derived from Appendix G of the State CEQA Guidelines, a project would have a significant impact related to transportation, if it would:

- Conflict with an applicable program plan, ordinance or policy establishing measures of effectiveness for the performance of addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities.
- Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b).
- Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?
- Result in inadequate emergency access?

City and Caltrans Thresholds

In addition to the State CEQA Guidelines, specific criteria based on the standards of the City of Vallejo and Caltrans (for Caltrans freeway facilities) were used in this EIR. For the purposes of this impact evaluation, consistent with Policy MTC 2.5 and Action MTC 2.5B in the Vallejo General Plan 2040 which sets "LOS E or better as an advisory standard to be considered along with, but not to override, metrics for pedestrian, bicycle, transit and emergency access performance," an impact would be significant if:

1. The project causes the v/c ratio, as calculated with the HCM methodology, to increase by 0.01 or more at a signalized intersection operating at LOS F without the project; or
2. The project causes a stop-controlled intersection to fall to LOS F (for side-street stop-controlled intersections, for the worst side street movement or approach), or adds traffic to a stop-

controlled intersection already operating at LOS F (for side-street stop-controlled intersections, for the worst side street movement or approach), and the California Manual on Uniform Traffic Control Devices peak hour signal warrant is met.

3. The project causes a freeway segment to deteriorate from LOS E or better to F.
4. The project adds more than 50 peak hour vehicles to a freeway segment already operating at LOS E or F without the project.

Issues Not Discussed Further

- Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b).

In accordance with SB 743, the new CEQA Guidelines section 15064.3, subdivision (b) was adopted in December 2018 by the California Natural Resources Agency. These revisions to the CEQA Guidelines change the way transportation impacts will be analyzed in environmental documents. With SB 743, the criteria for determining the significance of transportation impacts are primarily focused on projects within transit priority areas and shift the focus from vehicle congestion and delay to a reduction of greenhouse gas emissions, creation of multimodal networks, and promotion of a mix of land uses. VMT is a measure of the total number of miles driven to or from a development and is sometimes expressed as an average per trip or per person. As stated in the Governor's Office of Planning and Research Technical Advisory (2018):

> *SB 743 (Steinberg, 2013), which was codified in Public Resources Code section 21099, required changes to the guidelines implementing CEQA (CEQA Guidelines) (Cal. Code Regs., Title 14, Div. 6, Ch. 3, § 15000 et seq.) regarding the analysis of transportation impacts. As one appellate court recently explained: "During the last 10 years, the Legislature has charted a course of long-term sustainability based on denser infill development, reduced reliance on individual vehicles and improved mass transit, all with the goal of reducing greenhouse gas emissions. Section 21099 is part of that strategy …" (Covina Residents for Responsible Development v. City of Covina (2018) 21 Cal.App.5th 712, 729.) Pursuant to Section 21099, the criteria for determining the significance of transportation impacts must "promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses." (Id., subd. (b)(1); see generally, adopted CEQA Guidelines, § 15064.3, subd. (b) [Criteria for Analyzing Transportation Impacts].) To that end, in developing the criteria, OPR has proposed, and the California Natural Resources Agency (Agency) has certified and adopted, changes to the CEQA Guidelines that 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).)*

The newly adopted guidance provides that a lead agency may elect to be governed by the provisions of this section immediately. Beginning on July 1, 2020, the provisions of this section shall apply statewide. The City is currently engaged in this process and has not yet formally adopted its updated transportation significance thresholds or its updated transportation impact analysis procedures. Since the regulations of SB 743 have not been finalized or adopted by the City, delay and LOS are the measures used in this EIR to determine the significance of transportation impacts (see Impact TR-1 discussion, below).

4.15.6 PROJECT IMPACTS AND MITIGATION

TRIP GENERATION

Trip generation refers to the process of estimating the amount of vehicular traffic a project would add to the surrounding roadway system. Because the proposed project includes a new Costco, peak hour estimates consider the daily condition and for the peak one-hour period during the weekday mid-day, the weekday evening commute, and Saturday mid-day when Costco volumes would be the greatest.

Estimates were also created for the peak one-hour period during the weekday morning commute for the residential portion of the project only. Project trip generation for the non-Costco retail and residential portions of the project were estimated using rates from the Institute of Transportation Engineers (ITE) Trip Generation Manual (9th Edition).

Existing With Project Conditions

Trip generation for the proposed Costco was estimated using trip rates derived from counts taken at the existing Costco driveway in November 2017, and at the existing Costco gas station entry in July 2019.[3] The latter counts were taken to verify the gas station trip generation (as a subset of the total Costco trip generation) and to estimate the effect of the expanded number of fueling stations with the proposed project from 16 (at the existing site) to 30 (with the Project).

Trips associated with the Costco are presented as negative trips because they would be removed from the roadway network if the proposed project is constructed. Under the *Existing With Project* and *Near-Term With Project* scenarios, the existing Costco site at 198 Plaza Drive is assumed to remain vacant It is assumed that a reuse/occupancy of the existing Costco site would not occur before 2023 because of the time needed to reconfigure the interior of the structure to accommodate future tenants. The net new trips under these conditions represent the removal of the existing Costco trips and the addition of the new Costco, retail and residential trips. Trip generation estimates for the *Existing With Project Conditions* are presented in *Table 4.15-5: Existing With Project Trip Generation*.

Near Term With Project and Cumulative With Project Conditions

In the *Near-Term With Project and Cumulative With Project Conditions*, the existing Costco site is assumed to be occupied by a new general retail tenant. Future use of the existing Costco site would be

[3] Costco representatives indicate that gas station usage does not vary substantially by season, so the July 2019 counts can be considered a good representation of year-round activity).

deed-restricted and would not allow a bulk warehouse type retail use such as a Sam's Club or other large discount retailers.

Therefore, the net new trips in the Near Term and Cumulative scenarios represent the removal of the existing Costco trips, the addition of retail trips at the existing Costco site, and the addition of Costco, retail, and residential trips at project site. Trip generation estimates for the Near-Term with Project and Cumulative with Project Conditions are presented in *Table 4.15-6: Near Term and Cumulative Project Trip Generation*.

Trip Distribution

Project trip distribution refers to the direction of approach and departure that vehicles would take to access and leave the site. Estimates of regional project trip distribution were developed based on existing travel patterns in the area, a select zone analysis of commercial and residential zones using the Napa/Sonoma travel demand model, and the location of other Costco stores in the region. The project trip distribution is shown in Figure 4.15-1.

Trip Assignment

Project trips were assigned to the roadway network based on the distribution patterns shown in Figure 4.15-1. Trips associated with the existing Costco site were removed from the roadway network and trips associated with the proposed project and the re-use of the existing Costco site (for the near-term and cumulative cases) were added to the network. This results in certain movements having lower volumes in the "With Project" scenario than the "Without Project" scenario.

For the "existing trip assignments," the trips are eliminated due to the existing Costco site being vacated. For the "near-term" and "cumulative cases," the trips include the net change in trips from the vacated Costco and the anticipated general retail use that would later occupy the structure. It should be noted that under the Cumulative Condition roadway network includes changes related to the planned re-construction of the I-80 at Redwood Parkway interchange.

The assignment of project site Costco/retail trips to the three driveways on Admiral Callaghan Lane was based on several factors, including the distribution of proposed uses on the Project site, the regional distribution of trips to/from the north and south, the presence of a traffic signal at the middle driveway, and an evaluation of travel path options for drivers traveling to and from I-80 Westbound. Projected congestion between the project site and the I-80/Redwood Parkway interchange during peak hours may cause some drivers needing to access I-80 westbound to travel to the north to the Columbus Parkway interchange rather than south to Redwood Parkway. An evaluation of competing travel times in the cumulative analysis (included in Chapter 6 of Appendix J to this EIR) was used to estimate the number of drivers who would divert. The volumes at the project driveways are based on this assessment.

Table 4.15-5: Existing With Project Trip Generation

Land Use	Quantity	ITE Code	AM Peak Hour			Weekday Mid-Day Peak Hour			Weekday PM Peak Hour			Saturday Peak Hour			Daily
			In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Project Site															
New Costco	152 ksf	Custom	ye95	95	190	754	754	1,508	870	870	1,740	896	932	1,828	15,590
Retail	30 ksf	820	55	48	102	48	48	96	53	58	111	75	69	145	1,280
Residential	178 du	210	33	100	133	94	55	150	109	64	173	87	74	161	1,690
Project Site Total Trips			**183**	**243**	**425**	**897**	**858**	**1,755**	**1,032**	**992**	**2,024**	**1,058**	**1,076**	**2,134**	**18,560**
Existing Costco Site															
Existing Costco	125 ksf	Custom	(76)	(76)	(152)	*(618)*	*(618)*	*(1,237)*	*(713)*	*(713)*	*(1,427)*	*(735)*	*(764)*	*(1,499)*	*(12,860)*
Existing Costco Site Total Trips			***(76)***	***(76)***	***(152)***	***(618)***	***(618)***	***(1,237)***	***(713)***	***(713)***	***(1,427)***	***(735)***	***(764)***	***(1,499)***	***(12,860)***
Net New Trips			**107**	**167**	**273**	**279**	**240**	**518**	**319**	**279**	**598**	**323**	**311**	**635**	**5,700**

ksf = thousand square feet; du = dwelling unit

Source: Trip Generation Manual (9th Edition), ITE, 2012; Fehr & Peers, December 2019.

Table 4.15-6: Near Term and Cumulative Project Trip Generation

Land Use	Quantity	ITE Code	AM Peak Hour			Weekday Mid-Day Peak Hour			Weekday PM Peak Hour			Saturday Peak Hour			Daily
			In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Project Site															
New Costco	152 ksf	Custom	95	95	190	754	754	1,508	870	870	1,740	896	932	1,828	15,590
Retail	30 ksf	820	55	48	102	48	48	96	53	58	111	75	69	145	1,280
Residential	178 du	210	33	100	133	94	55	150	109	64	173	87	74	161	1,690
Project Site Total Trips			**183**	**243**	**425**	**897**	**858**	**1,755**	**1,032**	**992**	**2,024**	**1,058**	**1,076**	**2,134**	**18,560**
Existing Costco Site															
Existing Costco	125 ksf	Custom	*(76)*	*(76)*	*(152)*	*(618)*	*(618)*	*(1,237)*	*(713)*	*(713)*	*(1,427)*	*(735)*	*(764)*	*(1,499)*	*(12,860)*
Retail	125 ksf	820	75	46	121	202	202	403	233	233	465	296	308	605	5,360
Existing Costco Site Net Trips			***(1)***	***(30)***	***(31)***	***(417)***	***(417)***	***(833)***	***(481)***	***(481)***	***(961)***	***(438)***	***(456)***	***(894)***	***(7,500)***
Net New Trips			**182**	**213**	**394**	**480**	**441**	**922**	**552**	**511**	**1,063**	**620**	**620**	**1,239**	**11,060**

ksf = thousand square feet; du = dwelling unit

Source: Trip Generation Manual (9th Edition), ITE, 2012; Fehr & Peers, December 2019.

Approximately two-thirds of inbound vehicle trips were assumed to travel northbound on Admiral Callaghan Lane and enter the site via a right turn, the other third would travel southbound on Admiral Callaghan Lane and enter the site via the left turn pockets at each driveway. The northbound inbound vehicles were distributed almost evenly across the three driveways, with slightly more vehicles assigned to the northern and middle driveways. Half of the southbound inbound vehicles were assigned to the middle driveway, as left-turning vehicles would primarily utilize the signalized intersection. Approximately 40 percent of the southbound inbound vehicle were assigned to the northern driveway and the remaining 10 percent were assigned to the southern driveway.

Approximately two-thirds of outbound vehicle trips were assumed to travel northbound on Admiral Callaghan Lane and exit the site from a right turn, the other third travel southbound on Admiral Callaghan

Lane and exit the site at either the middle or northern driveway. Forty percent of the northbound outbound vehicles were assigned to the middle driveway, and 30 percent assigned to both the northern and southern driveways. Right-turning vehicles would be less likely to show a preference for a signalized intersection; however, the middle driveway would still provide the most direct egress point for a substantial portion of the site. Vehicles can only exit the site from a left turn at the middle or northern driveways. Eighty percent of the southbound outbound vehicles were assigned to the middle driveway, as left-turning vehicles would primarily utilize the signalized intersection. The remaining 20 percent were assigned to the northern driveway.

It is recognized that the actual use of the driveways will vary from day to day and may be different than these assumptions.

IMPACT TR-1	***WOULD THE PROPOSED PROJECT CONFLICT WITH A PROGRAM PLAN, ORDINANCE OR POLICY ADDRESSING THE CIRCULATION SYSTEM, INCLUDING TRANSIT, ROADWAY, BICYCLE, AND PEDESTRIAN FACILITIES?*** ***(SIGNIFICANT AND UNAVOIDABLE)***

EXISTING WITH PROJECT

Existing With Project scenarios were simulated by removing vehicular trips associated with the existing Costco and adding project trips associated with the proposed Costco to the existing peak hour traffic volumes to estimate the *Existing With Project* peak hour traffic volumes.

Existing With Project Intersection Levels of Service

Peak hour intersection operations for the *Existing With Project* scenario are shown in *Table 4.15-7: Intersection Levels of Service – Existing With Project*.

Table 4.15-7: Intersection Levels of Service – Existing With Project

Location	Control[1,2]	Peak Hour	Existing Conditions[3]		Existing With Project[3]	
			Delay (seconds)	LOS	Delay (seconds)	LOS
1. Admiral Callaghan Ln at Columbus Pkwy	Signal	AM	13.8	B	11.6	B
		MD	17.2	B	16.9	B
		PM	24.0	C	24.7	C
		SA	20.4	C	20.3	C
2. Admiral Callaghan Ln at Auto Club Dr	Signal	AM	14.6	B	13.5	B
		MD	15.1	B	15.4	B
		PM	15.8	B	16.4	B
		SA	17.3	B	18.5	B
3. Admiral Callaghan Ln at Plaza Dr	Signal	AM	25.6	C	23.5	C
		MD	21.8	C	23.4	C
		PM	22.8	C	17.8	B
		SA	38.1	D	24.7	C
4. Admiral Callaghan Ln at Vallejo Corners	Signal	AM	4.7	A	4.9	A
		MD	7.4	A	7.7	A
		PM	8.9	A	9.8	A
		SA	11.8	B	11.4	A
5. Admiral Callaghan Ln at Target Driveway	SSS	AM	1.0 (2.4)	A (A)	1.1 (2.6)	A (A)
		MD	1.7 (3.0)	A (A)	1.6 (4.1)	A (A)
		PM	1.9 (5.4)	A (A)	1.9 (5.1)	A (A)
		SA	2.1 (5.0)	A (A)	1.8 (5.0)	A (A)
6. Admiral Callaghan Ln at Turner Pkwy	Signal	AM	6.6	A	7.8	A
		MD	13.1	B	17.7	B
		PM	15.6	B	20.8	C
		SA	23.8	C	18.0	C
7. Admiral Callaghan Ln at Rotary Way[4]	AWS	AM	9.0	A	11.1	B
		MD	14.9	B	**156.1**	**F**
		PM	17.1	C	**153.2**	**F**
		SA	21.1	C	**103.2**	**F**
8. Admiral Callaghan Ln at I-80 EB Ramps	SSS	AM	2.1 (4.3)	A (A)	2.5 (4.5)	A (A)
		MD	5.7 (11.7)	A (B)	5.3 (12.9)	A (B)
		PM	5.7 (10.9)	A (B)	**14.5 (>180)**	**B(F)**
		SA	7.1 (13.2)	A (B)	**8.6 (54.4)**	**B(F)**
9. Redwood St/Fairgrounds Dr at I-80 WB Ramps	Signal	AM	**95.3**	**F**	**97.3**	**F**
		MD	31.7	C	**>180**	**F**
		PM	36.2	D	**>180**	**F**
		SA	38.8	D	**>180**	**F**
10. Redwood Pkwy/Admiral Callaghan Ln (N) at I-80 EB Off-Ramp	Signal	AM	26.5	C	26.9	C
		MD	27.6	C	35.3	D
		PM	26.2	C	48.7	D
		SA	35.9	D	**150.0**	**F**

Table 4.15-7: Intersection Levels of Service – Existing With Project

Location	Control[1,2]	Peak Hour	Existing Conditions[3]		Existing With Project[3]	
			Delay (seconds)	LOS	Delay (seconds)	LOS
11. Redwood Pkwy at Admiral Callaghan Ln (S)	Signal	AM	8.9	A	9.2	A
		MD	9.9	A	12.2	B
		PM	11.9	B	25.6	C
		SA	11.5	B	**>180**	**F**
12. Plaza Dr at Gateway Plaza	Signal	AM	48.7	D	44.3	D
		MD	13.3	B	31.9	C
		PM	12.9	B	11.1	B
		SA	16.8	B	10.6	B
13. Plaza Dr at Costco Driveway	SSS	AM	5.3 (12.0)	A (B)	4.4 (10.7)	A (B)
		MD	**27.0 (97.9)**	**F (F)**	3.4 (11.0)	A (B)
		PM	**21.2 (79.5)**	**F (F)**	3.3 (12.0)	A (B)
		SA	**90.6 (>150.0)**	**F (F)**	2.9 (12.0)	A (B)
14. Plaza Dr at Turner Pkwy	Signal	AM	10.2	B	14.0	B
		MD	13.7	B	33.6	C
		PM	13.4	B	7.3	A
		SA	15.1	B	8.5	B
15. Turner Pkwy/Foothill Drive	SSS	AM	2.2 (9.6)	A (A)	1.8 (10.2)	A (B)
		MD	1.9 (12.5)	A (B)	1.9 (13)	A (B)
		PM	2 (12.8)	A (B)	2 (12.2)	A (B)
		SA	2.1 (14.2)	A (B)	2.1 (13.9)	A (B)
16. Turner Pkwy at Eastern Residential Project Driveway	SSS	AM	1.5 (12.5)	A(B)	1.4 (12.9)	A (B)
		MD	2 (15.3)	A (C)	1.9 (18.6)	A (C)
		PM	2.4 (16.1)	A (C)	2.4 (20.5)	A (C)
		SA	2.1 (18)	A (C)	2.5 (21.6)	A (C)
17. Admiral Callaghan Ln at Southern Project Driveway	SSS	AM	7.5	A	7.4	A
		MD	10.3	B	9.8	A
		PM	12.2	B	11.7	B
		SA	11.6	B	11.2	B
18. Redwood Parkway at Ascot Parkway	Signal	AM	15.6	B	15.8	B
		MD	15.8	B	17.8	B
		PM	16.6	B	18.5	B
		SA	16.2	B	17.9	B
19. Turner Parkway at Western Residential Project Driveway	Signal	AM	-	-	6.6	A
		MD			5.6	A
		PM			5.8	A
		SA			5.6	A
20. Turner Parkway at Eastern Residential Project Driveway	SSS	AM	-	-	0.4 (8.9)	A (A)
		MD			0.1 (9.5)	A (A)
		PM			0.1 (9.3)	A (A)
		SA			0.1 (9.6)	A (A)
21. Admiral Callaghan Lane at Southern Project Driveway	SSS	AM	-	-	1.9 (4.0)	A (A)
		MD			**48.8 (122.6)**	**E (F)**
		PM			**54.6 (130.3)**	**F (F)**

Table 4.15-7: Intersection Levels of Service – Existing With Project

Location	Control[1,2]	Peak Hour	Existing Conditions[3]		Existing With Project[3]	
			Delay (seconds)	LOS	Delay (seconds)	LOS
		SA			31.3 (48.0)	D (E)
22. Admiral Callaghan Ln at Middle Project Driveway	Signal	AM MD PM SA	-	-	2.6 69.2 **86.1** 41.3	A E **F** D
23. Admiral Callaghan Ln at Northern Project Driveway	SSS	AM MD PM SA	-	-	1.3 (6.7) **8.1 (50.8)** **20.2 (166.2)** **12.8 (85.4)**	A (A) **A (F)** **C (F)** **B (F)**
24. Redwood Parkway at I-80 Westbound Ramps [Future intersection: Cumulative (2040) cases only]	Signal	AM MD PM SA	-	-	-	-
25. Redwood Parkway at I -80 Eastbound Ramps [Future intersection: Cumulative (2040) cases only]	Signal	AM MD PM SA	-	-	-	-

Notes:

1. Signal = signalized intersection; AWS=all-way stop; SSS=side street stop; MD = weekday mid-day (12:00 PM to 2:00 PM); PM = evening (4:00 PM to 6:00 PM); SA = Saturday mid-day (12:00 PM to 2:00 PM).
2. For side-street stop-controlled intersections, two service levels are listed: Average intersection LOS (LOS for worst side-street movement)
3. **Bold** indicates a below-standard service level. Shaded indicates a significant impact.
4. Note that this intersection is analyzing in the Existing and Existing Plus Project scenarios as an all-way stop, which was the control type in 2017 when most of the traffic counts were taken. It has since been signalized in 2019.

Source: Fehr & Peers, December 2019.

Based on the significance criteria set forth in this EIR, the proposed project would cause seven intersections to operate at a deficient level of service during at least one peak hour. Impacts on these intersections are considered significant and mitigation is required:

- **Intersection 7:** Admiral Callaghan Lane at Rotary Way – In all but the AM peak hour, the worst approach operates at LOS B without the Project and the unsignalized intersection meets peak hour signal warrants and the worst approach operates at LOS F with the Project. As noted above, this intersection was analyzed as an all-way stop because that was the control type in 2017, but the intersection has since had a signal installed.
- **Intersection 8:** Admiral Callaghan Lane/I-80 EB Ramps – In the Saturday mid-day and weekday PM peak hours, the worst approach operates at LOS B without the Project and operates at LOS F with the Project. Signal warrants are met.

- **Intersection 9:** Redwood Street/Fairgrounds Drive/I-80 WB Ramps – In all but the AM peak hour, the intersection operates at LOS D or better without the Project and operates at LOS F with the Project.
- **Intersection 10:** Redwood Parkway/Admiral Callaghan Lane (N)/I-80 EB Off-Ramp – In the Saturday mid-day peak hour, the intersection operates at LOS D or better without the Project and operates at LOS F with the Project.
- **Intersection 11:** Redwood Parkway/Admiral Callaghan Lane (S) – In the Saturday mid-day peak hour, the intersection operates at LOS B without the Project and operates at LOS F with the Project.
- **Intersection 21:** Admiral Callaghan Lane/ Southern Project Driveway – In the weekday mid-day and weekday PM peak hours, the unsignalized intersection meets peak hour signal warrants and the worst approach operates at LOS F.
- **Intersection 22:** Admiral Callaghan Lane/Middle Project Driveway – In the weekday PM peak hour, the intersection operates at unacceptable LOS F with the Project.
- **Intersection 23:** Admiral Callaghan Lane/ Northern Project Driveway – In all but the AM peak hour, the unsignalized intersection meets peak hour signal warrants and the worst approach operates at LOS F.

Note that intersection #13: Plaza Drive/Costco Driveway operates deficiently under existing conditions but would improve to acceptable operations under *Existing With Project Conditions* due to the removal of the existing Costco trips. This intersection serves as the primary access driveway for the existing Costco. Under *Existing With Project Conditions*, the existing Costco was removed from the analysis and no new tenant is assumed to occupy the space.[4]

At intersection #7, the peak hour signal warrants are not met under *Existing Conditions* in all four peak hours but would be met under *Existing With Project Conditions*. This intersection was analyzed as an all way stop under *Existing With Project Conditions*, because it had not yet been signalized when most of the traffic counts were taken in 2017. A signal was installed in 2019.

At intersection #8 signal warrants are met during the Weekday AM peak hour under *Existing* and *Existing with Project Conditions* and are not met in the other three peak hours in *Existing Conditions* but would be met under *Existing with Project Conditions*. At intersection #21 and intersection #22, peak hour signal warrants are met in all peak hours under *Existing With Project Conditions*. However, as described in Chapter 3, these two project driveways are not proposed to be signalized.

[4] Prior to 2023, it is not anticipated the current Costco building would be occupied. The site would be deed restricted to limit to restrict bulk retail warehouse type uses such as a Sam's Club or large discount retailers. Additionally, time needed to reconfigure the interior to accommodate anticipated future tenants is anticipated and would extend the time until the site is occupied. Therefore, it is assumed that no occupancy would occur preceding the 2023 year used for near-term analysis.

Existing With Project Queues

The following discussion on vehicle queues is provided for informational purposes only as there are no specific thresholds for queuing. It should be noted that the instance of a queue exceeding available storage is not in itself a significant impact based on the significance criteria, but rather a condition reflecting the performance of individual movements at an intersection.

Vehicle queues in the 95th percentile are projected to exceed the storage capacity for certain movements at the intersections listed below. The 95th percentile queues are those that are projected to occur during only 5% or less of the entire peak hour. Intersections that are not significantly impacted based on delay and LOS, as evaluated above, are identified with an asterisk. Vehicle queues would exceed the storage capacity at the following intersections:

- **Intersection 4*:** Admiral Callaghan Lane at Vallejo Corners: westbound left during weekday PM, weekday mid-day and Saturday mid-day peak hours.
- **Intersection 6*:** Admiral Callaghan Lane at Turner Parkway: westbound left during the weekday PM and Saturday mid-day peak hours, westbound shared left/right during weekday PM, weekday mid-day and Saturday mid-day peak hours, westbound right during the Saturday mid-day peak hour.
- **Intersection 7:** Admiral Callaghan Lane at Rotary Way: northbound through during the weekday mid-day and weekday PM peak hours, northbound shared through/right, southbound through, and westbound right during the PM, weekday mid-day and Saturday mid-day peak hours, southbound left during the weekday PM and Saturday mid-day peak hour.
- **Intersection 8:** Admiral Callaghan Lane at I-80 EB Ramps: northbound left and through during weekday PM, weekday mid-day and Saturday mid-day peak hours, northbound shared through/right during the weekday mid-day and weekday PM peak hours, southbound through during the Saturday mid-day peak hour, southbound shared through/right during the weekday PM and Saturday mid-day peak hour.
- **Intersection 9:** Redwood Street/Fairgrounds Drive at I-80 WB Ramps: south westbound left in all peak hours, westbound left and westbound through during the weekday PM, weekday mid-day and Saturday mid-day peak hours, south westbound right during Saturday mid-day peak hour, southbound left in the weekday AM, weekday PM, Saturday mid-day peak hours, southbound right in the weekday PM peak hour, eastbound left in the weekday AM and weekday PM peak hour, eastbound right in the weekday PM peak hour,
- **Intersection 10:** Redwood Parkway/Admiral Callaghan Lane (N) at I-80 EB Off-Ramp: northbound through during the weekday PM and Saturday mid-day peak hours, westbound through and westbound through/right during the weekday AM peak hour, southbound left turn during Saturday mid-day peak hour, southbound right during all peak hours, eastbound left, and eastbound through during the weekday PM, weekday mid-day and Saturday mid-day peak hours.
- **Intersection 11:** Redwood Parkway at Admiral Callaghan Lane (S): northbound left in all peak hours. northbound shared through/right during weekday PM and Saturday mid-day peak hours,

westbound through and westbound shared through/right during the weekday PM and Saturday mid-day peak hours.

Project Gas Station Vehicle Queuing

The gas station would have ten feeder lanes for the 30 proposed fueling station and a bypass lane available for the feeder lanes. The existing Vallejo Costco gas station provides 16 fueling stations in eight feeder lanes. Observations during the weekday AM and PM peak periods in July 2019, showed that queues varied from one to three vehicles per feeder land and did not spill-back to the primary entry driveway to the store. The proposed project would provide vehicle queuing space of about three vehicles per feeder lane, plus space for a single-entry queue for vehicles to select the shortest lane as they enter the site.

The proposed project's gas station would be able to serve more customers per hour, resulting in potentially shorter queues because of the increased number of fueling stations (30 compared to 16 existing; an increase of approximately 47%). For these reasons, it is expected that gas station queues at the Project site will be contained within the feeder lanes and gas station site.

Existing With Project Freeway Segment Levels of Service

Table 4.15-8: I-80 Weekday PM Levels of Service – Existing With Project, shows that all freeway segments would experience an increase in density. However, all segments would continue to operate at an acceptable level of service (LOS E or better) as set by Caltrans. Therefore, potential impacts on freeway segments are considered less than significant and no mitigation is required.

Table 4.15-8: I-80 Weekday PM Levels of Service — Existing With Project

Segment	Existing Conditions			Existing With Project		
	Volume	Density	LOS	Volume	Density	LOS
1. Westbound – East of Columbus Pkwy	3,520	16.4	B	3,552	16.6	B
2. Westbound –Redwood Pkwy and Columbus Pkwy	4,510	21.6	C	4,668	22.4	C
3. Westbound – West of Redwood Pkwy	4,690	31.0	D	4,786	31.6	D
4. Eastbound – East of Columbus Pkwy	4,890	29.9	D	4,918	30.2	D
5. Eastbound – Between Redwood Pkwy and Columbus Pkwy	2,980	18.9	C	3,154	20.0	C
6. Eastbound – West of Redwood Pkwy	5,240	35.0	D	5,352	36.0	E

1. Density Reported in Passenger Cars per Mile Per Lane

Source: Fehr & Peers, December 2019

Existing With Project Traffic on Foothill Drive

The traffic analysis determined that few if any commercial project trips with origins or destinations to the south or east would use Foothill Drive to travel to or from the project site. This is due to several factors including the following:

- Travel times for routes using Foothill Drive would be longer due to travel path lengths and the 25 mile per hour (mph) speed limit on Foothill Drive versus 40 mph on Turner Parkway and Ascot Parkway, and 35 mph on Redwood Parkway and Admiral Callaghan Lane;
- Signal related delays on westbound Redwood Parkway at Admiral Callaghan Lane would discourage outbound southbound commercial project trips from using Foothill as a bypass of Admiral Callaghan congestion; and
- Signal-related delays on westbound Turner Parkway at Admiral Callaghan Lane and on southbound Admiral Callaghan Lane at the middle project driveway would discourage inbound commercial project trips from using Foothill as an alternative to northbound Admiral Callaghan Lane.

The residential project trips also would be discouraged from using Foothill Drive due to the speed limit and Redwood Parkway signal delay considerations. However, due to the residential project driveways' proximity to Foothill Drive, it is possible that some residential project trips may choose to use Foothill Drive to travel to and from the east. Given the estimated 30 percent distribution of project trips to and from the east, and the expected small number of these trips that would choose Foothill Drive, it was determined that the project trip assignment to Foothill Drive is expected to be negligible, less than 20 trips in any peak hour. Twenty or fewer trips on Foothill Drive trips would constitute an increase in peak hour volumes of 11% to 21% relative to existing condition volumes, and 10% to 17% relative to cumulative condition volumes. This would result in a maximum of one additional trip every three minutes on Foothill Drive in the peak hours, and therefore is not anticipated to cause a noticeable change in the traffic flow or operations of the roadway. This effect is considered less than significant, and no mitigation is required.

Mitigation Measures:

MM TR-1: **Roadway Improvements.** Prior to the issuance of occupancy permits, the applicant shall construct, to the satisfaction of the Public Works Director, the following roadway improvement:

Admiral Callaghan Lane at Turner Parkway – Add a northbound right-turn pocket lane and modify the geometry of the westbound approach to provide one right-turn lane, one left-turn lane and one left-turn pocket.

MM TR-2: **Initial Signal Timing Study.** Prior to the issuance of Occupancy Permits, the City shall initiate a signal timing study for the proposed traffic signal and the existing traffic signals. The timing study shall include the same traffic signals included in the Transportation Impact Analysis prepared for the project. This study is to assist the City in optimizing

traffic flow in the project vicinity and provide a baseline for a post-occupancy signal coordination study.

MM TR-3: **Post Costco Occupancy Signal Coordination Study.** Within 3 months of occupancy of the Costco store (or as adjusted by the Public Works Director), the applicant shall fund and prepare, to the satisfaction of the Public Works Director, a signal timing and coordination study to confirm the EIR's traffic analysis and further optimize traffic flow in the project vicinity. The study shall include the same intersections noted in the Transportation Impact Analysis, so that refined signal timings and coordination based on actual traffic volumes and observed conditions can be implemented if necessary. Upon the Public Works Director's approval of the study, the City shall update signal timing based on the results of this study, if necessary.

While the proposed mitigation would improve traffic flow and reduce delays in the impact area, the impacts would remain significant and unavoidable in one or more peak hours studied, for intersections #7, #9, #10, #11, #21, #22, and #23. Impacts at Intersection #8 (Admiral Callaghan Lane at I-80 EB Ramps) would be reduced to less than significant with implementation of signal coordination.

Impacts at these intersections would remain significant and unavoidable because no other feasible mitigation measures have been identified which would further mitigate the impacts. The project area is located in a developed urban area and insufficient right-of-way exists to add capacity to the City of Vallejo intersections which are significantly impacted. Caltrans has prepared an interchange improvement plan for the I-80/Redwood Parkway interchange which will improve operations at the I-80 ramp intersections; however, this Caltrans project is not yet fully funded, and the timing and construction of those improvements are outside the control of the City of Vallejo and there is no guarantee that these improvements would be implemented. Therefore, those improvements cannot be considered feasible mitigation for the *Existing With Project* impacts at those I-80/Redwood Parkway interchange intersections.

It is noted that peak hour signal warrants are met at intersection #7 under both *Existing* and *Existing With Project Conditions*, and the intersection was signalized in 2019 (the *Existing* and *Existing With Project* analyses assumed the all-way stop control that was in place when most of the traffic counts were taken in 2017). The intersection is projected to operate acceptably with signalization in the weekday AM, mid-day and PM peak hours. In the Saturday mid-day peak hour, the intersection is projected to operate with less delay with signalization, but still at an unacceptable level of service.

NEAR-TERM (2023) CONDITIONS

Published forecasts from the February 2016 In-N-Out traffic analysis, Vallejo General Plan EIR, and March 2015 Chick-Fil-A traffic analysis were used to develop and validate background traffic growth rates for the "Near-Term" traffic scenarios. Based on this data, existing traffic counts were increased by six percent (one percent annual growth) to account for traffic growth from projects outside the immediate traffic study area that could add through traffic to the area. In addition, the In-N-Out project traffic was directly assigned to the traffic study area network using the trip assignment in the In-N-Out traffic analysis. The

removal of traffic from the existing Costco and addition of the new project trips, plus those retail trips from the reuse of the existing Costco site were added to the *Near-Term No Project* peak hour traffic volumes to estimate *Near-Term With Project* peak hour traffic volumes.

Near-Term With Project Intersection Levels of Service

The "Near-Term" scenario includes the installation of the new signal at the intersection of Admiral Callaghan Lane at Rotary Way. Additionally, this scenario assumes that Admiral Callaghan Lane is widened to two lanes in each direction along the project site frontage.

Peak hour intersection operations for the *Near-Term No Project* and *Near-Term With Project* scenarios are provided in *Table 4.15-9: Intersection Levels of Service — Near-Term Without and With Project*. Based on the significance criteria set forth in this EIR, the project would cause four intersections to operate at a deficient level of service during at least one peak hour. Impacts on these intersections are considered significant and mitigation is required.

Table 4.15-9: Intersection Levels of Service — Near-Term Without and With Project

Location	Control[1,2]	Peak Hour	Near-Term Without Project[3]		Near-Term With Project[3]	
			Delay (seconds)	LOS	Delay (seconds)	LOS
1. Admiral Callaghan Ln at Columbus Pkwy	Signal	AM	18.6	B	17.7	B
		MD	18.5	B	19.7	B
		PM	21.8	B	25.2	C
		SA	28.4	C	39.2	D
2. Admiral Callaghan Ln at Auto Club Dr	Signal	AM	16.1	B	15.0	B
		MD	15.7	B	16.0	B
		PM	16.6	B	17.4	B
		SA	22.5	C	30.0	C
3. Admiral Callaghan Ln at Plaza Dr	Signal	AM	20.3	C	19.0	B
		MD	29.9	C	22.0	C
		PM	35.7	D	25.1	C
		SA	65.3	E	41.4	D
4. Admiral Callaghan Ln at Vallejo Corners	Signal	AM	5.3	A	4.9	A
		MD	8.0	A	10.9	B
		PM	9.3	A	9.4	A
		SA	62.9	E	11.5	B
5. Admiral Callaghan Ln at Target Driveway	SSS	AM	1.1 (2.8)	A (A)	1.2 (2.8)	A (A)
		MD	1.6 (3.8)	A (A)	3.5 (4.8)	A (A)
		PM	1.7 (4.6)	A (A)	1.7 (5.4)	A (A)
		SA	**28.3 (>180)**	**D (F)**	2.0 (4.9)	A (A)
6. Admiral Callaghan Ln at Turner Pkwy	Signal	AM	6.9	A	8.9	A
		MD	13.3	B	25.2	C
		PM	16.2	B	19.5	B
		SA	38.6	D	20.7	C
7. Admiral Callaghan Ln at Rotary Way	Signal	AM	9.3	A	8.0	A
		MD	**92.8**	**F**	30.9	D
		PM	**76.4**	**F**	21.4	C
		SA	21.8	C	69.7	E

Table 4.15-9: Intersection Levels of Service — Near-Term Without and With Project

Location	Control[1,2]	Peak Hour	Near-Term Without Project[3]		Near-Term With Project[3]	
			Delay (seconds)	LOS	Delay (seconds)	LOS
8. Admiral Callaghan Ln at I-80 EB Ramps	SSS	AM	2.3 (4.7)	A (A)	2.4 (6.1)	A (A)
		MD	7.7 (15.1)	A (C)	17.4 (42.4)	C (E)
		PM	9.1 (19.6)	A (C)	16.9 (60.8)	B (E)
		SA	6.3 (11.6)	A (B)	16.8 (35.3)	C (E)
9. Redwood St/ Fairgrounds Dr at I-80 WB Ramps	Signal	AM	**96.8**	**F**	**91.0**	**F**
		MD	37.3	D	**>180**	**F**
		PM	53.6	D	**>180**	**F**
		SA	53.9	D	**>180**	**F**
10. Redwood Pkwy/ Admiral Callaghan Ln (N) at I-80 EB Off-Ramp	Signal	AM	10.1	B	28	C
		MD	33.5	C	**>180**	**F**
		PM	34.7	C	**>180**	**F**
		SA	41.3	D	**>180**	**F**
11. Redwood Pkwy at Admiral Callaghan Ln (S)	Signal	AM	10.1	B	10.1	B
		MD	11.1	B	**>180**	**F**
		PM	16.9	B	**>180**	**F**
		SA	13.7	B	**>180**	**F**
12. Plaza Dr at Gateway Plaza	Signal	AM	52.7	D	51.3	D
		MD	12.9	B	23.6	C
		PM	13.1	B	10.6	B
		SA	19.5	B	12.5	B
13. Plaza Dr at Costco Driveway	SSS	AM	5.9 (13.2)	A (B)	5.6 (13.2)	A (B)
		MD	**34.3 (128.9)**	**D (F)**	5.3 (16.5)	A (C)
		PM	**33.2 (130)**	**D (F)**	5.3 (18.1)	A (C)
		SA	**131 (>180)**	**F (F)**	8.2 (33.5)	A (D)
14. Plaza Dr at Turner Pkwy	Signal	AM	10.4	B	35.3	D
		MD	14.2	B	66.3	E
		PM	13.9	B	21.4	C
		SA	16.0	B	62.2	E
15. Turner Parkway at Foothill Drive	SSS	AM	2.2 (9.8)	A (A)	1.9 (10.4)	A (B)
		MD	2 (13.8)	A (B)	2 (13.8)	A (B)
		PM	2 (13.3)	A (B)	2 (12.7)	A (B)
		SA	2.2 (14.8)	A (B)	2.2 (14.5)	A (B)
16. Redwood Parkway/Foothill Drive	SSS	AM	1.7 (13.1)	A (B)	1.6 (13.6)	A (B)
		MD	2.7 17.3)	A (C)	2.8 (24)	A (C)
		PM	2.7 (16.2)	A (C)	2.7 (22.6)	A (C)
		SA	3.3 (19.1)	A (C)	3.6 (29.3)	A (C)
17. Redwood Parkway at Oakwood Drive	Signal	AM	7.8	A	7.6	A
		MD	10.8	A	10.5	A
		PM	12.5	B	12.3	B
		SA	11.9	B	11.8	B
18. Redwood Parkway at Ascot Parkway	Signal	AM	15.4	B	15.8	B
		MD	16.1	B	18.0	B
		PM	16.9	B	19.1	B
		SA	16.6	B	18.6	B
19. Turner Pkwy at Western Residential Project Driveway	Signal	AM	-	-	6.6	A
		MD			5.4	A
		PM			5.6	A

Table 4.15-9: Intersection Levels of Service — Near-Term Without and With Project

Location	Control[1,2]	Peak Hour	Near-Term Without Project[3]		Near-Term With Project[3]	
			Delay (seconds)	LOS	Delay (seconds)	LOS
		SA			5.5	A
20. Turner Pkwy at Eastern Residential Project Driveway	SSS	AM MD PM SA	-	-	0.4 (8.8) 0.1 (9.8) 0.1 (9.7) 0.1 (10.1)	A (A) A (A) A (A) A (B)
21. Admiral Callaghan Ln at Southern Project Driveway	SSS	AM MD PM SA	-	-	1.4 (3.8) 7.0 (9.0) 3.8 (9.0) 21.6 (29.0)	A (A) A (A) A (A) C (D)
22. Admiral Callaghan Ln at Middle Project Driveway	Signal	AM MD PM SA	-	-	3.1 15.7 11.2 29.5	A B B C
23. Admiral Callaghan Ln at Northern Project Driveway	SSS	AM MD PM SA	-	-	1.4 (7.2) 9.7 (49.6) **10.6 (73.7)** 6.9 (38.8)	A (A) A (E) **A (F)** E (E)
24. Redwood Parkway at I -80 Eastbound Ramps [Future intersections Cumulative (240) cases only]	Signal	Am MD PM SA	-	-	-	-
25. Redwood Parkway at I -80 Eastbound Ramps [Future intersections Cumulative (2040) cases only]	Signal	AM MD PM SA	-	-	-	-

Notes:

1. Signal = signalized intersection; AWS=all-way stop; SSS=side street stop; MD = weekday mid-day (12:00 PM to 2:00 PM); PM = evening (4:00 PM to 6:00 PM); SA = Saturday mid-day (12:00 PM to 2:00 PM).
2. For side-street stop-controlled intersections, two service levels are listed: Average intersection LOS (LOS for worst side-street movement)
3. **Bold** indicates below-standard service level. Shaded indicates a significant impact.

Source: Fehr & Peers, December 2019.

Based on the City's significance thresholds, the following four intersections are significantly impacted in the *Near-Term With Project Condition* and mitigation is required:

- **Intersection #9:** Redwood Street/Fairgrounds Drive/I-80 WB Ramps – In all but the AM peak hour, the intersection operates at LOS D without the Project and operates at LOS F with the Project.
- **Intersection #10:** Redwood Parkway/Admiral Callaghan Lane (N)/I-80 EB Off-Ramp – In all but the AM peak hour, the intersection operates at LOS D or better without the Project and operates at LOS F with the Project.
- **Intersection #11:** Redwood Parkway/Admiral Callaghan Lane (S) – In all but the AM peak hour, the intersection operates at LOS B without the Project and operates at LOS F with the Project.

- **Intersection #23:** Northern Project Driveway/Admiral Callaghan Lane - In the weekday PM peak hour, the unsignalized intersection meets peak hour signal warrants and the worst approach operates at LOS F.

Near-Term Queues

The following discussion on vehicles queues is provided for informational purposes only as there are no specific thresholds for queuing. It should be noted that the instance of a queue exceeding available storage is not in itself a significant impact based on the significance criteria, but rather a condition reflecting the performance of individual movements at an intersection. Vehicle queues in the 95th percentile are projected to exceed the storage capacity for certain movements at the intersections listed below. The 95th percentile queues are those that are projected to occur during only 5% or less of the entire peak hour. Vehicle queues exceed the storage capacity at the following intersections in the *Near-Term Without Project Conditions*:

- **Intersection #7:** Admiral Callaghan Lane/Rotary Way: northbound through and northbound through/right during the weekday AM peak hour, westbound right turn during all peak hours.
- **Intersection #8:** Admiral Callaghan Lane/I-80 EB Ramps: northbound left during the weekday AM, weekday mid-day, and Saturday mid-day peak hours, northbound through and northbound through/right during the weekday AM peak hour.
- **Intersection #9:** Redwood Street/Fairgrounds Drive/I-80 WB Ramps: eastbound right during the weekday PM, weekday mid-day and Saturday mid-day peak hours, westbound through/right during the weekday AM peak hour, south westbound left, southbound right and southbound left during all peak hours.
- **Intersection #10:** Redwood Parkway/Admiral Callaghan Lane (N)/I-80 EB Off-Ramp: eastbound left and eastbound through in the weekday AM peak hour, southbound right during all peak hours.
- **Intersection #11:** Redwood Parkway/Admiral Callaghan Lane (S): northbound left turn during all peak hours.

Vehicle queues in the 95th percentile are projected to exceed the storage capacity for certain movements at the intersections listed below. The 95th percentile queues are those that are projected to occur during only 5% or less of the entire peak hour. Intersections that are not significantly impacted based on delay and LOS, as evaluated above, are identified with an asterisk. Vehicle queues exceed the storage capacity at the following intersections in the *Near-Term With Project Conditions*:

- **Intersection #4*:** Admiral Callaghan Lane/Vallejo Corners: westbound left during the weekday mid-day, weekday PM, and Saturday mid-day peak hours.
- **Intersection #7*:** Admiral Callaghan Lane/Rotary Way: northbound shared through/right during the weekday AM and weekday mid-day peak hour, southbound left during the Saturday mid-day peak hour, southbound through and westbound right during all three peak hours.

- **Intersection #8*:** Admiral Callaghan Lane/I-80 EB Ramps: northbound left turn and northbound through during all peak hours, northbound shared through/right during the weekday AM and weekday mid-day peak hours, southbound through and shared through/right during Saturday mid-day peak hour.
- **Intersection #9:** Redwood Street/Fairgrounds Drive/I-80 WB Ramps: eastbound through and eastbound shared left/through during the weekday mid-day, weekday PM and Saturday mid-day peak hours, westbound left, and southbound left during all peak hours, westbound through during the weekday AM and Saturday mid-day peak period, south westbound left during the weekday AM, weekday mid-day, and weekday PM peak hours, south westbound right and southbound through during the weekday PM and Saturday mid-day peak hours
- **Intersection #10:** Redwood Parkway/Admiral Callaghan Lane (N)/I-80 EB Off-Ramp: northbound through and northbound right during the weekday mid-day, weekday PM and Saturday mid-day peak hours, eastbound left, and southbound right during all peak hours, southbound left during the Saturday mid-day peak hours, eastbound through during the weekday AM, weekday PM and Saturday mid-day peak period.
- **Intersection #11:** Redwood Parkway/Admiral Callaghan Lane (S): northbound left during all peak hours, northbound shared through/right, westbound through, and westbound shared through/right during all peak hours, southbound left/through/right during the Saturday mid-day peak hour.

Near-Term With Project Freeway Segment Levels of Service

Table 4.15-10: I-80 Weekday PM Levels of Service – Near-Term, shows that all freeway segments would experience an increase in density. However, all segments would continue to operate at an acceptable level of service (LOS E or better) as set by Caltrans. Impacts would be less than significant, and no mitigation is required.

Table 4.15-10: I-80 Weekday PM Levels of Service – Near-Term

Segment	Near-Term Without Project			Near-Term With Project		
	Volume	Density	LOS	Volume	Density	LOS
1. Westbound – East of Columbus Pkwy	3,550	16.6	B	3,582	16.7	B
2. Westbound – Between Redwood Pkwy and Columbus Pkwy	4,650	22.3	C	4,794	23.0	C
3. Westbound – West of Redwood Pkwy	4,580	30.3	D	4,676	30.9	D
4. Eastbound – East of Columbus Pkwy	4,970	30.6	D	4,998	30.8	D
5. Eastbound – Between Redwood Pkwy and Columbus Pkwy	3,070	19.5	C	3,244	20.6	C

Table 4.15-10: I-80 Weekday PM Levels of Service – Near-Term

Segment	Near-Term Without Project			Near-Term With Project		
	Volume	Density	LOS	Volume	Density	LOS
6. Eastbound – West of Redwood Pkwy	5,150	33.4	D	5,262	35.2	E

1. Density Reported in Passenger Cars per Mile Per Lane

Source: Fehr & Peers, December 2019

MITIGATION MEASURES

Implementation of Mitigation Measures TR-1 through TR-3, would be required under the *Near-Term With Project* Condition.

Similar to the *Existing With Project Conditions* above, impacts at these four intersections under the *Near Term With Project Conditions* remain significant and unavoidable after implementation of mitigation because no other feasible mitigation measures have been identified which would further mitigate the impacts. The project area is located in a developed urban area and insufficient right-of-way exists to add capacity to the City of Vallejo intersections which are significantly impacted. Caltrans has prepared an interchange improvement plan for the I-80/Redwood Parkway interchange which will improve operations at the I-80 ramp intersections; however, this Caltrans project is not yet fully funded, and the timing and construction of those improvements are outside the control of the City of Vallejo and there is no guarantee that these improvements would be implemented. Therefore, those improvements cannot be considered feasible mitigation for the *Existing With Project* impacts at those I-80/Redwood Parkway interchange intersections.

It is noted that peak hour signal warrants are met at intersection #7 under both *Existing* and E*xisting With Project Conditions*, and the intersection was signalized in 2019 (the *Existing* and *Existing With Project* analyses assumed the all-way stop control that was in place when most of the traffic counts were taken in 2017). The intersection is projected to operate acceptably with signalization in the weekday AM, mid-day and PM peak hours. In the Saturday mid-day peak hour, the intersection is projected to operate with less delay with signalization, but still at an unacceptable level of service.

PEDESTRIAN, BICYCLE, AND TRANSIT

Pedestrian and Bicycle Access

Pedestrian access to the residential portion of the Project is provided via sidewalks along Turner Parkway as well as an eight-foot-wide concrete pathway for non-motorized travel would be provided along the southerly side of Turner Parkway to connect the residential and retail portions of the sites and provide connectivity for residents and the commercial uses. Pedestrians wishing to cross to the north side of Turner Parkway at a protected crossing to access commercial and retail uses would use the proposed traffic signal at the western residential project driveway.

Currently, no sidewalks are provided along Admiral Callaghan Lane along the project frontage. A continuous sidewalk would be provided on the east side of the roadway, connecting to the existing sidewalks to the north and south, as part of the Admiral Callaghan Lane widening which would be constructed in conjunction with the project. As part of widening Admiral Callaghan, the project will provide dedicated bicycle lanes on each side of the road along the project frontage. The project design includes a sidewalk along the project frontage to serve pedestrian travel along Admiral Callaghan Lane and access to and from the project site.

The project site plan (refer to Figure 3-8) shows sidewalks within the residential portion of the project, with periodic cut-outs for parking, and designated pedestrian routes within the Costco/retail portion of the site.

Within the study area, Class II bicycle lanes are provided on Redwood Parkway east of Admiral Callaghan Lane and on Turner Parkway between Admiral Callaghan Lane and Ascot Parkway. Class III "sharrows" are on Admiral Callaghan Lane north of Turner Parkway. The General Plan identifies Admiral Callaghan Lane between Turner Parkway and Redwood Parkway as a future Class II bike lane facility. While the project's bicycle trip generation has not been estimated, it is expected that some bicyclists would travel by bicycle to and from the project site. As noted, Admiral Callaghan Lane would be widened along the project frontage and would include sidewalks and bicycle lanes in each direction. The proposed bicycle lanes contribute to a portion of the City's General Plan bicycle network and are consistent with the City's General Plan 2040 goals and policies regarding bicycle circulation**.**

Potential impacts on pedestrian and bicycle access are less than significant no mitigation is required.

Transit Access

Transit service in the area is provided by the San Francisco Bay Ferry, SolTrans, and BART/Amtrak. On Turner Parkway, there is an existing bus stop pull-out for westbound buses. It is expected that some customers, employees, and residents would travel by bus to and from the project site. As described in Section 4.15.1, several SolTrans bus routes – including Routes 2, 7, 20 and 38 -- serve the area surrounding the project site. According to the route maps, the closest bus stop to the project site is on eastbound Turner Parkway just east of Admiral Callaghan. The existing bus stop consists of a pole that is located close to the intersection of Admiral Callaghan. SolTrans has indicated that a new bus pull-out on eastbound Turner Parkway east of the Admiral Callaghan Lane intersection would be needed to better serve residents, employees and customers of the project. SolTrans staff has noted that cars making the right turn from Admiral Callaghan are often narrowly avoiding the bus that is stopping.[5] With the implementation of Mitigation Measure TR-4, potential impacts on transit access and circulation are considered less than significant.

[5] Patricia Carr, General Services Manager, SolTrans Solano County Transit, personal communication, July 23, 2019.

Mitigation Measure:

MM TR-4: **New Bus Pull-Out.** Prior to issuance of occupancy permits, the applicant shall, to the satisfaction of the Planning & Development Services Director**,** coordinate with SolTrans and construct a new bus pull-out on eastbound Turner Parkway East of Admiral Callaghan Lane. The Project applicant will construct a bus pull-out and concrete pad per Soltrans' and the City's specifications. Soltrans will provide, and the applicant will install, signage, a shelter, lighting, and trash receptacle.

With the implementation of Mitigation Measure TR-4 potential impacts on transit access are reduced to less than significant because the project would be providing safer access to public transit along the project frontage.

IMPACT TR-2	***WOULD THE PROPOSED PROJECT 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 IMPACT)***

For the purposes of this impact evaluation, an impact would be significant if the project site access design does not provide adequate sight distance and does not conform to City street design standards as described in Section 15.60.030 of the Vallejo Municipal Code.

No obstacles to site distance are expected to result from the construction of the proposed project. Existing roads surrounding the project are generally straight and generally void of visual obstructions. Additionally, the project does not include any hazardous design features such as sharp curves or dangerous intersections. Future improvements would be required to meet City of Vallejo roadway design standards. Improvement Plans for the proposed street improvements would be reviewed by City staff, including Fire Department staff, prior to construction. This impact is considered less than significant, and no mitigation is required.

IMPACT TR-3	***WOULD THE PROPOSED PROJECT RESULT IN INADEQUATE EMERGENCY ACCESS?*** ***(LESS THAN SIGNIFICANT IMPACT)***

For the purposes of this impact evaluation, an impact would be significant if the project design impedes emergency access to the site. Several factors determine whether a project has sufficient access for emergency vehicles, including:

1. Number of access points (both public and emergency access only)
2. Width of access points
3. Width of internal roadways

The site plan provides three vehicle access points on Admiral Callaghan Lane for the proposed commercial center, and two vehicle access points on Turner Parkway for the residential development. If one of these driveways were blocked or obstructed, emergency vehicles would have an alternative route to access the site. Based on preliminary site plan information, project driveways and drive aisles provide a minimum of 24-feet clear travel area which is sufficient for emergency vehicle access and circulation. Improvement Plans require review and approval by the City of Vallejo Fire Department prior to construction. The City Fire Department reviews the plans for adequate emergency access for emergency vehicles. As a result, no impediments related to emergency vehicle access are identified. This impact is considered less than significant, and no mitigation is required.

4.15.7 CONCLUSION

EXISTING WITH PROJECT

Under the *Existing With Project* scenario, the proposed project would cause seven intersections to operate at a deficient level of service during at least one peak hour. Implementation of mitigation measures TR-1 and TR-2, which include the construction of a right turn pocket on northbound Admiral Callaghan Lane/Turner Parkway and signal timing coordination along Turner Parkway would improve traffic flow and reduce delays in the impact area. However, impacts at these intersections would remain significant and unavoidable. No other feasible mitigation measures have been identified which would further mitigate the impacts. The project area is located in a developed urban area and insufficient right-of-way exists to add capacity to the City of Vallejo intersections which are significantly impacted. Caltrans has prepared an interchange improvement plan for the I-80/Redwood Parkway interchange which will improve operations at the I-80 ramp intersections; however, this Caltrans project is not yet fully funded, and the timing and construction of those improvements are outside the control of the City of Vallejo and there is no guarantee that these improvements would be implemented. Therefore, those improvements cannot be considered feasible mitigation for the *Existing With Project* impacts at those I-80/Redwood Parkway interchange intersections.

It is noted that peak hour signal warrants are met at intersection #7 under both *Existing* and E*xisting With Project Conditions*, and the intersection was signalized in 2019 (the *Existing* and *Existing With Project* analyses assumed the all-way stop control that was in place when most of the traffic counts were taken in 2017). The intersection is projected to operate acceptably with signalization in the weekday AM, mid-day and PM peak hours. In the Saturday mid-day peak hour, the intersection is projected to operate with less delay with signalization, but still at an unacceptable level of service.

EXISTING WITH NEAR-TERM

The proposed project would cause four intersections to operate at a deficient level of service during at least one peak hour. Implementation of mitigation measures TR-1 through TR-3, which include the construction of a right turn pocket on northbound Admiral Callaghan Lane/Turner Parkway and signal timing coordination along Turner Parkway would improve traffic flow and reduce delays in the impact

area. However, impacts at these intersections would remain significant and unavoidable. No other feasible mitigation measures have been identified which would further mitigate the impacts. The project area is located in a developed urban area and insufficient right-of-way exists to add capacity to the City of Vallejo intersections which are significantly impacted. Caltrans has prepared an interchange improvement plan for the I-80/Redwood Parkway interchange which will improve operations at the I-80 ramp intersections; however, this Caltrans project is not yet fully funded, and the timing and construction of those improvements are outside the control of the City of Vallejo and there is no guarantee that these improvements would be implemented. Therefore, those improvements cannot be considered feasible mitigation for the *Existing With Project* impacts at those I-80/Redwood Parkway interchange intersections.

PEDESTRIAN, BICYCLE, AND TRANSIT ACCESS

The project adds sidewalk and bicycle lanes to Admiral Callaghan Land and an internal pedestrian and bicycle pathway connecting the residential and commercial areas of the project. The residential area includes internal bicycle and pedestrian pathways as well. Potential impacts on pedestrian and bicycle access are considered less than significant.

Potential impacts on transit access and circulation are reduced to less than significant with the implementation of mitigation measure TR-4 which requires the construction of a new bus pull-out on eastbound turner parkway in coordination with SolTrans.

4.15.8 CUMULATIVE IMPACTS

The project's impacts in association with existing and cumulative growth are evaluated in traffic scenarios addressed in this section. The cumulative analysis identifies future traffic conditions in 2040, which could be expected to result from "reasonably foreseeable" (or "cumulative") projects in the traffic study area both without and with the proposed project.

CUMULATIVE (2040) CONDITIONS

Published forecasts from the February 2016 In-N-Out study, the Vallejo General Plan EIR, and the 2015 Chick-Fil-A study were used to develop background traffic growth rates for Year 2040 scenarios. Based on this information, existing traffic counts were increased by 23 percent (one percent annual growth) to account for traffic growth from other regional and local sources.

Under Cumulative conditions, it was assumed that the existing Costco site would be vacated by Costco but occupied by a new retail tenant. The removal of the existing Costco site trips, addition of the new retail trips on that site, and the addition of the new project trips were added to the Cumulative peak hour traffic volumes to estimate the Cumulative With Project peak hour traffic volumes.

The planned reconfiguration of the I-80 at Redwood Parkway interchange is assumed for the *Cumulative No Project* and *Cumulative With Project* scenarios. This reconfiguration removes the eastbound I-80 hook

ramps on Admiral Callaghan Lane; relocates Fairgrounds Drive to the west of the westbound I-80 ramps intersection; and reconstructs the two ramp intersections.

As a condition of approval, the applicant is required to pay the Solano County Regional Transportation Impact Fee (as part of the County Public Facilities Fee) at the time building permits are issued. The fees collected are transferred to Solano County and the funds are managed by the Solano Transportation Authority. These fees are used to fund regional capital transit and roadway improvement projects. These regional transit and County road projects are expected to benefit all County residents and workers, both those that are already in the County and those that will come to the County as a result of new development. These projects include ramp improvements to the Redwood Parkway/Interstate 80 interchange; for both for eastbound and westbound directions.[6,7] However, the timeframe for the construction of these improvements are currently unknown and the construction of the interchange improvements is outside of the control of the City of Vallejo.

Additionally, the new interchange ramp intersection were assumed to be signalized and coordinated with the signal timings for City intersections along Admiral Callaghan Lane. This coordination would optimize the traffic flow along Admiral Callaghan Lane and through the Redwood Parkway/I- 80 interchange. Admiral Callaghan Lane is assumed to be widened to two lanes in each direction along the project frontage in the *Cumulative With Project* scenario because this is a planned condition of approval for the project.

Trip Generation

This scenario assumes that the existing Costco site would be vacated by Costco but occupied by a new retail tenant. The net new trips under this scenario represents the removal of the existing Costco trips, the addition of retail trips at the existing Costco site, and proposed project trips: commercial center, relocated Costco store, and residential development. Trip generation estimates for the *Cumulative With Project* Conditions are presented in *Table 4.15-6: Near Term and Cumulative Project Trip Generation*.

Cumulative (Year 2040) Intersection Levels of Service

Peak hour intersection operations for the Cumulative and Cumulative With Project case are shown in *Table 4.15-11: Intersection Levels of Service – Cumulative***.** Based on the significance criteria set forth in this EIR, the project would cause eight intersections to operate at a deficient level of service during at least one peak hour. Impacts on these intersections are considered significant and mitigation is required:

- **Intersection #6:** Admiral Callaghan Lane/Turner Parkway – In the Saturday mid-day peak hour, the intersection operates at LOS B without the Project and operates at LOS F with the Project.
- **Intersection #7:** Admiral Callaghan Lane/Rotary Way – In all but the AM peak hour, the intersection operates at LOS D or better without the Project and operates at LOS F with the Project.

[6] Technical Memo to Solano County Transportation Authority, Table 1, prepared by Fehr and Peers, January 2019.

[7] Redwood Parkway – Fairground Drive Improvement Project, Final EIR/EA, prepared by California Department of Transportation and Solano County Transportation Authority, June 2015.

- **Intersection #9:** Redwood Street/Fairgrounds Drive/I-80 WB Ramps – In weekday AM and mid-day peak hours without the Project, the intersection operates at LOS E or better and operates at LOS F with the Project. In the weekday PM and Saturday mid-day peak hours, the intersection operates at LOS F without the Project and the delay increases with the addition of Project traffic.
- **Intersection #11:** Redwood Parkway/Admiral Callaghan Lane (S) – In the AM peak hour, the intersection operates at LOS E without the Project and LOS F with the Project. In the Saturday mid-day peak hour, the intersection operates at LOS F without the Project and the delay increases with the addition of Project traffic.
- **Intersection #21:** I-80 NB Ramp/Redwood Parkway – In the weekday mid-day and Saturday mid-day peak hours, the intersection operates at LOS E or better without the Project and operates at LOS F with the Project.
- **Intersection #22:** Admiral Callaghan Lane at Middle Project Driveway – in the Saturday mid-day peak hour, the intersection operates at LOS F.
- **Intersection #23:** Admiral Callahan Lane/Northern Project Driveway – In all but the AM peak hour, the unsignalized intersection meets peak hour signal warrants and the worst approach operates at LOS F.
- **Intersection #25:** I-80 NB Ramp/Redwood Parkway – In the weekday mid-day and Saturday mid-day peak hours, the intersection operates at LOS E of better without the Project and operates at LOS F with the Project.

Table 4.15-11: Intersection Levels of Service – Cumulative

Location	Control[1,2]	Peak Hour	Cumulative[3]		Cumulative With Project[3]	
			Delay (seconds)	LOS	Delay (seconds)	LOS
1. Admiral Callaghan Ln at Columbus Pkwy	Signal	AM	12.4	B	13.3	B
		MD	21.1	C	21.2	C
		PM	27.8	C	30.4	C
		SA	26.5	C	28.7	B
2. Admiral Callaghan Ln at Auto Club Dr	Signal	AM	11.7	B	7.5	A
		MD	19.3	B	19.9	B
		PM	18.8	B	20.7	C
		SA	26.4	C	36.5	D
3. Admiral Callaghan Ln at Plaza Dr	Signal	AM	21.2	C	20.3	C
		MD	29.8	C	22.7	C
		PM	38.8	D	25.9	C
		SA	60.2	E	50.3	D
4. Admiral Callaghan Ln at Vallejo Corners	Signal	AM	5.4	A	5.5	A
		MD	9.0	A	9.7	A
		PM	10.9	B	11.7	B
		SA	12.4	B	43.1	D
5. Admiral Callaghan Ln at Target Driveway	SSS	AM	1.3 (4.6)	A (A)	1.3 (2.7) 1.5 (4.3)	A (A)

Table 4.15-11: Intersection Levels of Service – Cumulative

Location	Control[1,2]	Peak Hour	Cumulative[3]		Cumulative With Project[3]	
			Delay (seconds)	LOS	Delay (seconds)	LOS
		MD PM SA	1.7 (3.8) 1.8 (5.0) 1.9 (5.7)	A (A) A (A) A (A)	1.7 (6.2) **52.5 (>180)**	A (A) A (A) **F (F)**
6. Admiral Callaghan Ln at Turner Pkwy	Signal	AM MD PM SA	8.2 13.7 15.6 17.7	A B B B	15.3 41.8 27.9 **117.4**	B E C **F**
7. Admiral Callaghan Ln at Rotary Way	Signal	AM MD PM SA	7.2 11.7 11.7 34.1	A B B D	9.7 **75.0** **96.4** **>180**	A **F** **F** **F**
8. Admiral Callaghan Ln at I- 80 EB Ramps	SSS	AM MD PM SA	0.9 (1.5) 2.3 (2.7) 2.4 (9.0) 10.4 (17.9)	A (A) A (A) A (A) B (C)	0.8 (1.2) 8.9 (13.9) 12.4 (20.0) **45.8 (130.6)**	A (A) A (B) B (C) **E (F)**
9. Redwood St/Fairgrounds Dr at I-80 WB Ramps	Signal	AM MD PM SA	65.6 12.3 **89.8** **98.2**	E B **F** **F**	**152.0** **103.0** **123.8** **155.4**	**F** **F** **F** **F**
10. Redwood Pkwy/ Admiral Callaghan Ln (N) at I-80 EB Off-Ramp	Signal	AM MD PM SA	34.6 39.6 37.3 58.8	C D D E	41.6 59.9 68.1 74.2	D E E E
11. Redwood Pkwy at Admiral Callaghan Ln (S)	Signal	AM MD PM SA	76.6 **>180** **>180** **153.1**	E **F** **F** **F**	**149.2** **125.6** **154.1** **>180**	**F** **F** **F** **F**
12. Plaza Dr at Gateway Plaza	Signal	AM MD PM SA	25.7 14.3 14.5 27.8	C B B C	25.1 11.3 10.9 13.6	C B B B
13. Plaza Dr at Costco Driveway	SSS	AM MD PM SA	5.7 (13.6) **110.3 (>180)** **80.8 (>180)** **>180 (>180)**	A (B) **F (F)** **F (F)** **F (F)**	5.4 (13.6) 9.4 (32.9) 7.6 (28.2) **33.3 (166.3)**	A (B) A (D) A (D) **D (F)**
14. Plaza Dr at Turner Pkwy	Signal	AM MD PM SA	10.0 14.4 36.5 16.1	B B D B	10.4 12.2 12.1 13.1	B B B B
15. Turner Parkway at Foothill Drive	SSS	AM MD	2.4 (10.2) 2.3 (15.4)	A (B) A (C)	2.1 (11) 2.3 (17.5)	A (B) A (C)

Table 4.15-11: Intersection Levels of Service – Cumulative

Location	Control[1,2]	Peak Hour	Cumulative[3]		Cumulative With Project[3]	
			Delay (seconds)	LOS	Delay (seconds)	LOS
		PM SA	2.3 (15.9) 2.6 (18.5)	A (C) A (C)	2.3 (16.9) 2.7 (21.6)	A (C) A (C)
16. Redwood Parkway at Oakwood Drive	SSS	AM MD PM SA	1.7 (14.4) 2.9 (20.6) 3.0 (20.5) 3.6 (24.2)	A (B) A (C) A (C) A (C)	1.6 (15.1) 3.3 (28.8) 3.4 (31.8) 4.4 (42.4)	A (B) A (D) A (D) A (E)
17. Redwood Parkway Oakwood Drive	Signal	AM MD PM SA	7.9 11.2 13.9 13.7	A A B B	7.8 11.1 13.8 14	A A B B
18. Redwood Parkway at Ascot Parkway	Signal	AM MD PM SA	16.2 16.8 18.2 17.5	B B B B	16.6 18.7 20.6 20.2	B B B B
19. Turner Pkwy at Western Residential Project Driveway	Signal	AM MD PM SA	-	-	6.4 5.3 5.5 5.4	A A A A
20. Turner Pkwy at Eastern Residential Project Driveway	SSS	AM MD PM SA	-	-	0.4 (8.9) 0.1 (10.0) 0.1 (10.0) 0.1 (10.4)	A (A) A (B) A (B) A (B)
21. Admiral Callaghan Ln at Southern Project Driveway	SSS	AM MD PM SA	-	-	1.4 (3.9) **30.4 (52.1)** **40.2 (80.3)** **65.9 (153.4)**	A (A) **D (F)** **E (F)** **F (F)**
22. Admiral Callaghan Ln at Middle Project Driveway	Signal	AM MD PM SA	-	-	4.1 25.2 45.6 **96.6**	A C D **F**
23. Admiral Callaghan Ln at Northern Project Driveway	SSS	AM MD PM SA	-	-	1.6 (7.5) **9.0 (72.4)** **18.1 (>180)** **76.5 (>180)**	A (A) **A (F)** **C (F)** **F (F)**
24. I-80 SB Ramp at Redwood Pkwy	Signal	AM MD PM SA	21.5 15.6 23.2 43.6	C B C D	36.0 62.7 58.5 45.2	D E E D
25.1-80 SB Ramp at Redwood Parkway	Signal				39.3 **80.1** 66.2	D **F** E

Table 4.15-11: Intersection Levels of Service – Cumulative

Location	Control[1,2]	Peak Hour	Cumulative[3]		Cumulative With Project[3]	
			Delay (seconds)	LOS	Delay (seconds)	LOS
		AM MD PM SA	30.3 21.6 19.7 47.9	C C B D	**175.4**	**F**

Notes:

1. Signal = signalized intersection; AWS=all-way stop; SSS=side street stop; MD = weekday mid-day (12:00 PM to 2:00 PM); PM = evening (4:00 PM to 6:00 PM); SA = Saturday mid-day (12:00 PM to 2:00 PM).
2. For side-street stop-controlled intersections, two service levels are listed: Average intersection LOS (LOS for worst side-street movement)
3. **Bold** indicates below-standard service level. Shaded indicates a significant impact.

Source: Fehr & Peers, December 2019

Cumulative Queues

The following discussion on vehicle queues is provided for informational purposes only as there are no specific thresholds for queuing. It should be noted that the instance of a queue exceeding available storage is not in itself a significant impact based on the significance criteria, but rather a condition reflecting the performance of individual movements at an intersection. Vehicle queues in the 95th percentile are projected to exceed the storage capacity for certain movements at the intersections listed below. The 95th percentile queues are those that are projected to occur during only 5% or less of the entire peak hour. The following list shows those intersections with capacity that would be exceeded on a Cumulative basis Without the Project.

- **Intersection #7:** Admiral Callaghan Lane/Rotary Way: westbound right turn during all three peak hours, southbound left and southbound through during the Saturday mid-day peak hour.
- **Intersection #8:** Admiral Callaghan Lane/I-80 EB Ramps: southbound through in the Saturday mid-day peak hour.
- **Intersection #9:** Redwood Street/Fairgrounds Drive/I-80 WB Ramps: westbound through during all peak hours, southbound left during the weekday AM, weekday PM and Saturday mid-day peak hour, eastbound right and westbound through/right during the weekday AM and weekday PM peak hours, and eastbound left during the Saturday mid-day peak hour.
- **Intersection #10:** Redwood Parkway/Admiral Callaghan Lane (N)/I-80 EB Off-Ramp: southbound right, westbound through, and westbound through/right during all three peak hours, eastbound left during the Weekday mid-day peak hour.
- **Intersection #11:** Redwood Parkway/Admiral Callaghan Lane (S): shared eastbound through/right and northbound left turn during all three peak hours, eastbound through during the weekday

mid- peak and PM hour, westbound through and shared westbound through/right during the weekday mid-day and Saturday mid-day peak hours.

Vehicle queues in the 95th percentile are projected to exceed the storage capacity for certain movements at the intersections listed below. The 95th percentile queues are those that are projected to occur during only 5% or less of the entire peak hour. Intersections that are not significantly impacted based on delay and LOS, as evaluated above, are identified with an asterisk.

- **Intersection #4*:** Admiral Callaghan Lane/Vallejo Corners: westbound right during the Saturday mid-day peak hour, westbound left during the weekday mid-day, weekday PM, and Saturday midday peak hours.
- **Intersection #5*:** Admiral Callaghan Lane/Target driveway: northbound through and northbound through/right during the Saturday mid-day peak hour.
- **Intersection #6:** Admiral Callaghan Lane/Turner Parkway: northbound through during the Saturday mid-day peak hour, northbound through/right during the weekday PM and Saturday mid-day peak hours, westbound left and shared westbound left/right during the weekday midday and Saturday mid-day peak hours.
- **Intersection #7:** Admiral Callaghan Lane/Rotary Way: northbound through during the weekday AM, weekday mid-day and Saturday mid-day peak hours, northbound shared through/right, westbound right and southbound through during all three peak hours, southbound left during the weekday PM and Saturday mid-day peak hours.
- **Intersection #8*:** Admiral Callaghan Lane/I-80 EB Ramps: northbound through and northbound through/right during the Saturday mid-day peak hour, southbound through during all peak hours.
- **Intersection #9:** Redwood Street/Fairgrounds Drive/I-80 WB Ramps: eastbound left and through during all three peak hours, southbound left during the weekday AM, weekday mid-day and weekday PM peak hour, southbound right during the weekday mid-day peak hour.
- **Intersection #10*:** Redwood Parkway/Admiral Callaghan Lane (N)/I-80 EB Off-Ramp: southbound left during the weekday AM and weekday PM peak period, southbound right during all peak hours, eastbound left during the Saturday mid-day peak hour.
- **Intersection #11:** Redwood Parkway/Admiral Callaghan Lane (S): northbound left during the weekday AM and Saturday mid-day peak hour, northbound through/right during the weekday ASM, weekday PM and Saturday mid-day peak hour, shared eastbound through/right and northbound left, westbound through, and westbound shared through/right during all three peak hours, eastbound through during the weekday PM peak hour.

Cumulative Signal Warrant Analysis

The unsignalized intersection #13 at Plaza Drive/Costco Driveway experiences high levels of delay for vehicles turning on to Plaza Drive. The intersection meets peak hour signal warrants during the weekday mid-day, weekday PM, and Saturday mid-day peak hours studied under Cumulative No Project conditions.

Under Cumulative with Project conditions, this intersection meets peak hour signal warrants during the Saturday peak hour only. This intersection does not meet peak hour signal warrants in the weekday AM peak hour under Cumulative and Cumulative with Project conditions.

The unsignalized intersection #5 Admiral Callaghan Lane/Target Driveway and #8Admiral Callaghan Lane/I-80 EB Ramps do not meet peak hour signal warrants in any of the peak hours studied under Cumulative and Cumulative with Project conditions.

The unsignalized intersection #20 Turner Parkway/Eastern Residential Project Driveway does not meet signal warrants in any of the peak hours studied under Cumulative with Project conditions. Intersection #23: Admiral Callaghan Lane/Northern Project Driveway and Intersection #21: Admiral Callaghan Lane/Southern Project Driveway experience high levels of delay for vehicles turning on to Admiral Callaghan Lane, these intersections meet peak hour signal warrants during all three peak hours studied under Cumulative with Project conditions.

Cumulative Freeway Segment Levels of Service

As identified in *Table 4.15-12: I-80 Weekday PM Freeway Levels of Service — Cumulative,* with the addition of project traffic, all freeway segments would experience an increase in density. Five segments are forecasted to continue to operate at an acceptable level of service (LOS E or better), as set by Caltrans. One segment, eastbound I-80 west of Redwood Parkway, is expected to operate at a deficient level of service (LOS F) with and without the proposed project. Approximately 194 vehicles would be added to segment with the addition of project traffic. Based on the significance criteria set forth in this EIR, this is a cumulative considerable and significant project impact. As such, implementation of Mitigation Measure TR-4 which in which the applicant would contribute payment of transportation impact fees towards roadway projects, including freeway improvements, in Solano County would be required. However, because no mainline freeway capacity projects are currently planned to be funded by the fee, and because the project applicant and the City of Vallejo do not control the funding, prioritization and construction of freeway improvement projects, this impact would remain significant and unavoidable.

Table 4.15-12: I-80 Weekday PM Freeway Levels of Service — Cumulative

Segment	Cumulative			Cumulative With Project		
	Volume	Density	LOS	Volume	Delay	LOS
1. Westbound – East of Columbus Pkwy	4,220	19.7	C	4,271	19.9	C
2. Westbound – Between Redwood Pkwy and Columbus Pkwy	5,410	25.9	C	5,554	26.6	D
3. Westbound – West of Redwood Pkwy	5,630	38.7	E	5,726	39.7	E
4. Eastbound – East of Columbus Pkwy	5,870	39.4	E	5,921	40.0	E

Table 4.15-12: I-80 Weekday PM Freeway Levels of Service — Cumulative

Segment	Cumulative			Cumulative With Project		
	Volume	Density	LOS	Volume	Delay	LOS
5. Eastbound – Between Redwood Pkwy and Columbus Pkwy	3,580	22.7	C	3,754	23.9	C
6. Eastbound – West of Redwood Pkwy	6,290	Demand Exceeds Capacity	**F**	6,484	Demand Exceeds Capacity	**F**
1. Density Reported in Passenger Cars per Mile Per Lane Source: Fehr & Peers, December 2019.						

Cumulative Mitigation Summary

Table 4.15-13: Mitigated Intersection Level of Service – Cumulative With Project, identifies the level of service with and without the implementation of mitigation measures TR-1, through TR-3. The proposed mitigation does not improve the LOS or delay at impacted intersections #6, #7, #9, #11 and # 21 to an acceptable level. Intersection delays improve at some of these intersections, but the vehicle spillback from intersections #9, and #10 causes intersections #6, #7, #21, #23 and #25 to fail despite the improvements provided by the mitigations. Intersection #25 has no feasible mitigation. However, improvements at upstream intersections due to the proposed mitigations alleviate queue spillback and improve operations to an acceptable level in the weekday mid-day peak hour, and intersection delays are improved but not to an acceptable level in the Saturday mid-day peak hour. The improvements at intersections #6, #7, and #22 improve operations at intersection #18 to an acceptable level.

With the proposed mitigations, the impact at intersection #18 is reduced to a less than significant level. Intersection impacts at intersections #6, #7, #9, and #11, #21, #23 and #25 are significant and unavoidable. Potential impacts at these intersections are considered cumulatively considerable and significant because the intersections would operate at an unacceptable level-of-service and continue to operate at an unacceptable level with mitigations.

Table 4.15-13: Mitigated Intersection Level of Service – Cumulative With Project

Location	Control[1,2]	Peak Hour	With Project[3]		With Mitigation[3]	
			Delay (seconds)	LOS	Delay (seconds)	LOS
6. Admiral Callaghan Ln at Turner Pkwy	Signal	AM	15.3	B	11.4	B
		MD	41.8	**E**	33.5	C
		PM	27.9	**C**	46.5	D
		SA	**117.4**	**F**	**>180**	**F**
7. Admiral Callaghan Ln at Rotary Way	Signal	AM	9.7	A	10.2	B
		MD	**75**	**F**	**91.3**	**F**
		PM	**96.4**	**F**	**112.7**	**F**
		SA	**>180**	**F**	**>180**	**F**

Table 4.15-13: Mitigated Intersection Level of Service – Cumulative With Project

Location	Control[1,2]	Peak Hour	With Project[3]		With Mitigation[3]	
			Delay (seconds)	LOS	Delay (seconds)	LOS
9. Redwood St at Fairgrounds Dr & I-80 WB Ramps	Signal	AM	**152.0**	**F**	121.4	F
		MD	**103.0**	**F**	**96.6**	**F**
		PM	**123.8**	**F**	**115.8**	**F**
		SA	**155.4**	**F**	**101.3**	**F**
11. Redwood Pkwy at Admiral Callaghan Ln (S)	Signal	AM	**149.2**	**F**	**149.3**	**F**
		MD	**125.6**	**F**	**114.1**	**F**
		PM	**154.1**	**F**	**146.6**	**F**
		SA	**>180**	**F**	**121.4**	**F**
21. Admiral Callaghan Ln at Southern Project Driveway	SSS	AM	1.4 (3.9)	A (A)	1.5 (5.7)	A (A)
		MD	**30.4 (52.1)**	**D (F)**	**38.2 (69.1)**	**D (F)**
		PM	**40.2 (80.3)**	**E (F)**	**42.5 (90.1)**	**E (F)**
		SA	**65.9 (153.4)**	**F (F)**	**64.3 (88.7)**	**F (F)**
22. Admiral Callaghan Ln at Middle Project Driveway	Signal	AM	4.1	A	2.9	A
		MD	25.2	C	32.9	C
		PM	45.6	D	58.2	E
		SA	**96.6**	**F**	66.8	E
23. Admiral Callaghan Lan at Northern Project Driveway	Signal	AM	1.6 (7.5)	A (A)	1.5 (7.2)	A (A)
		MD	**9.0 (72.4)**	**A (F)**	**11.0 (76.2)**	**B (F)**
		PM	**18.1 (>180)**	**C (F)**	**26.1 (172.5)**	**D (F)**
		SA	**76.5 (>180)**	**F (F)**	**48.8 (140.6)**	**E (F)**
25. I-80 SB Ramp at Redwood Pkwy	Signal	AM	39.3	D	42.2	D
		MD	**80.1**	**F**	79.5	E
		PM	66.2	E	70.4	E
		SA	**175.4**	**F**	**86.3**	**F**

Notes:

1. Signal = signalized intersection; AWS=all-way stop; SSS=side street stop; MD = weekday mid-day (12:00 PM to 2:00 PM); PM = evening (4:00 PM to 6:00 PM); SA = Saturday mid-day (12:00 PM to 2:00 PM).
2. For side-street stop-controlled intersections, two service levels are listed: Average intersection LOS (LOS for worst side-street movement)
3. **Bold** indicates below-standard service level. Shaded indicates a significant impact.

Source: Fehr & Peers, December 2019

Mitigation Measures:

Implement Mitigation Measures TR-1, TR-2, and TR-3.

Implementation of mitigation measures TR-1 through TR-3, which include the construction of a right turn pocket on northbound Admiral Callaghan Lane/Turner Parkway and signal timing coordination along Turner Parkway would improve traffic flow and reduce delays in the impact area. However, impacts at these seven intersections under *Cumulative With Project Conditions* would remain significant and unavoidable. No other feasible mitigation measures have been identified which would further mitigate the impacts. The project area is located in a developed urban area and insufficient right-of-way exists to

add capacity to the City of Vallejo intersections which are significantly impacted. Caltrans has prepared an interchange improvement plan for the I-80/Redwood Parkway interchange which will improve operations at the I-80 ramp intersections and, as discussed earlier, the project will pay regional transportation fees towards the funding of this project. However; this Caltrans project is not yet fully funded, and the timing and construction of those improvements are outside the control of the City of Vallejo and there is no guarantee that these improvements would be implemented. Therefore, those improvements cannot be considered feasible mitigation for the *Existing With Project* impacts at those I-80/Redwood Parkway interchange intersections.

4.15.9 CUMULATIVE CONCLUSION

The proposed mitigation does not improve the LOS or delay at impacted intersections #6, #7, #9, #11 and #17 to an acceptable level. Intersection delays improve at some of these intersections, but the vehicle spillback from intersections #9 and #10 causes intersections #6, #7, #17, #19 and #21 to fail despite the improvements provided by the mitigations. Intersection #21 has no feasible mitigation. However, improvements at upstream intersections due to the proposed mitigations alleviate queue spillback and improve operations to an acceptable level in the weekday mid-day peak hour, and intersection delays are improved but not to an acceptable level in the Saturday mid-day peak hour. The improvements at intersections #6, #7, and #18 improve operations at intersection #18 to an acceptable level.

With the implementation of the proposed mitigation measures, the impact at intersections, #8 and #18 are reduced to a less than significant level under cumulative conditions. Intersection impacts at intersections #6, #7, #9, and #11, #17, #19 and #21 are significant and unavoidable after mitigation measure have been applied.

4.15.10 REFERENCES

California Department of Transportation. http://www.dot.ca.gov/hq/tpp/offices/ocp/igr_ceqa_files/tisguide.pdf

California Natural Resources Agency. http://resources.ca.gov/ceqa/docs/update2018/proposed-regulatory-text.pdf

City of Vallejo. http://www.ci.vallejo.ca.us/living/transportation/highways

City of Vallejo. http://www.ci.vallejo.ca.us/common/pages/DisplayFile.aspx?itemId=28704

Fehr and Peers, December 2019. Transportation Impact Analysis – Fairview at Northgate

Metropolitan Transportation Commission and Association of Bay Area Governments. http://2040.planbayarea.org/cdn/farfuture/u_7TKELkH2s3AAiOhCyh9Q9QlWEZIdYcJzi2QDCZuIs/1510696833/sites/default/files/2017-11/Final_Plan_Bay_Area_2040.pdf

Vallejo General Plan 2040

Vallejo General Plan 2040 EIR