California High-Speed Rail Authority

San Jose to Merced Project Section

Draft Environmental Impact Report
Environmental Impact Statement

Section 3.2
Transportation

April 2020

CALIFORNIA High-Speed Rail Authority

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being or have been carried out by the State of California pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated July 23, 2019, and executed by the Federal Railroad Administration and the State of California.

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ACRONYMS AND ABBREVIATIONS

2016 Business Plan	*Connecting and Transforming California: 2016 Business Plan*
AB	Assembly Bill
ABAG	Association of Bay Area Governments
ACE	Altamont Corridor Express
Authority	California High-Speed Rail Authority
BART	Bay Area Rapid Transit
Bay Area	San Francisco Bay Area
C.F.R.	Code of Federal Regulations
Caltrans	California Department of Transportation
CCJPA	Capital Corridor Joint Powers Board
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CMP	construction management plan
CP	Control Point
CTC	California Transportation Commission
CTP	construction transportation plan
DSAP	Diridon Station Area Plan
EIR	environmental impact report
EIS	environmental impact statement
FRA	Federal Railroad Administration
FY	fiscal year
GHG	greenhouse gas
HSR	high-speed rail
I-	Interstate
IAMF	impact avoidance and minimization feature
LOS	level of service
MOWF	maintenance of way facility
MOWS	maintenance of way siding
MP	milepost
MST	Monterey-Salinas Transit
MTC	Metropolitan Transportation Commission
NEPA	National Environmental Policy Act
OCS	overhead contact system
OPR	Governor's Office of Planning and Research
PCEP	Peninsula Corridor Electrification Project

PCJPB	Peninsula Corridor Joint Powers Board
PG&E	Pacific Gas and Electric
project, project extent	San Jose to Central Valley Wye Project Extent
RSA	resource study area
RTP	regional transportation plan
SB	Senate Bill
SCS	sustainable communities strategy
SR	State Route
STIP	Statewide Transportation Improvement Program
TCE	temporary construction easement
TOD	transit-oriented development
TRA	trackage rights agreement
U.S.C.	United States Code
UPRR	Union Pacific Railroad
US	U.S. Highway
V/C	volume/capacity
VMT	vehicle miles traveled
VTA	(Santa Clara) Valley Transportation Authority

3.2 Transportation

3.2.1 Introduction

This section describes the regulatory setting, affected environment, and potential impacts on transportation in the San Jose to Central Valley Wye Project Extent (project extent or project) resource study area (RSA) where transportation resources are susceptible to change. The discussion of California Environmental Quality Act (CEQA) impacts reflects California's shift in transportation impact analysis away from a focus on automobile delay, most commonly analyzed in terms of level of service (LOS), to a focus on vehicle miles traveled (VMT). This shift is intended to promote reduction in greenhouse gas (GHG) emissions from transportation, the development of multimodal transportation networks, and a diversity of land uses.

Primary Transportation Impacts

- The project would decrease overall vehicle miles of travel throughout Santa Clara, San Benito, and Merced Counties and improve transit linkages in the region and between southern and northern California.
- Project construction and operations would result in increases in vehicular congestion and delays and decreases in transit performance because of roadway narrowing between Capitol Expressway and Blossom Hill Road under Alternatives 1, 2, and 3.
- Project operations would result in increases in vehicle congestion and delay, decreases in transit performance in the San Jose Diridon Station Approach and the Morgan Hill and Gilroy Subsections because of increased HSR traffic generated by project trips under all alternatives and in the San Jose Diridon Station Approach, Monterey Corridor, and Morgan Hill and Gilroy Subsections because of increased gate down time at rail crossings.

In the project extent, the transportation resources likely to be affected are the transportation networks, including pedestrian, bicycle, transit (e.g., Bay Area Rapid Transit [BART], Caltrain, and bus service), and vehicular facilities near the high-speed rail (HSR) stations. In addition, development of the maintenance of way facility (MOWF) in east or south Gilroy would affect transportation facilities surrounding the proposed locations. Construction and operations of Alternatives 1, 2, and 3 would also involve narrowing Monterey Road from its existing six-lane cross section to four lanes from roughly Capitol Expressway to Blossom Hill Road. Various project alternatives also include modifications to the existing and planned roadway networks to accommodate the project. Operations of Alternative 4 would result in increased gate down time at the at-grade crossings between San Jose and Gilroy, affecting nearby roadway intersections. The project does not cross any navigable waterways and thus will have no effect on marine navigation; therefore, this topic is not discussed further in this document.

The *San Jose to Merced Project Section Transportation Technical Report* (Transportation Technical Report) (California High-Speed Rail Authority [Authority] 2019) provides additional support for this transportation analysis. The following appendices in Volume 2 of this environmental impact report (EIR)/environmental impact statement (EIS) provide additional details on transportation:

- Appendix 2-A, Roadway Crossings, Modifications, and Closures, lists all proposed roadway modifications associated with each of the project alternatives as well as details of proposed four-quadrant gate at-grade crossings.
- Appendix 2-B, Railroad Crossings, describes railroad crossings of the project.
- Appendix 2-D, Applicable Design Standards, describes the relevant design standards for this project.
- Appendix 2-E, Impact Avoidance and Minimization Features, provides the list of all impact avoidance and minimization features (IAMF) incorporated into this project.
- Appendix 2-J, Regional and Local Policies, provides a list by resource of all applicable regional and local plans and policies.

- Appendix 2-K, Policy Consistency Analysis, provides a summary by resource of project inconsistencies and reconciliations with local plans and policies.
- Appendix 3.2-A, Transportation Data on Roadways, Freeways, and Intersections, provides data used in the analysis of potential impacts on roadways, freeways, and intersections. A summary of intersection LOS and National Environmental Policy Act (NEPA) effects is also provided.
- Appendix 3.2-B, Vehicle Miles Traveled Forecasting provides a summary memorandum from the Authority and a technical paper written by Cambridge Systematics describing the methodology used for forecasting the reduction in VMT.

The following resource sections provide additional information related to transportation:

- Section 3.3, Air Quality and Greenhouse Gases, evaluates transportation-related air quality and GHG impacts of the project.
- Section 3.4, Noise and Vibration, evaluates transportation-related noise and vibration impacts of the project.
- Section 3.11, Safety and Security, evaluates impacts on safety and security, including hazards, emergency access and emergency vehicle response times, and facility security.
- Section 3.12, Socioeconomics and Communities, evaluates impacts on community character and cohesion, including those associated with changes in roadway networks that may reshape communities, and evaluates the economic impacts on school districts associated with permanent changes to school bus routes.
- Section 3.13, Station Planning, Land Use, and Development, evaluates changes to land use and development patterns.
- Section 3.18, Regional Growth, evaluates impacts on regional growth, construction and operations employment, and the potential for the project to induce growth related to population and employment.
- Section 3.19, Cumulative Impacts, evaluates the cumulative impacts of the project in combination with other plans, programs, and projects.
- Chapter 5, Environmental Justice, considers transportation impacts in the context of low-income and minority communities.

This Section 3.2 and its supporting technical appendix include discussion and analysis based on automobile delay/congestion based on LOS and its related volume/capacity (V/C) ratio metric. California has adopted a policy through Senate Bill (SB) 743 and associated regulations (CEQA Guidelines 15064.3) that delay and congestion increases, by themselves, are not significant impacts on the environment under CEQA. However, delay/congestion increases caused by a project can lead to significant secondary impacts on the environment, such as air quality and noise. Accordingly, this document retains discussion and analysis of LOS and V/C changes the project might cause as an analytical input into evaluating the potential for significant environmental impacts in these other areas. In contrast, this analysis considers traffic congestion to be an environmental effect under NEPA as described in Section 3.2.4.4, Method for Evaluating Impacts under NEPA.

3.2.2 Laws, Regulations, and Orders

Federal and state laws, regulations, orders, and plans applicable to transportation affected by the project are presented in this section. The Authority would implement the HSR system, including the project, in compliance with all federal and state regulations. Regional and local plans and policies relevant to transportation considered in the preparation of this analysis are provided in Volume 2, Appendix 2-J, Regional and Local Policies.

3.2.2.1 Federal

Federal law requires the State of California to prepare the Federal Statewide Transportation Improvement Program every 4 years. This program compiles all projects that have been programmed throughout the state using federal funds.

In accordance with the Federal Passenger Rail Investment and Improvement Act of 2008, the State of California adopted the *2018 California State Rail Plan* in September 2018. Federal law requires the State of California to update its California State Rail Plan every 5 years as a condition of eligibility for federal funding for HSR and intercity passenger rail programs.

Federal law does not directly stipulate criteria for the analysis of federal aid-eligible roadways and highways. However, certain conditions must be met in order to maintain the funding eligibility of facilities. Federal agencies such as the Federal Highway Administration, Federal Transit Administration, and FRA are also delegated the authority to interpret and enforce most federal environmental protection laws.

Railroad Revitalization and Regulatory Reform Act of 1976 (49 U.S.C.)

The Railroad Revitalization and Regulatory Reform Act provides the means to rehabilitate and maintain the physical facilities, improve the operations and structure, and restore the financial stability of the nation's railway systems and to promote its revitalization.

Federal Transit Act (49 U.S.C.)

The Federal Transit Act fosters the development and revitalization of public transportation systems that maximize safe, secure, and efficient personal mobility; minimize environmental impacts; and minimize transportation-related fuel consumption and reliance on foreign oil.

Highways, Statewide Planning (23 U.S.C. § 135)

Title 23 of the United States Code (U.S.C.) for Highways and Statewide Planning provides the general requirements for statewide planning to encourage and promote the safe and efficient management, operation, and development of surface transportation system.

3.2.2.2 State

Designated state route and interstate highway facilities are under the jurisdiction of the California Department of Transportation (Caltrans) and the California Transportation Commission (CTC), except where management of the facility has been delegated to the county transportation authority. Caltrans and the CTC are responsible for producing a long-range transportation plan for the planning of statewide facilities. Caltrans and the CTC are also responsible under California law for assembling a statewide short-term improvement plan called the Statewide Transportation Improvement Program (STIP). California law requires the State of California to prepare this document every 2 years. The STIP (which often is prepared prior to the Federal Statewide Transportation Improvement Program document) compiles all projects programmed through the state using state or federal funds.

California Transportation Plan 2040

The California Transportation Plan was published in 2016 and provides a long-range policy framework to meet the state's future mobility needs and reduce GHG emissions. The California Transportation Plan defines goals, performance-based policies, and strategies to achieve the state's vision for California's future statewide, integrated, multimodal transportation system. The plan envisions a sustainable system that improves mobility and enhances the quality of life.

State Rail Plan (Gov. Code, § 14036)

This law requires Caltrans to produce a State Rail Plan that includes a passenger and freight rail component. The *California State Rail Plan* (Caltrans 2018) was developed to meet this requirement. It establishes a statewide vision and objectives, sets priorities, and develops policies and implementation strategies to enhance passenger and freight rail service in the public interest. It also details a long-range investment program for California's passenger and freight infrastructure.

Sustainable Communities and Climate Protection Act of 2008 (SB 375, Chapter 728, Statutes of 2008) and Global Warming Solutions Act (AB 32)

Adopted in September 2008, SB 375 provides a new planning process to coordinate community development and land use planning with regional transportation plans (RTP) to reduce sprawling land use patterns and dependence on private vehicles and thereby reduce VMT and GHG emissions associated with VMT. SB 375 is one major tool being used to meet the goals in Assembly Bill (AB) 32, the Global Warming Solutions Act. Under SB 375, the California Air Resources Board sets GHG emissions reductions targets for 2020 and 2035 for metropolitan planning organizations in the state. Each metropolitan planning organization must then prepare a sustainable communities strategy (SCS) that meets the GHG emissions reduction targets set by the board. Once adopted, the SCS is incorporated into the region's RTP.

Senate Bill 743 and CEQA Guidelines Section 15064.3

SB 743, codified in Public Resources Code Section 21099, created a shift in transportation impact analysis under CEQA from a focus on automobile delay as measured by LOS and similar metrics toward a focus on reducing VMT and GHG emissions. The Legislature required the Governor's Office of Planning and Research (OPR) to propose new criteria for determining the significance of transportation. The statute states that upon certification of the new criteria, automobile delay, as described solely by LOS or similar measures of vehicular capacity or traffic congestion, shall not be considered a significant impact on the environment under CEQA, except in any locations specifically identified in the new criteria. Lead agencies are still required to analyze a project's potentially significant transportation impacts related to air quality, noise, safety, and other resource areas that may be associated with transportation. The statute states that the adequacy of parking for a project shall not support a finding of significance.

The new criteria, contained in CEQA Guidelines Section 15064.3, was certified and adopted in December 2018. Section 15064.3 provides that VMT is the most appropriate metric to assess transportation impacts with limited exceptions (applicable to roadway capacity projects, which this project is not). A project's effect on automobile delay does not constitute a significant environmental impact. Other relevant considerations may include the project's effects on transit and nonmotorized travel. Section 15064.3 further provides that transportation projects that reduce VMT should be presumed to cause a less-than-significant impact. A lead agency can elect to be governed by Section 15064.3 immediately (which the Authority has done), and is required to shift to a VMT metric by July 1, 2020.

OPR has provided a technical advisory on evaluating transportation impacts in CEQA (OPR 2018a) and further information related to the change in Guidelines in its 2018 Statement of Reasons supporting the guideline change (OPR 2018b), and related to LOS and VMT on its CEQA Update website (OPR 2018c).

3.2.2.3 Regional and Local

City and county plans, including regional transportation plans, general plans, downtown master plans, community plans, and specific plans address transportation. Goals, policies, and regulations include design guidelines, transportation system efficiencies, and strategies to improve circulation. All regional and local policies applicable to the project are listed in Volume 2, Appendix 2-J.

Regional Transportation Plans (Gov. Code § 65080)

The State of California requires each transportation planning agency to prepare and adopt an RTP directed at achieving a coordinated and balanced regional transportation system.

Relevant objectives, policies, and goals from *Plan Bay Area 2040*, *Merced County Regional Transportation Plan*, *Moving Forward 2035 Monterey Bay* (Association of Bay Area Governments [ABAG] and Metropolitan Transportation Commission [MTC] 2017) and the Caltrain Strategic Plan applicable to the project are provided in Volume 2, Appendix 2-J.

California Streets and Highways Code (§ 1 et seq.)

California Streets and Highways Code Section 1 et seq. includes the provisions and standards for administration of the statewide streets and highways system. Designated state route and interstate highway facilities are under the jurisdiction of Caltrans, except where management of the facility has been delegated to local jurisdictions. Operations analysis of Caltrans facilities is conducted according to the methodology set forth in the *Guide for the Preparation of Traffic Impact Studies* (Caltrans 2002).

Caltrans uses the methods outlined in the *Highway Capacity Manual* (Transportation Research Board 2010) and has a target threshold of LOS C for intersections and highway facilities. The Caltrans guide provides guidelines for determining project fair-share contributions (Caltrans 2002).

3.2.3 Consistency with Plans and Laws

As indicated in Section 3.1.5.3, Consistency with Plans and Laws, CEQA and Council on Environmental Quality (CEQ) regulations require a discussion of inconsistencies or conflicts between a proposed undertaking and federal, state, regional, or local plans and laws. As such, this Draft EIR/EIS describes the inconsistency of the project alternatives with federal, state, regional, and local plans and laws to provide planning context.

There are a number of federal and state laws and implementing regulations, listed in Section 3.2.2.1, Federal, and Section 3.2.2.2, State, that direct the transportation analyses for projects. These include the Railroad Revitalization and Regulatory Reform Act of 1976, Federal Transit Act, California Transportation Plan 2040, and the State Rail Plan.

The Authority, as the lead agency proposing to construct and operate the HSR system, is required to comply with all federal and state laws and regulations and to secure all applicable federal and state permits prior to initiating construction on the selected alternative. Therefore, there would be no inconsistencies between the project alternatives and these federal and state laws and regulations. The HSR system as a whole, including the San Jose to Central Valley Wye Project Extent, is consistent with the California Transportation Plan 2040, the 2018 California State Rail Plan, and SB 743.

The Authority is not required to comply with local transportation regulations; however, it has endeavored to design and build the project so that it is consistent with local transportation goals. For example, the project alternatives incorporate IAMFs that include restricting construction hours and parking for construction vehicles, maintaining truck routes and access for special events during construction, maintaining bicycle and pedestrian access, protecting freight and passenger rail services, maintaining transit access, and meeting design standards and guidance for transportation facilities. The Authority reviewed 17 plans and 241 policies. The project alternatives are consistent with 237 policies and inconsistent with 4 policies set forth in the following general plans:

- Santa Clara County General Plan—Policy C-TR 12: The project would cause some intersections under County jurisdiction to operate at worse than the target LOS of D or better, resulting in an inconsistency with the County's LOS policy.
- City of San Jose General Plan—Goal TR-5.3: The project would cause some intersections under City jurisdiction to operate at worse than the target LOS of D or better, resulting in an inconsistency with the City's LOS policy.
- City of Morgan Hill General Plan—Policy TR-3.4: The project would cause some intersections under City jurisdiction to operate at worse than the target LOS of D or better, resulting in an inconsistency with the City's LOS policy.
- City of Gilroy General Plan—Policy 12.08, Standard Level of Service: The project would cause some intersections under City jurisdiction to operate at worse than the target LOS of D or better, resulting in an inconsistency with the City's LOS policy.

Appendix 2-K, Policy Consistency Analysis, provides further details on the inconsistencies and reconciliations with plans and laws of local jurisdictions. While implementation of the project would

result in an increase in congestion on certain roadway segments and intersections, it would reduce regional VMT. The project would also support a shift to transit-oriented development (TOD) in station areas, to reduce reliance on the private automobile. The project would not address congestion through capacity improvements. It should also be noted that each of these jurisdictions will become fully compliant with SB 743 by July 1, 2020, entailing a shift from LOS to VMT in their policies.

3.2.4 Methods for Evaluating Impacts

The evaluation of impacts on transportation is a requirement of NEPA and CEQA. The following sections summarize the RSAs and the methods used to analyze transportation. As summarized in Section 3.2.1, Introduction, other resource sections in this EIR/EIS also provide information related to transportation.

3.2.4.1 Definition of Resource Study Area

As defined in Section 3.1, Introduction, RSAs are the geographic boundaries within which analysts conducted the environmental investigations specific to each resource topic. The RSA for impacts on transportation encompasses the areas directly or indirectly affected by project construction and operations. These areas include the project footprint for each project alternative and the transportation network facilities providing access to the project footprint.

Direct long-term transportation impacts on roadways, intersections, transit facilities, bicycle facilities and pedestrian facilities are permanent changes necessary to implement the project alternatives. The RSA for direct impacts includes the project footprint for each project alternative. Indirect impacts on transportation facilities are changes to travel patterns resulting from implementation of the project alternatives (e.g., increases in traffic around stations and maintenance facilities, changes in circulation patterns resulting from narrowing Monterey Road from six to four lanes). The RSA for indirect impacts varies by facility type (i.e., roadways, freeways and intersections, transit, nonmotorized travel, and freight rail), as shown in Table 3.2-1.

Table 3.2-1 Definition of Transportation Resource Study Areas

Source	General Definition
Roadways, Freeways, Intersections	
Direct impacts	Project footprint
Indirect impacts	Includes major state routes for regional access; regionally significant roadways as defined by the Santa Clara Valley Transportation Authority, Congestion Management Programs, and relevant general plans; and regional truck routes that could be affected by project construction. The indirect RSA for roadways, freeways, and intersections includes critical intersections of station access points and regionally significant roadways located between the station and adjacent state highways and critical intersections of regionally significant roadways near the Monterey Road lane reduction affected by changes in travel patterns. Freeway segments that would serve 100 or more project-generated trips in either the AM or PM peak hour and intersections of roadways classified as a collector or above that would be physically modified by the project or would serve 50 or more project trips in either the AM or PM peak hour are considered to be affected by the project.[1]
Transit	
Direct impacts	Project footprint
Indirect Impacts	Includes regional and local bus transit service and passenger rail service that could be affected by project construction, including existing and planned public transit systems serving HSR stations in the project extent and ground transit facilities affected by changes in travel patterns because of the Monterey Road lane reduction.

Source	General Definition
Nonmotorized Travel	
Direct impacts	Project footprint
Indirect impacts	Includes infrastructure for pedestrian and bicycle transportation that could be affected by project construction, as well as existing and planned pedestrian and bicycle facilities within 500 feet of the project footprint.
Freight Rail	
Direct impacts	Project footprint
Indirect impacts	Includes freight rail track and systems that would be affected by project construction and existing freight rail facilities within 500 feet of the project footprint.

Source: Authority 2019a
RSA = resource study area
HSR = high-speed rail
[1] The Authority excluded some very low volume intersections, as impacts could not be reasonably anticipated at these locations. Typically, if an intersection had fewer than approximately 200 vehicles on the minor street, analysts considered it low volume. The Authority also considered other factors such as the context of the land use around that intersection and the proximity to the project alignment or other geometric changes (e.g., some intersections had more volume but were ruled out based on distance from the project alignment; some intersections had less volume but were near a station/roadway change).

3.2.4.2 Impact Avoidance and Minimization Features

IAMFs are project features that are considered to be part of the project and are included as applicable in each of the alternatives for purposes of the environmental impact analysis. The full text of the IAMFs that are applicable to the project is provided in Appendix 2-E. The following IAMFs are applicable to the transportation analysis:

- TR-IAMF#1: Protection of Public Roadways during Construction
- TR-IAMF#2: Construction Transportation Plan
- TR-IAMF#3: Off-Street Parking for Construction-Related Vehicles
- TR-IAMF#4: Maintenance of Pedestrian Access
- TR-IAMF#5: Maintenance of Bicycle Access
- TR-IAMF#6: Restriction on Construction Hours
- TR-IAMF#7: Construction Truck Routes
- TR-IAMF#8: Construction during Special Events
- TR-IAMF#9: Protection of Freight and Passenger Rail during Construction
- TR-IAMF#10: Off Peak Hour Employee Work Shift Changes at HMF
- TR-IAMF#11: Maintenance of Transit Access
- TR-IAMF#12: Pedestrian and Bicycle Safety
- LU-IAMF#2: Station Area Planning and Local Agency Coordination

This environmental impact analysis considers these IAMFs as part of the project design. Within Section 3.10.6, Environmental Consequences, each impact narrative describes how these project features are applicable and, where appropriate, effective at avoiding or minimizing potential impacts to less than significant under CEQA.

3.2.4.3 Methods for Impact Analysis

Overview of Impact Analysis

This section describes the sources and methods used to analyze potential impacts of the project alternatives on transportation.. The following sections present the data collection efforts, analysis scenarios, measures of effectiveness, travel demand forecasting methods, and means for the evaluation of impacts on transportation.

Travel Demand Forecasts and Calculation of Vehicle Miles Traveled

Analysts developed ridership forecasts for the HSR system using the latest version of the statewide California High-Speed Rail Ridership and Revenue Model in *California High-Speed Rail Ridership and Revenue Model, Business Plan Model Version 3* (Authority 2016c). The model incorporates socioeconomic growth assumptions (population, housing, and employment forecasts) consistent with the California Statewide Travel Demand Model and adjusts them for the 2029 and 2040 forecast years. The statewide conventional passenger rail and urban transit networks are consistent with current and planned routes in the 2013 *California State Rail Plan* (Caltrans 2013) and plans for individual regional rail operators. The Authority provided station mode of access forecasts (Authority 2016b). Analysts estimated the vehicle trip forecasts through the analysis of comparable systems, the local context at each HSR station, existing conditions and constraints, planned land uses, transportation facilities and services, vehicle parking availability, and the mode-of-access forecasts.

VMT on roadway networks is a performance measure highly correlated to transportation GHG emissions. VMT is calculated based on the number of vehicles multiplied by the distance traveled by each vehicle. The Ridership and Revenue Model was used to forecast annual VMT for Santa Clara County, San Benito County, and Merced County under future conditions. Appendix 3.2-B, Vehicle Miles Traveled Forecasting, describes the methodology used for forecasting the reduction in VMT.

Analysts developed forecasts of vehicles that would travel on the freeways and roads in the RSA using a version of the Santa Clara Valley Transportation Authority (VTA) model developed by VTA staff for the San Mateo City/County Association of Governments (VTA 2017a), and subsequently enhanced to develop ridership forecasts for the Caltrain Peninsula Corridor Electrification Project (PCEP) EIR (Peninsula Corridor Joint Powers Board [PCJPB] 2015). This forecasting tool was identified as the most appropriate for the project because it was used to develop Caltrain ridership forecasts and encompasses all the RSA intersections and freeway segments, as well as San Mateo and San Francisco Counties to the north.

Analysts enhanced the VTA model to include HSR in order to develop vehicle forecasts for this analysis. The socioeconomic datasets used as inputs to prepare the forecasts are based on the *Bay Area Regional Projections* (ABAG 2013). These datasets are accepted by the MTC to reflect regional model consistency for models used by the Congestion Management Agencies and were used to develop the regional travel demand forecasts for *Plan Bay Area 2040*, the current RTP and SCS for the San Francisco Bay Area (Bay Area) (ABAG and MTC 2017). Analysts incorporated HSR into the model by adding a new transit line along the planned alignment, with the four HSR stations in the Bay Area (i.e., San Francisco, Millbrae, San Jose Diridon, and Gilroy) and forecast HSR operating speeds by segment. Analysts then adjusted the model to match the HSR ridership and mode of access forecasts. In addition to incorporating HSR, analysts reviewed planned improvements to 2040 No Project highway and transit networks in the VTA model and found them to be consistent with the MTC's RTP and the SCS regional model.

The Authority used intersection and freeway LOS analytical methods to evaluate the vehicular traffic impacts from the HSR stations and the MOWF. The Authority determined the 2029 and 2040 No Project traffic volumes for the RSA stations and MOWF sites by using city-specific growth factors obtained from the VTA travel demand model. The growth factors were applied to the existing volumes to arrive at the future No Project volumes for the RSA intersections. In the segment where Monterey Road would be narrowed from six lanes to four lanes,[1] analysts prepared model runs to indicate any diversion in vehicle traffic that would occur. The Authority manually added vehicle trips generated by the HSR stations and MOWF alternatives to the 2029 and 2040 No Project traffic volumes based on distribution data derived from the VTA model to estimate the project-related traffic volumes.

[1] This capacity reduction, achieved by removing lanes, is often referred to as a *road diet*.

Station Boardings and Alightings

The *Connecting and Transforming California: 2016 Business Plan* (2016 Business Plan) (Authority 2016a) documents 2029 and 2040 Plus Project ridership forecasts based on the *California High-Speed Rail Ridership and Revenue Model, Business Plan Model Version 3* (Authority 2016c). Table 3.2-2 shows the 2029 and 2040 Plus Project ridership (including boardings, alightings, and total daily passenger trips) for San Jose Diridon Station and the two potential Gilroy station locations.

Table 3.2-2 2029 and 2040 Ridership at High-Speed Rail Stations

Station	Daily Boardings[1]	Daily Alightings[2]	Total Daily Passenger Trips
2029 Ridership			
San Jose Diridon	7,250	7,250	14,500
Downtown Gilroy	2,950	2,950	5,900
East Gilroy	2,950	2,950	5,900
2040 Ridership			
San Jose Diridon	15,450	15,450	30,900
Downtown Gilroy	6,200	6,200	12,400
East Gilroy	6,200	6,200	12,400

Source: Authority 2016c
HSR = high-speed rail
[1] Boardings account for passengers departing on HSR trains.
[2] Alightings account for passengers arriving on HSR trains.

Station Passenger Trip Generation by Mode of Access/Egress

The Authority applied station mode-of-access and egress forecasts to ridership estimates to determine the numbers of trips by mode at each station (Authority 2016b). Table 3.2-3 illustrates the passenger trips by mode of access and egress at the HSR stations in the RSA forecast for 2029 and 2040.

These estimates account for constrained vehicle parking; the provision of on-site parking would not meet total unconstrained project-related demand at all stations. Constrained vehicle parking could influence passengers to access the station area via transit rather than auto. Unmet needs for parking would be accommodated off site. There would be no rental car facilities located in the project footprint. Like unmet vehicle parking, all rental car facilities would be located off site.

The project does not include the construction of off-site parking facilities for construction or operational purposes. Vehicle trips to existing off-site rental car or parking facilities were assigned to areas where these resources are currently available. Passenger trips associated with satellite parking or rental car facilities were included as shuttle trips at the station level.

Station Vehicle Trip Generation

The Authority developed station vehicle trip generation estimates based on passenger trip generation estimates for vehicle access modes. Passenger trips were converted to vehicle trips using vehicle occupancy factors for park-and-ride, drop off, pick up, taxi, transportation network company, and shuttle trips. Peak hour vehicle trips were calculated by applying a peak hour conversion factor of 10 percent to daily trip totals.

Table 3.2-3 2029 and 2040 Passenger Trip Generation at High-Speed Rail Stations[1]

Station	Total Daily Passenger Trips[2]	Daily Passenger Trips by Mode of Access/Egress[3]						
		Parked Car: On Site	Parked Car: Off Site	Drop Off/ Pick Up	Taxi/ TNC	Rental Car Shuttle	Bus/ Rail	Walk/ Bike
2029 Passenger Trips								
San Jose Diridon	14,500	340	750	1,700	2,800	1,100	5,800	2,000
Downtown Gilroy	5,900	1,000	0	1,000	1,300	940	1,100	500
East Gilroy	5,900	1,600	0	880	1,600	1,500	260	60
2040 Passenger Trips								
San Jose Diridon	30,900	340	2,000	3,700	5,900	2,300	12,300	4,300
Downtown Gilroy	12,400	2,100	0	2,200	2,800	2,000	2,300	1,050
East Gilroy	12,400	2,700	600	1,900	3,400	3,200	560	130

Source: Authority 2016b
HSR = high-speed rail
TNC = transportation network company
[1] Passenger trip generation values presented in this table are rounded as follows: values presented in the hundreds are rounded to the nearest ten; values presented in the thousands are rounded to the nearest hundred except where necessary to make sure that values for the row sum correctly.
[2] Includes boardings and alightings by HSR passengers.
[3] Mode of access refers to trips associated with boardings. Mode of egress refers to trips associated with alightings. For the traffic effects analysis, trips associated with potential privately operated off-site parking or rental car facilities are included as shuttle trips instead of individual vehicle trips.

Table 3.2-4 shows the average vehicle occupancy, or passengers per vehicle, for each mode of access at San Jose Diridon, Downtown Gilroy, and East Gilroy stations forecast in 2029 and 2040. Passenger trips associated with off-site parked cars and rental cars were included as shuttle trips at the station level.

Table 3.2-4 2029 and 2040 Passengers per Vehicle by Mode

Station	Passengers per Vehicle			
	Parked Car	Drop Off/ Pick Up	Rental Car	Taxi/TNC
San Jose Diridon	1.33	1.43	1.41	1.28
Downtown Gilroy	1.31	1.46	1.51	1.29
East Gilroy	1.31	1.46	1.51	1.29

Source: Authority 2016b
TNC = transportation network company

Table 3.2-5 shows the daily, AM peak hour, and PM peak hour vehicle trips generated by the San Jose Diridon, Downtown Gilroy, and East Gilroy stations forecast in 2029 and 2040. Parked car trips result in one vehicle trip per boarding or alighting while drop off/pick up and taxi/transportation network company trips result in two vehicle trips (one trip entering the site and another leaving the site) per boarding or alighting.

Table 3.2-5 2029 and 2040 Vehicle Trip Generation at High-Speed Rail Stations

Station	Daily Vehicle Trips	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
2029 Vehicle Trips							
San Jose Diridon[1]	3,720	210	190	400	190	210	400
Downtown Gilroy	2,000	230	130	360	130	230	360
East Gilroy	2,100	240	170	410	170	240	410
2040 Vehicle Trips							
San Jose Diridon[1]	10,100	540	520	1,100	520	540	1,100
Downtown Gilroy	5,200	400	290	690	290	400	690
East Gilroy	5,400	440	310	750	310	440	750

Source: Authority 2016b
HSR = high-speed rail
[1] Trips reflect the vehicles that drive to HSR station facilities. 36 daily employee round trips at San Jose Diridon Station and 29 daily employee round trips at the Downtown Gilroy or East Gilroy Station were included.

Transit Trip Generation at Stations

The Authority estimated station transit trips based on estimated passenger trips for transit access modes. The project would generate approximately 700 peak hour transit trips at San Jose Diridon Station, approximately 130 peak hour transit trips at the Downtown Gilroy Station, and approximately 30 peak hour trips at the East Gilroy Station in 2029. In 2040, the project would generate approximately 1,200 peak hour transit trips at San Jose Diridon Station, approximately 230 peak hour transit trips at the Downtown Gilroy Station, and approximately 50 peak hour trips at the East Gilroy Station.

Trip Generation at the Maintenance Facility Sites

The Authority calculated trip generation for the MOWF sites based on an estimated number of 150 employees at the proposed facility. The employees were classified based on their operational function as maintenance shop employees, management, crew and support, or maintenance-of-way employees. The MOWF vehicle trip generation was based on trip rates identified in the Institute of Transportation Engineers *Trip Generation Manual* for a general light industrial use[2] (Institute of Transportation Engineers 2012). The Authority assumed that full employment of 150 employees would be required by 2029 and 2040 (Authority 2016d). Vehicle trips are not anticipated at the maintenance of infrastructure siding (MOIS) near Turner Island Road. This facility would be accessed primarily by rail. Emergency vehicle access would be provided; however, worker or passenger vehicles would not typically access this facility on a daily basis.

Table 3.2-6 shows trip generation at the proposed MOWF locations forecast for 2029 and 2040. Both potential site alternatives would have identical employee estimates and classifications, and therefore would generate the same number of trips. The table shows that the facility would be expected to generate approximately 470 daily vehicle trips, with roughly 70 vehicle trips each during the AM and PM peak hours.

[2] ITE land use code 110. Light industrial uses have a higher trip-generation rate than heavy industrial uses (ITE code 120), so use of this code represents a conservative assumption.

Table 3.2-6 2029 and 2040 Vehicle Trip Generation at Maintenance of Way Facilities

Station	Daily Trips	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
East Gilroy and South Gilroy MOWF	470	57	12	69	14	52	66

Source: Authority 201b6
MOWF = maintenance of way facility

Baseline Operations Analysis

Pursuant to CEQA requirements, an EIR must include a description of the existing physical environmental conditions near a project. Those conditions, in turn, "will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant" (CEQA Guidelines § 15125(a)). Accordingly, this document analyzes the impacts from project construction as compared to the existing conditions in 2016.

Since this project would not commence operations for almost 10 years and would not reach full operations for almost 25 years, use of only existing conditions as a baseline for traffic LOS impacts from HSR operations would be misleading (the EIR/EIS assumes Phase 1 rail service would commence in 2029). Therefore, the LOS traffic analysis from HSR operations uses a multiple baseline approach. The Authority evaluated the project's LOS traffic impacts against both existing conditions and background (i.e., No Project) conditions forecast for 2029 and 2040. More detail is provided in the Transportation Technical Report (Authority 2019a).

The Authority evaluated the following six scenarios:

- **Existing conditions**—Reflects current transportation conditions based on current counts and facilities.
- **Existing Plus Project conditions**—Evaluates the potential impacts of the physical alterations proposed by the project. All transportation network modifications necessary to construct the project (e.g., roadway closures, roadway modifications) are reflected in this scenario. The project would not provide rail service under existing conditions, so ridership at stations is not reflected under this scenario.
- **2029 No Project conditions**—Reflects future transportation conditions in 2029, including reasonably foreseeable land use changes and transportation network modifications.
- **2029 Plus Project conditions**—Evaluates the potential impacts of the project on 2029 baseline conditions with project ridership anticipated in 2029. All transportation network modifications necessary to construct the project along with HSR service and ridership at stations are reflected in this scenario.
- **2040 No Project conditions**—Reflects future transportation conditions in 2040, including reasonably foreseeable land use changes and transportation network modifications.
- **2040 Plus Project conditions**—Evaluates the full potential impacts of the project on 2040 baseline conditions. All transportation network modifications necessary to construct the project along with HSR service and ridership at stations are reflected in this analysis scenario.

Construction and operations activities were both analyzed as part of the LOS impact analysis for the 2029 and 2040 Plus Project conditions. Because temporary street closures and relocations would occur during the construction phase, these construction impacts are described quantitatively for the Existing Plus Project conditions and qualitatively for the 2029 and 2040 Plus Project conditions. The combined impacts from construction and operations are described quantitatively for the 2029 and 2040 Plus Project conditions.

Roadways, Freeways, and Intersections Analysis

This section describes transportation operating conditions in terms of LOS and delay. LOS is the primary unit of measure for stating the operational quality of a roadway or intersection and is qualitative, with a ranking system of A through F, where LOS A signifies the best and LOS F the worst operating conditions. The Authority followed the procedures in the *Highway Capacity Manual* (Transportation Research Board 2010) to calculate the LOS.

As discussed in Section 3.2.2.2, California is no longer using automobile delay as a measure of transportation impacts under CEQA. The LOS consequences caused by the project may nevertheless be relevant for consideration of other transportation-related environmental effects, including impacts on transit and nonmotorized travel, emergency vehicle access, air quality and GHG, and noise. The LOS consequences are therefore presented in the transportation section and referenced in other parts of the EIR/EIS where appropriate.

LOS criteria for identifying effects on signalized intersections, unsignalized intersections, and freeways under NEPA are described in the following subsections.

Roadways

The Authority evaluated changes to roadways qualitatively by assessing the construction and operations impacts on intersections in the RSA. Intersections represent the governing factors establishing the capacity of the roadway transportation network; thus, the analysis focuses on these key locations. The Authority assessed whether project changes to infrastructure or circulation would temporarily or permanently affect vehicle circulation, disrupt transportation system operations, or damage the roadway system.

Freeways

The Authority evaluated freeway mainline segments using the method described in Chapter 11 of *Highway Capacity Manual* (Transportation Research Board 2010). This method 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 3.2-7 shows the relationship between freeway density and LOS. Freeway segments that would serve 100 or more project-generated vehicle trips in either peak hour were evaluated.

Table 3.2-7 Freeway Level of Service Definitions

Level of Service	Volume to Capacity Ratio
A	< 0.283
B	0.283 to 0.457
C	0.457 to 0.673
D	0.673 to 0.849
E	0.849 to 1.0
F	> 1.0

Source: Transportation Research Board 2010
< = less than
> = greater than

The Authority identified impacts on the freeway system through a two-step process. First, the LOS was determined using the traffic density, as shown in Table 3.2-7. Then, for freeway segments with LOS E or F (only), the difference in the V/C ratio between the No Project conditions and Plus Project conditions was calculated. An adverse effect under NEPA was deemed to occur if the project would cause the V/C ratio to increase by 0.04 (4 percent) or more.

Intersections

The operation of signalized intersections is based on various intersection characteristics, such as traffic volumes, lane geometry, and signal phasing, to estimate the average control delay experienced by motorists traveling through an intersection. Control delay incorporates delay associated with deceleration, acceleration, stopping, and moving up in the queue. Table 3.2-8 shows the relationship between average delay per vehicle and LOS for signalized intersections.

Table 3.2-8 Signalized Intersection Level of Service Definitions

Level of Service	Description	Average Control Delay Per Vehicle (seconds)
A	Operations with very low delay occurring with favorable progression and/or short cycle lengths.	≤ 10
B	Operations with low delay occurring with good progression and/or short cycle lengths.	10.1 – 20
C	Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	20.1 – 35.0
D	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, and high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	35.1 – 55.0
E	Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences.	55.1 – 80
F	Operations with delays unacceptable to most drivers occurring due to oversaturation, poor progression, or very long cycle lengths.	> 80

Source: Authority 2019a
< = less than or equal to
> = greater than
V/C = volume to capacity

The Authority evaluated traffic conditions at unsignalized intersections using the method from Chapter 19 of the *Highway Capacity Manual* (Transportation Research Board 2010). With this method, operations are defined by the average control delay per vehicle (measured in seconds) for each movement that must yield to the right-of-way. At two-way or side street–controlled intersections, analysts calculated the control delay (and LOS) for each controlled movement, as well as the left-turn movement from the major street, and the entire intersection. For controlled approaches composed of a single lane, the control delay is the average of all movements in that lane. The delays for the entire intersection and for the movement or approach with the highest delay are reported. Table 3.2-9 shows the relationship between delay and LOS for unsignalized intersections.

The Authority determined LOS values for the study intersections based on *Highway Capacity Manual* procedures using Synchro, SimTraffic, or VISSIM software packages depending on the individual intersection configuration and operating characteristics. Synchro was used to analyze intersections with standard configurations and operating characteristics that are not close to other major intersections. The SimTraffic microsimulation package was used to evaluate intersections at freeway interchanges. The VISSIM microsimulation package was applied at intersections where high levels of congestion, frequent transit service, adjacent rail crossings, high pedestrian or bicycle volumes, or special traffic signal systems (such as transit signal priority) warranted a more complex analytical approach.

Table 3.2-9 Unsignalized Intersection Level of Service Definitions

Level of Service	Description	Average Control Delay Per Vehicle on Worst Approach (seconds)
A	Little or no delays	≤ 10.0
B	Short traffic delays	> 10.0 to 15.0
C	Average traffic delays	> 15.0 to 25.0
D	Long traffic delays	> 25.0 to 35.0
E	Very long traffic delays	> 35.0 to 50.0
F	Extreme traffic, delays where intersection capacity exceeded	> 50.0

Source: Transportation Research Board 2010
< = less than or equal to
> = greater than

The intersection analysis for Alternative 4 follows the methods and analysis precedent set by recent analysis of intersections near passenger rail grade crossings in the Bay Area. The VISSIM microsimulation software analysis package was used to analyze the roadway networks; the VISSIM software allows for the direct coding of traffic signal preemption during train grade crossing events. Existing conditions models were built and validated based on traffic counts, aerial intersection geometry information, and field-observed traffic conditions. The 2029 and 2040 No Project train schedules were taken from existing published information from Caltrain. Trains schedules for Alternative 4 under 2029 and 2040 Plus Project conditions were provided by the Authority and include 12 peak direction trains (combined for HSR and Caltrain) and eight off-peak direction trains (all HSR) per hour. Gate down times were estimated using data from the San Francisco to San Jose segment of the corridor; the 95th percentile single-train gate down times (54 seconds for intersections away from HSR stations, and 68 seconds for intersections near HSR stations) provided a conservative basis for the analysis of project effects on intersection operations. The simulation models used the train schedule as an input to compute the effects of 2-for-1 grade crossing events (where two trains in opposite directions pass each other at a grade crossing, thus extending the time the gates are down and the traffic signal is preempted from normal operation).

In addition, analysts conducted a focused analysis of conditions during project construction in the Monterey Corridor Subsection. This focused analysis evaluated the effects of narrowing the facility to four lanes with the elimination of turn lanes on Monterey Road for the duration of construction.[3]

Parking Analysis

The focus of the parking analysis is on the HSR stations and the effects on parking of project construction and operations at and adjacent to the stations as such effects relate to the potential for secondary physical impacts on the environment and socioeconomic conditions. Existing parking was identified by review of aerial photography and public websites.

Transit Analysis

The Authority evaluated transit facilities and operations, including bus and rail transit services, by reviewing the effect of project footprint plans, passenger trip generation estimates, and intersection LOS on transit in the project footprint. The Authority obtained data for existing and

[3] LOS analysis is done primarily for traffic in the RSA that would be affected by project operations once the project commences operation (including permanent roadway reconfigurations commencing with construction). Traffic congestion from project construction would largely be temporary, so an LOS analysis would not be appropriate. However, an LOS analysis was prepared to evaluate the potential effects of the narrowing of Monterey Road to four lanes with the elimination of left-turning movements during construction. Effects from project construction in other areas pertain to maintaining safety and access during construction.

future transit services from on-site reviews of existing facilities, from reviews of publicly available information and plans, and by contacting the various service providers (e.g., VTA, Caltrain).

The Authority evaluated project construction impacts on passenger rail service by identifying the temporary closures of passenger rail track that would likely disrupt service. Analysts used the HSR Statewide Travel Demand Model (Caltrans 2018) to assess potential changes in Caltrain and other transit ridership because of project operations (Authority 2016a, 2017b).

Nonmotorized Travel Analysis

The Authority evaluated nonmotorized transportation facilities, including bicycle and pedestrian facilities, by reviewing engineering plans and project footprints and passenger trip generation estimates. Specifically, analysts evaluated impacts of the project designs on nonmotorized transportation in the project footprint and the impact of project-related trips on nonmotorized transportation in the project footprint and RSA. Analysts obtained data for existing and future nonmotorized facilities from on-site reviews of existing facilities, review of publicly available information and plans, and contacting the various jurisdictions (e.g., City of San Jose, Caltrans).

Freight Rail Service

The Authority evaluated construction impacts on freight rail service qualitatively by identifying where project construction would disrupt freight service and how long such disruptions would last. Analysts evaluated the operations impacts on freight service where the project would share passenger and freight rails based on potential changes in freight service access, routing, and operating hours (limited to one alternative with shared tracks for 1.2 miles from Santa Clara Station to Scott Boulevard).

Aviation

Section 3.11, Safety and Security, reviews airport master plans and potential construction and operational safety impacts on public and private airports within 2 miles of the project and concludes that the project would be consistent with airport master plans, would conform to airspace safety requirements, and would not have an impact on aviation safety. That analysis is not repeated in this section.

There are four public airports within 2 miles of the project section: Norman J. Mineta San Jose International Airport (0.3 mile from the nearest portion of the project footprint near Interstate (I-) 880 in San Jose), San Martin Airport (0.5–0.6 mile from the project footprint), Frazier Lake Airpark (0.3–0.8 mile from the project footprint) and the Los Banos Municipal Airport (2.0 miles from the project footprint).

Operations of the overall HSR system would be expected to result in some changes in the demand for air travel on a statewide and regional basis. The San Jose International Airport, which is the only airport near the project providing regular commercial aviation service, is located approximately 4 miles (via road) from the San Jose Diridon Station. The airport serves the San Francisco Bay Area, and would be expected to experience a reduction in demand as a result of the project. Demand for some trips otherwise expected to be made by air would be made using HSR instead. Based on modeling for the 2040 period under the high ridership scenario, the HSR system overall is expected to reduce airline flights by 26 percent statewide and 31 percent in the Bay Area compared to the no project scenario. As explained in the 2005 *Program Environmental EIR/EIS for the Proposed California High-Speed Train System* (Authority and FRA 2005), airports in the Los Angeles area and the San Francisco Bay Area are constrained in terms of runway and terminal capacity; without the HSR system, there would be a need for expansion of major airports. Consequently, the reduction in air travel demand would allow for better management of the limited capacity of existing airports as well as reduce the demand for construction of additional runways and terminals.

The HSR system would also provide more convenient access to airports for some travelers in general and to San Jose International Airport in particular. This improved access could increase demand for air travel in some cases.

While the HSR system would change air travel demand on a statewide and regional basis, it would also provide more convenient access to airports. The project alternatives would not conflict with adopted aviation programs or otherwise decrease the performance or safety of aviation facilities and would allow for better management of existing constrained airport facilities.

Since the project would not have an adverse effect on aviation facilities or operations, the operational effects on aviation are not reviewed further in this section.

3.2.4.4 Method for Evaluating Impacts under NEPA

CEQ NEPA regulations (40 Code of Federal Regulations Parts 1500–1508) provide the basis for evaluating project effects (as described in Section 3.1.5.4). As described in Section 1508.27 of these regulations, the criteria of context and intensity are considered together when determining the severity of the change introduced by the project.

- For the transportation analysis, the *context* would include adopted local plans, policies, and regulations; existing and planned transportation systems; and the relative sensitivity of transportation conditions to construction or operational changes.
- For the analysis of transportation effects, *intensity* is determined by assessing the degree to which the proposed project would result in changes to transportation-related conditions; and inconsistency with regional and local transportation plans.

In addition, the Authority identified criteria to be used for the identification of adverse NEPA effects in evaluating construction-related and operations-related effects on the roadway network as follows:

- For freeway segments, if the Plus Project conditions would have an LOS of E or F and the project would result in an increase in V/C ratio of 0.04 (4 percent increase) or more over the baseline condition (V/C=1.00 is equivalent to a facility operating at capacity).
- For signalized intersections, if the Plus Project conditions would have an LOS E or F and the project would result in an increase in average traffic delay of 4 seconds or more over the baseline condition.
- For unsignalized intersections, if the Plus Project conditions would have an LOS E or F and the project would result in an increase in traffic delay of 5 seconds or more (measured as average delay for all-way stop or worst-movement delay for side-street stop intersection), and if the intersection satisfies one or more traffic signal warrants for at least 1 hour of the day. Five seconds of delay is the criteria increase for unsignalized intersections (rather than the 4 seconds used for signalized intersections) because it only applies to a single movement.

3.2.4.5 Method for Determining Significance under CEQA

The following subsections list the significance thresholds for roadways, freeways, intersections (vehicle circulation); parking; transit; nonmotorized transportation; and freight rail service.

Roadways, Freeways, and Intersections (Vehicle Circulation)

Under CEQA Guidelines Section 15064.3, automobile delay no longer constitutes a significant environmental impact. Accordingly, this analysis does not characterize a particular level of automobile delay on roadways, freeways, and intersections as a significant environmental impact.

Operations-caused effects on the roadway network would be significant if they would result in a net increase in VMT over baseline conditions, or otherwise conflict with CEQA Guidelines Section 15064.3, subdivision (b).

Parking

Parking conditions evolve over time as people alter their modes and patterns of travel in response to changing land uses and transportation options. Pursuant to SB 743, the adequacy of parking for a project shall not support a finding of significance. However, parking losses caused by a project or parking demand generated by a project in excess of the parking supply provided by the

project could result in a significant indirect (secondary) impact on the environment if the insufficiency of parking results in secondary impacts such as on VMT, air quality, noise, safety, or land use.[4] The criteria for the evaluation of these potential secondary impacts are the same as those used for direct (primary) impacts. The VMT criterion is the same as that described for vehicle circulation. For other relevant criteria, see Section 3.3, Air Quality and Greenhouse Gases; Section 3.4, Noise and Vibration; Section 3.11, Safety and Security; and Section 3.13, Station Planning, Land Use, and Development.

Transit

The project would have a significant impact if it would conflict with a program, plan, ordinance, or policy regarding public transit, or otherwise materially decrease the performance of such facilities.

Nonmotorized Transportation

The project would have a significant impact if it would conflict with a program, plan, ordinance, or policy regarding bicycle or pedestrian facilities, or otherwise materially decrease the performance of such facilities.

Freight Rail Service

The project would have a significant impact if it would substantially disrupt or interfere with freight operations or require greater temporal separation that would change freight rail service such that resultant diversions to truck or other freight modes would result in significant secondary impacts related to air quality, noise, GHG emissions, or traffic operations (as defined by the other applicable significance criteria in this Draft EIR/EIS).

3.2.5 Affected Environment

Existing and planned transportation conditions in the transportation RSAs are described in this section by condition, from north to south by subsection, and, where applicable, by facility. This information provides the context for the environmental analysis and evaluation of impacts.

3.2.5.1 Vehicle Miles Traveled

The Authority used the statewide travel demand model to estimate VMT (2016) in the RSA for medium and high scenarios. In 2015, Santa Clara County estimated total VMT ranged between 10.283 and 10.312 billion miles, estimated interregional VMT in San Benito County ranged between 613 and 620 million miles, and estimated interregional VMT in Merced County ranged between 1.217 and 1.239 billion miles.

3.2.5.2 Roadways, Freeways, and Intersections

The RSA contains several regionally significant routes that serve as connections between population centers and transit hubs along the corridor. San Jose is served by a network of expressways, freeways, and arterial roadways, while Morgan Hill, Gilroy, and other jurisdictions south of San Jose are served primarily by U.S. Highway (US) 101 and Monterey Road. Pacheco Pass is a rural area, with State Route (SR) 152 crossing the subsection as a connection between Gilroy and Merced County. The San Joaquin Valley Subsection is served by I-5, SR 33, and SR 165. SR 33 provides a connection to I-5, SR 165, and SR 152. These routes each serve trucks, including freight service vehicles, which experience the same levels of service and congestion as the general traveling public. Figure 3.2-1 illustrates regionally significant routes.

The Authority selected 20 freeway segments along US 101 for study based on the fact that the project would add 100 vehicle trips or more to these segments during either the AM or PM peak hour, or both. The Authority studied intersections along other regionally significant routes, such as Monterey Road, SR 152, and SR 165, but quantitative segment analysis was not included for any

[4] Socioeconomic effects of insufficient parking supply are not considered impacts under CEQA. However, potential socioeconomic effects due to insufficient parking supply are analyzed as NEPA effects in this section.

segments other than US 101 because these segments would have fewer than 100 vehicle trips during the AM or PM peak hour.

Under existing conditions, five segments operate at LOS E or F. In the AM peak hour, the northbound direction of travel is more congested around the Monterey Corridor Subsection in San Jose. In the PM peak hour, the southbound direction is congested in the same area. In Gilroy, the same pattern exists. Table 1 of Appendix 3.2-A, Transportation Data on Roadways, Freeways, and Intersections, in Volume 2 provides existing volumes, V/C ratios, and LOS for the evaluated freeway segments. The locations of freeway segments are illustrated on Figure 3.2-2 and Figure 3.2-3.

San Jose Diridon Station Approach Subsection

San Jose Diridon Station is located at 66 Cahill Street, approximately 0.5 mile west of downtown San Jose. Vehicle access directly around San Jose Diridon Station is provided primarily via Cahill Street, Montgomery Street, and Stover/Crandall Street. Cahill Street provides access to the surface parking lots in the northern portion of the site and the primary passenger loading location directly in front of the station. It also accommodates buses entering the bus terminal. Montgomery Street provides access to the surface parking lots, and vehicles using Montgomery Street to access the passenger loading area use the Stover Street approach. Limited parking and passenger loading is available on the west side of the station on Laurel Grove Lane.

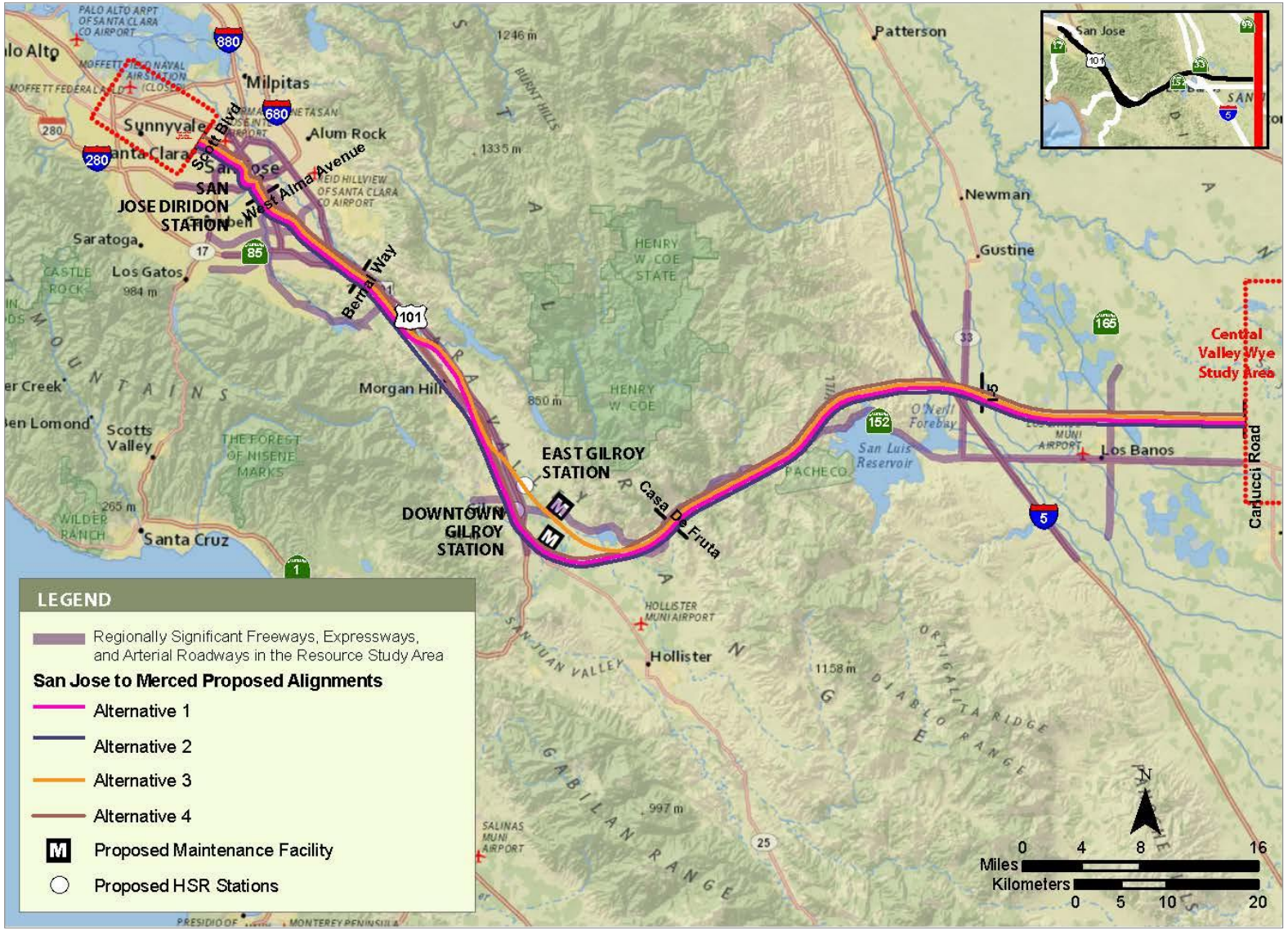
Freeway access to San Jose Diridon Station is provided via six nearby interchanges: I-280/Bird Avenue, SR 87 (Guadalupe Parkway)/West Julian Street–East St. James Street, SR 87 (Guadalupe Parkway)/West Santa Clara Street, SR 87 (Guadalupe Parkway)/Park Avenue, I-880/The Alameda, and I-880/Coleman Avenue. The local streets used by vehicles to access the station area are West Santa Clara Street from the north; Park Avenue, South Montgomery Street, and Autumn Street from the south; and from the east West San Fernando Street provides access to parking and loading areas. Vehicles primarily access Cahill Street and South Montgomery Street via West Santa Clara Street.

Passenger loading occurs at a loop driveway immediately east of the station entrance. Access to this loading area is via Cahill Street or Stover Street. This drive provides approximately 180 feet of loading space, including one 20-foot dedicated Americans with Disabilities Act–compliant loading space. This area can accommodate around eight vehicles, with overflow loading often occurring on Stover Street or Crandall Street.

There are 581 parking spaces spread among several adjacent surface parking lots operated by Caltrain. Several additional nearby private surface parking lots are available to Caltrain riders as well. Daily parking at Caltrain-operated facilities costs $5.50 per vehicle. Rates at privately operated lots vary.

The Authority studied 50 intersections around the San Jose Diridon Station. All study intersections in the station vicinity operate at LOS D or better under existing conditions during weekday AM and PM peak hours. Volume 2, Appendix 3.2-A, Table 7, provides information on the existing signal control, delay, and LOS at the San Jose Diridon Station Approach Subsection intersections. The study intersections for this subsection are provided in Section 3.2.6.2, Roadways, Freeways, and Intersections, under Impact TR#8: Temporary and Permanent Effects Related to Parking.

Section 3.2.5.3, Diridon Station and SAP Center Parking, discusses the circumstances regarding special event parking at the SAP Center adjacent to the San Jose Diridon Station.



Source: Authority 2019a

MARCH 2019

Figure 3.2-1 Regionally Significant Freeways, Expressways, and Arterial Roadways

Source: Authority 2019a

MARCH 2019

Figure 3.2-2 Monterey Corridor Freeway Segments

Source: Authority 2019a MARCH 2019

Figure 3.2-3 Gilroy Freeway Segments

Monterey Corridor Subsection

Monterey Road is a four-to-six-lane arterial running parallel to US 101 and Hale Avenue/Santa Teresa Boulevard. It provides a primary north-south connection for the central and southern portions of San Jose, Coyote Valley, Morgan Hill, San Martin, and Gilroy.

Unlike other facilities studied, the area surrounding Monterey Road has a limited number of parallel routes. Most north-south trips, both local and pass-through, between south San Jose and Gilroy travel on US 101 or Monterey Road. During peak hours, there is high demand on the two facilities. US 101 is a freeway and, when not congested, offers the fastest route for vehicles. Monterey Road is the second fastest route, providing direct access to neighborhood and local streets. Hale Avenue/Santa Teresa Boulevard provides a third, less-direct route, but it has the lowest free flow speed and ends in Morgan Hill. Therefore, most local and pass-through traffic in the Monterey Corridor Subsection is forced to use Monterey Road or US 101 for north-south trips that cannot be easily dispersed onto adjacent facilities.

The Authority studied 46 intersections in and around the Monterey Corridor. Eight intersections in the AM peak hour and seven intersections in the PM peak hour operate at LOS E or F under existing conditions. Monterey Road and US 101 serve high demand in the peak hours. Demand is generally higher in the northbound direction in the AM peak hour and higher in the southbound direction in the PM peak hour. Traffic volumes on both roadways approach or exceed their capacities in the peak hours. When traffic volumes on roadways approach or exceed the capacity, delays develop at the intersections along the roadway. High peak hour demand results in congestion at key intersections along Monterey Road. Volume 2, Appendix 3.2-A, Table 8, shows the existing signal control, delay, and LOS at the Monterey Corridor Subsection intersections. The study intersections for this subsection are provided in Section 3.2.6.2 under Impact TR#8.

Morgan Hill and Gilroy Subsection

The historic Downtown Gilroy Station at 7150 Monterey Street serves as the main transit hub for the city, providing Caltrain service. Vehicles access the station and surface parking lots via Monterey Road, Old Gilroy Street, West 8th Street, or West 10th Street. Freeway access to the Downtown Gilroy Station is provided via the US 101/East 10th Street interchange. The primary vehicle entrance to the station at Monterey Road and West 8th Street is signal-controlled and provides direct access to the surface parking lot and passenger loading area. Passenger loading occurs in front of the station entrance on the west side. Bus-only loading bays are immediately adjacent to the station, while vehicular passenger loading takes place west of the bus bays. Five 30-minute perpendicular parking spaces are provided for passenger loading. There are approximately 471 parking spaces spread among several surface parking lots on the west side of the station. The existing roadway facilities adjacent to the station area serve the Downtown Gilroy Station and local residential and school traffic, as well as Gilroy's downtown retail and commercial centers on Monterey Road and 10th Street.

The East Gilroy Station would be located at Leavesley Road and Marcella Avenue, approximately 0.5 mile east of US 101. Near US 101, Leavesley Road is a six-lane arterial serving retail uses; adjacent to the station, it is a two-lane rural road serving agricultural uses.

There are two alternatives for MOWF facilities near Gilroy. The East Gilroy MOWF would be accessed from SR 152, near the intersection of SR 152 and Frazier Lake Road. SR 152 serves as an east-west expressway connection between downtown Gilroy, agricultural uses to the east, and the San Joaquin Valley. The South Gilroy MOWF would be accessed from Bloomfield Avenue, near the intersection of Bolsa Road. Bloomfield Avenue is a two-lane road with no shoulder, providing access to agricultural uses between SR 25 and SR 152.

The Authority studied 101 intersections in and around Morgan Hill and at the alternate sites for the Gilroy station and the MOWF. Four intersections operate at LOS E or F under existing conditions. Study intersections were chosen based on facility type, proximity to the station area, and major intersections that are likely to be affected by the change in traffic conditions because of the proposed HSR station or maintenance facility. Volume 2, Appendix 3.2-A, Table 9, shows the

existing signal control, delay, and LOS at intersections in the Morgan Hill and Gilroy Subsection. The study intersections for this subsection are provided in Section 3.2.6.2 under Impact TR#8.

Pacheco Pass Subsection

SR 152 continues east of Gilroy as an east-west expressway. The roadway serves as the primary facility through Pacheco Pass and connects Gilroy to the San Joaquin Valley. The roadway serves Pacheco State Park and the San Luis Reservoir, as well as a large expanse of protected land. Because most of Pacheco Pass is undeveloped, SR 152 connects chiefly to private roads, access roads, and trails.

The Authority did not study any roadway segments or intersections in this subsection. Although the project would run parallel to SR 152, no major physical changes to the roadway network are currently planned. Furthermore, trips related to the project are not expected to meet or exceed the 50 peak hour trip threshold for study.

San Joaquin Valley Subsection

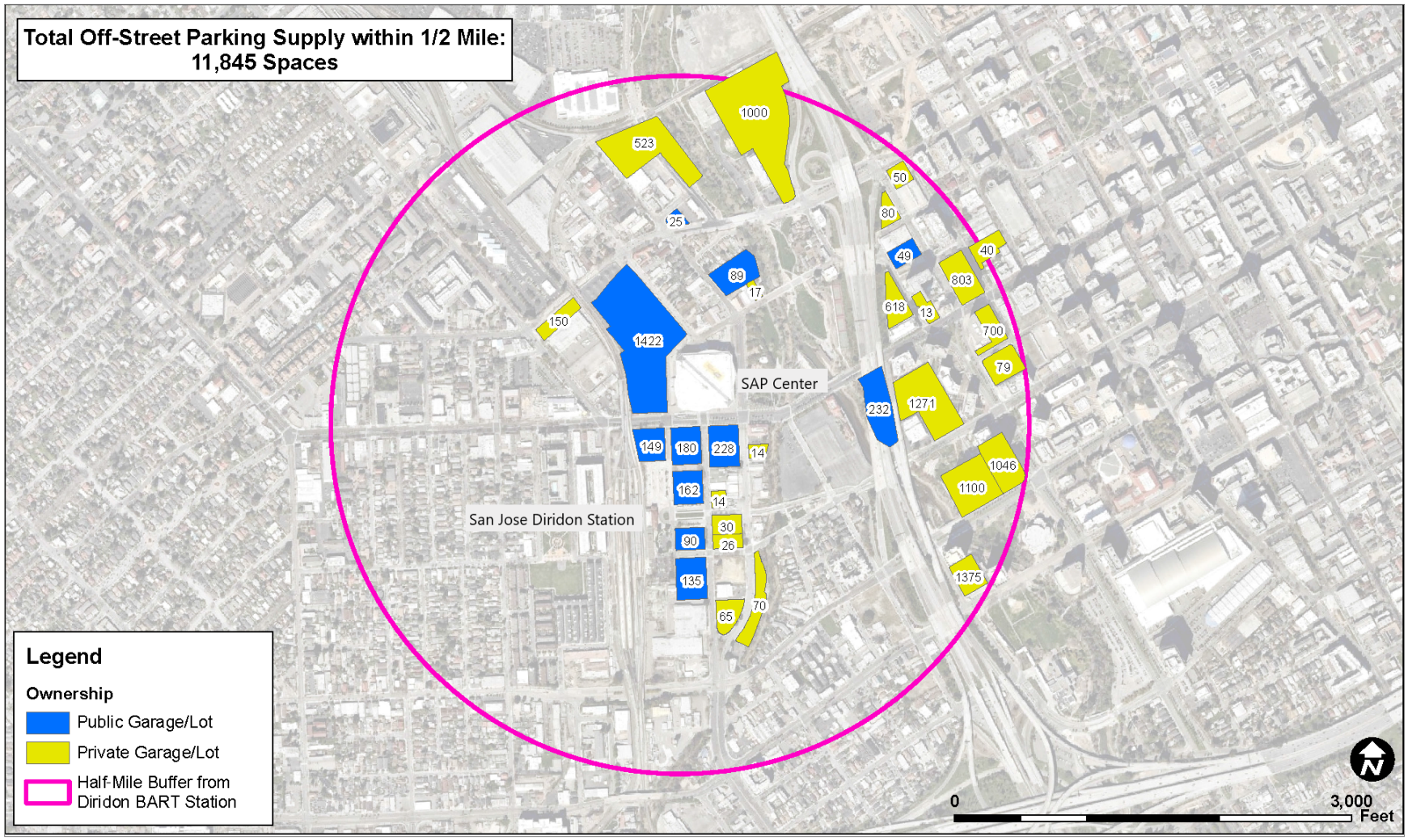
Henry Miller Avenue serves as an east-west collector parallel to SR 33 north of Los Banos. It intersects with SR 165 just north of Los Banos and primarily serves agricultural and very low-density residential land uses.

The Authority studied one intersection on Henry Miller Road at SR 165. The intersection currently operates at LOS B. The project would rebuild Henry Miller Road and reconfigure some of its intersections. The existing capacity would remain unchanged, and access to all parcels would be maintained. Count data were collected at intersections and roadway segments on Henry Miller Road. The peak hour and daily volumes on Henry Miller Road are low, with fewer than 100 peak hour trips traveling through most intersections along the corridor, and few to no project trips are expected to travel on this corridor. Volume 2, Appendix 3.2-A, Table 10, includes the existing signal control, delay, and LOS at this San Joaquin Valley Subsection intersection. The study intersections for this subsection are provided in Section 3.2.6.2 under Impact TR#8.

3.2.5.3 San Jose Diridon Station and SAP Center Parking

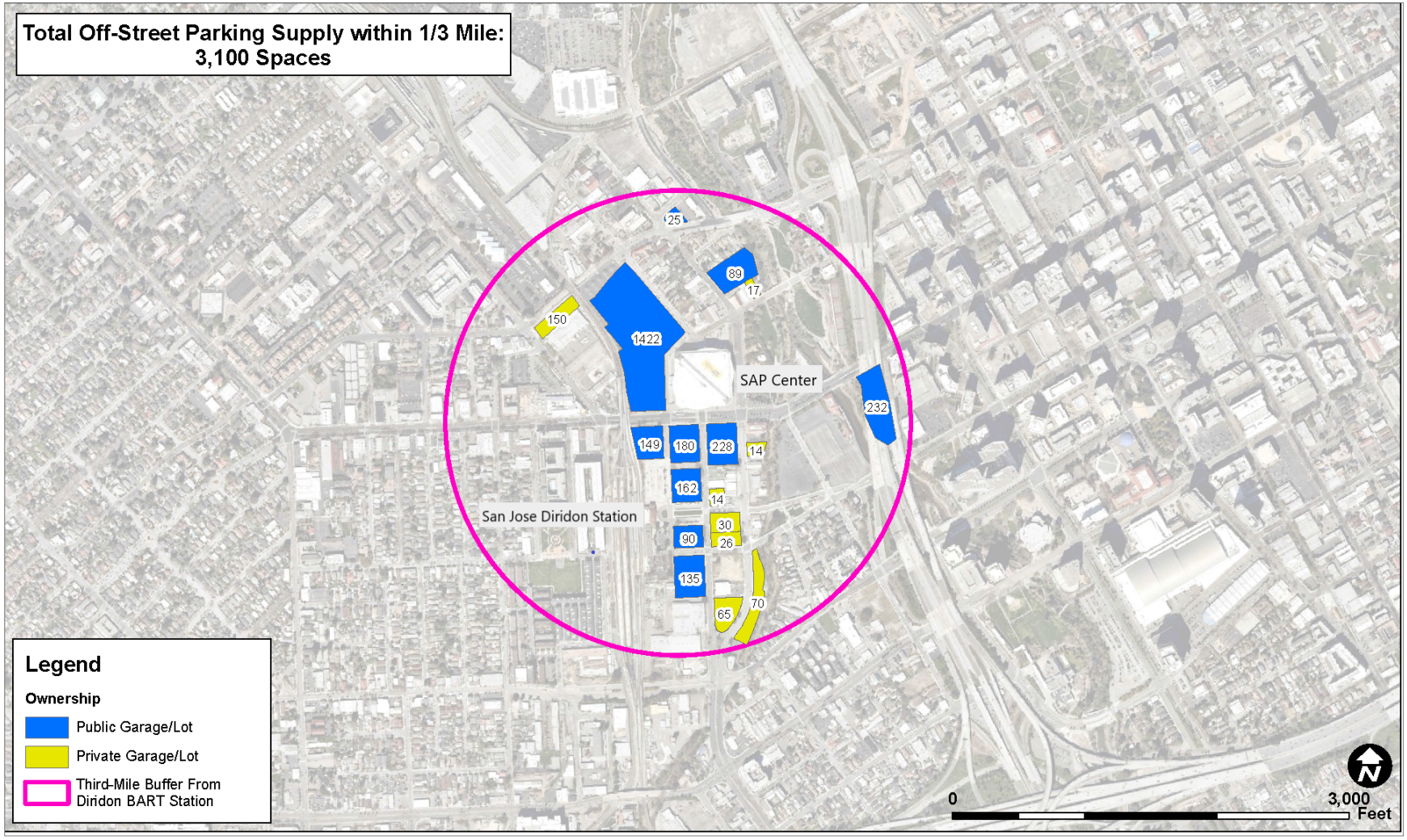
According to the *Diridon Station Area Plan* (DSAP), the City of San Jose is responsible for providing and maintaining the City's public parking facilities and on-street parking) (City of San Jose 2014). The City is responsible for developing and implementing parking policies within the station area and citywide. The DSAP vision for the Diridon Station area is to develop a plan "around the transit station that anticipates maximum possible build-out of new transit-related development, supports transit ridership and economic development, and creates a world-class cultural destination." Regarding parking, the DSAP seeks to "ensure the continued vitality of the San Jose Arena as a major anchor for both the Downtown and the station area, and that sufficient parking and access for Arena customers is critical to the Arena's on-going success." To that end, the DSAP has a specific goal to "disperse parking in different locations in the planning area and beyond to ensure easy walking access to destinations." Per the DSAP, for event parking during weekday evenings, from 5:00 to 8:00 p.m., the average utilization of on-street parking is 85 percent and off-street parking is 87 percent.

VTA conducted a San Jose Diridon Station area parking survey in 2017 to validate the number of available parking spaces in the station vicinity (VTA and FTA 2018: pages 5-104–5-107). The parking survey concluded that currently there are approximately 14,450 publicly available parking spaces within 0.5 mile of San Jose Diridon Station: 2,605 on-street and 11,845 off-street spaces on both private and public property. Within 0.33 mile of the station, there are a total of approximately 4,145 parking spaces available to the public: 1,045 on-street and 3,100 off-street spaces. Figure **3.2-4**a through Figure **3.2-4**d shows these parking space locations. The BART Phase II extension will permanently displace 715 of these parking spaces, leaving a total of 3,430 spaces within 0.33 mile and 13,695 spaces within 0.5 mile of San Jose Diridon Station.



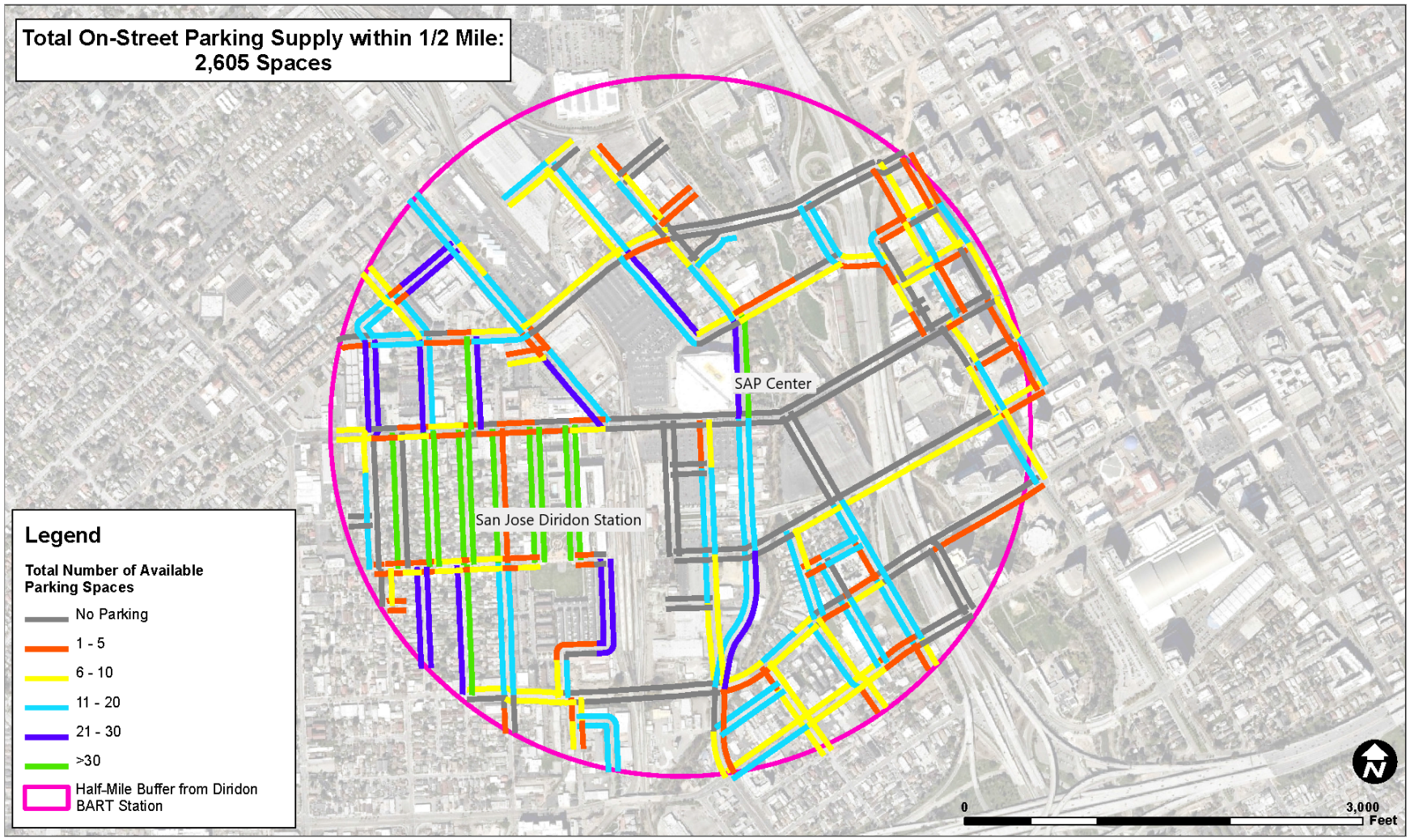
Source: VTA and FTA 2018

Figure 3.2-4a Parking near San Jose Diridon Station and SAP Center (Off-Street within 1/2 mile)



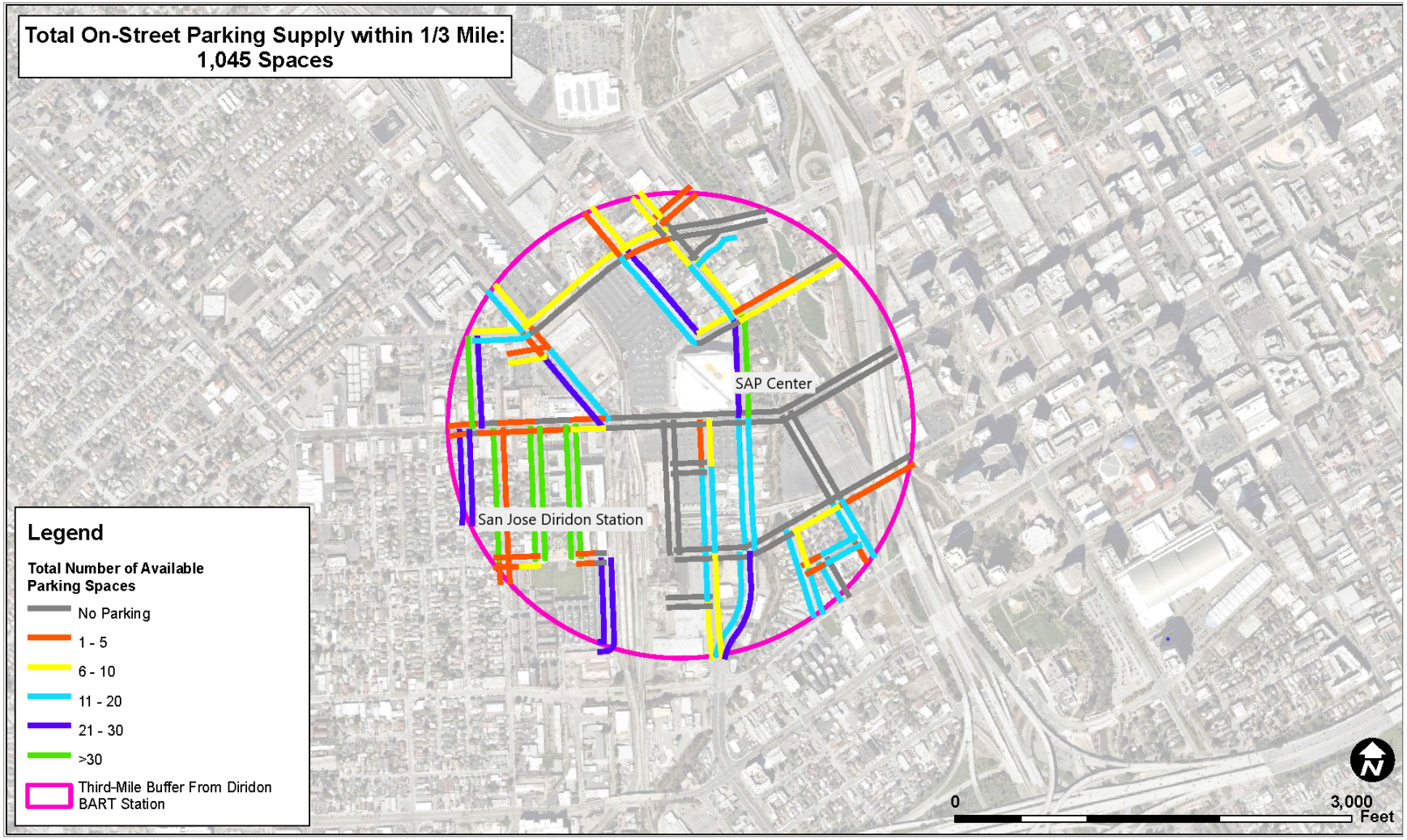
Source: VTA and FTA 2018

Figure 3.2-4**b Parking near San Jose Diridon Station and SAP Center (Off-Street within 1/3 mile)**



Source: VTA and FTA 2018

Figure 3.2-4c Parking near San Jose Diridon Station and SAP Center (On-Street within 1/2 mile)



Source: VTA and FTA 2018

Figure 3.2-4d Parking near San Jose Diridon Station and SAP Center (On-Street within 1/3 mile)

There are also 4,798 public parking spaces (in nine lots, each open 24 hours/day) as well as private parking lots between 0.5 mile and 1 mile from San Jose Diridon Station in downtown San Jose, as well as additional public parking lots between 1 mile and 1.5 mile from the station (Park San Jose 2019).

Per the BestParking website, which provides real-time parking availability and pricing for the downtown San Jose area (including the San Jose Diridon Station area), 39 garages were counted within 1 mile east of the station, with weekday parking costs ranging from $6 to $45/day and an average parking cost of $17.50. Norman Y. Mineta San Jose International Airport parking cost is $22/day and $15/day for the economy lot, with approximately 4,407 spaces in two garages and four lots. The HSR Business Plan assumes market-provided parking up to $32/day for San Jose Diridon Station and within an average 10-minute walking distance of the station, more than the average daily cost in downtown San Jose or at the San Jose International Airport.

According to the Arena Management Agreement between the City of San Jose and San Jose Arena Management, the City is contractually obligated to provide at least 6,350 off-site parking spaces within 0.5 mile of the SAP Center. Of the 6,350 off-site parking spaces, 3,175 must be within 0.33 mile of the SAP Center.

There is a separate Cooperative Parking Agreement between the San Jose Arena Management, the PCJPB, and VTA that permits shared use of parking at the San Jose Diridon Caltrain Station during arena events. This agreement includes the 180 parking spaces on VTA property south of West Santa Clara Street and between Cahill and Montgomery Streets for the period before, during, and after arena events. The PCJPB's commitment is for 400 parking spaces during arena events. Vehicles occupying these parking spaces prior to an event can remain according to the Agreement.

3.2.5.4 Transit

There are several passenger rail providers along the project extent, including Caltrain, Capitol Corridor, Altamont Corridor Express (ACE), and Amtrak. The PCJPB owns the corridor between San Francisco and San Jose and operates the Caltrain commuter rail service south to Tamien. Most of the rail services are concentrated along the northern edge of the project extent between the existing Santa Clara Station and San Jose Diridon Station, which currently carries 116 passenger trains per day, including Caltrain, Capitol Corridor, ACE, and Amtrak trains (Capital Corridor Joint Powers Board [CCJPA] 2015; Amtrak 2017; ACE 2018; Caltrain 2017). Forty out of the 116 passenger trains per day provide service between San Jose Diridon Station and Tamien Station, while south of Tamien Station the corridor serves six Caltrain passenger trains per day. Union Pacific Railroad (UPRR) owns the railroad south of Control Point (CP) Lick.

Table 3.2-10 shows existing ridership at San Jose Diridon Station and the current Gilroy station for passenger rail operators. Intercity passenger rail service in California is provided by Amtrak on four principal corridors covering more than 1,300 linear miles spanning most of the state. The existing passenger rail network in the project extent includes the Amtrak Coast Starlight, which follows UPRR tracks from San Jose through Gilroy to Salinas (as part of its West Coast operations from Seattle to Los Angeles, via Sacramento and the Bay Area). The Coast Starlight stops at San Jose, but not at the Gilroy station. The Coastal Starlight departs once daily in either direction.

Table 3.2-10 Existing Rail Ridership at San Jose Diridon and Gilroy Stations

Station	Operator	Weekday Trains	Weekday Boardings (2016)
San Jose Diridon	Caltrain	92	4,710
	Capitol Corridor	14	260
	ACE	8	380
	Amtrak (Coast Starlight)	2	NA
	VTA Light Rail	108	710
Gilroy	Caltrain	6	180

Sources: Caltrain 2016; CCJPA 2015; VTA 2016
NA = not available
ACE = Altamont Corridor Express
VTA = Santa Clara Valley Transportation Authority

Capitol Corridor provides intercity passenger rail service between San Jose, Oakland, and Sacramento. CCJPA, a partnership of six local transit agencies in the eight-county service area, manages the Capitol Corridor service, which Amtrak operates. The service operates seven round trips from Sacramento to San Jose, and an additional seven daily round trips from Sacramento to Oakland. Trains depart about every 1 to 2 hours during the weekdays. Capitol Corridor serves approximately 260 daily riders at San Jose Diridon Station (CCJPA 2015).

Caltrain provides passenger rail service on the San Francisco Peninsula between San Francisco and downtown San Jose with stops in San Mateo County and Santa Clara County. Caltrain is operated under the jurisdiction of the PCJPB and managed by SamTrans. The Caltrain system spans 77 miles of track and has 40 at-grade crossings between San Francisco and San Jose and 30 at-grade crossings between San Jose and Gilroy. As of 2016, Caltrain operates 92 weekday trains including Baby Bullets (express), limited, and local services. Limited service is provided south of San Jose Diridon Station, including Tamien Station (40 trains per day) and Capitol, Blossom Hill, Morgan Hill, San Martin, and Gilroy Stations (six trains per day). The average weekday Caltrain ridership in 2016 was approximately 58,000; of this, approximately 12 percent (6,900 riders) occurred in the project extent, including approximately 4,710 riders at San Jose Diridon Station and 180 riders at the Gilroy station (Caltrain 2016).

ACE provides passenger rail service across the Altamont corridor between San Joaquin, Alameda, and Santa Clara Counties. The service operates four round trips between Stockton and San Jose daily, with trains connecting Stockton to San Jose in the morning and providing reverse service from San Jose to Stockton in the evening. ACE serves approximately 380 daily boardings at San Jose Diridon Station (VTA 2016).

VTA provides light rail, bus, and paratransit service to Santa Clara County. VTA buses include local, community, limited stop, express, and rapid bus services. VTA light rail has two main lines and a spur line totaling approximately 42 miles and 62 stations. The average weekday ridership for VTA in fiscal year (FY) 2016 was approximately 130,500 for both bus and light rail services. VTA light rail serves approximately 710 daily boardings at San Jose Diridon Station (VTA 2016).

BART provides passenger rail transit service to downtown San Francisco to and from cities in the northern portion of the San Francisco Peninsula, including Oakland, Berkeley, Fremont, Walnut Creek, Dublin/Pleasanton, and other cities in the East Bay. The BART system comprises five lines and 45 stations. The average weekday ridership for FY 2016 was approximately 433,400 (BART 2017). BART and VTA are in the process of implementing an extension to Santa Clara that will include new BART stations at San Jose Diridon Station and in Santa Clara.

Amtrak, VTA, and Santa Cruz Metro operate the Highway 17 Express that provides service between Santa Cruz and downtown San Jose with stops at San Jose Diridon Station. It travels

along SR 17 between San Jose and Santa Cruz with weekday services extending to San Jose State University.

Monterey-Salinas Transit operates transit services in Monterey County and southern Santa Cruz County. It has 50 routes serving the Monterey Peninsula and the Salinas Valley. Monterey-Salinas Transit operates intercity services connecting Monterey County to the Gilroy and San Jose Diridon Stations.

San Benito County Express provides bus transit service to the communities of Hollister and San Juan Bautista. It operates fixed-route services as well as paratransit and dial-a-ride services. San Benito County Express provides an intercity service to the existing Gilroy Station and nearby Gilroy destinations.

Amtrak, Greyhound, Megabus, BoltBus, and California Shuttle Bus provide intercity bus service. Amtrak Thruway buses provide four daily round trips from San Jose Diridon Station to Stockton and three daily round trips to Santa Barbara. Greyhound provides service from San Jose Diridon Station and Gilroy to Oakland, San Francisco, Fresno, and Southern California. Megabus, BoltBus, and California Shuttle provide service from San Jose Diridon Station to Southern California.

San Jose Diridon Station Approach Subsection

San Jose Diridon Station has 11 tracks and seven platforms; nine tracks and five at-grade platforms serve Amtrak, Capitol Corridor, Caltrain, and ACE, while VTA light rail uses two tracks and platforms. The station has nine bus bays on a surface drop-off area on Cahill Street between Stover Street and West Santa Clara Street, two bus shelters on Cahill Street, and curbside bus stops on the roadway network around the station area.

San Jose Diridon Station acts as a key transit hub connecting San Jose and Santa Clara County to the Bay Area and the Central Valley. Riders can transfer between five transit operators and 18 transit routes. Approximately 64 buses and 12 trains arrive and depart from San Jose Diridon Station in the peak hour. San Jose Diridon Station also has intercity bus services by Amtrak, Greyhound, Megabus, BoltBus, and California Shuttle. Figure 3.2-5 illustrates existing transit routes at San Jose Diridon Station.

Monterey Corridor Subsection

VTA operates multiple bus routes along Monterey Road in the Monterey Corridor Subsection, totaling 17 buses each direction during the peak hour. Caltrain's Capitol and Blossom Hill Stations are located along the corridor, serving about 190 boardings per day. Caltrain operates only on weekdays during the AM and PM peak periods, with three northbound trains in the AM peak period and three southbound trains in the PM peak period.

Bus shelters and bus stops exist on both sides of the Monterey Road Corridor north of Blossom Hill Road. South of Blossom Hill Road, bus facilities are only present on the northbound side of Monterey Road. Bus stops are spaced approximately every half mile on Monterey Road.

Morgan Hill and Gilroy Subsection

Caltrain serves the stations in Morgan Hill, San Martin, and Gilroy in the Morgan Hill and Gilroy Subsection. Caltrain operates only on weekdays during the AM and PM peak hours, with three northbound trains in the AM peak period and three southbound trains in the PM peak period. Caltrain serves about 400 daily passengers along this subsection, including about 150 daily boardings at the Gilroy station. Figure 3.2-6 illustrates existing transit routes around the Gilroy station sites.

Pacheco Pass Subsection

Because it is a rural and remote area, there are no bus or passenger rail stations or stops in the Pacheco Pass Subsection RSA. Intercity bus services operated by Greyhound, Megabus, BoltBus, and California Shuttle operate along SR 152 but do not stop along the subsection.

Source: VTA 2017b

MARCH 2019

Figure 3.2-5 San Jose Diridon Station Existing Transit Routes

Source: VTA 2017b

MARCH 2019

Figure 3.2-6 Gilroy Station Existing Transit Routes

San Joaquin Valley Subsection

Because it is a rural and remote area, there is no bus or passenger rail service in the San Joaquin Valley Subsection RSA. The nearest transit services operated by the Transit Joint Powers Authority for Merced County and Greyhound are located outside the RSA in Los Banos.

3.2.5.5 Nonmotorized Travel

The affected environment for nonmotorized travel is described for areas that could experience changes from the project, including the San Jose Diridon and Downtown Gilroy Stations, the roadways around the East Gilroy Station and two potential MOWF sites, and Monterey Road, where lane reductions (road diet are proposed consistent with *Envision: San José 2040 General Plan* (City of San Jose 2018).

Bicycle facilities consist of separated bikeways, bicycle lanes, routes, trails, and paths, as well as bike parking, bike lockers, and showers for cyclists. Pedestrian facilities include sidewalks, crosswalks, trails, and pedestrian signals.

Bicycle facility categories include:

Class I—Provides a completely separated right-of-way for the exclusive use of cyclists and pedestrians with cross-flow minimized (e.g., off-street bicycle paths).

Class II—Provides a striped lane for one-way travel on a street or highway.

Class III—Provides for shared use with motor vehicle traffic; however, are often signed or include a striped bicycle lane.

Class IV—Provides a right-of-way designated exclusively for bicycle travel adjacent to a roadway and protected from vehicular traffic. Types of separation include, but are not limited to, grade separation, flexible posts, or inflexible physical barriers (City of San Jose 2018).

San Jose Diridon Station Approach Subsection

Several streets in the San Jose Diridon Station project footprint include bicycle facilities (e.g., bicycle paths, lanes, parking, signage and signals, and cycle tracks). Santa Clara Street has Class II bicycle lanes in both directions, as does Park Avenue south of Montgomery Street. South of Crandall Street, Cahill Street provides green-painted Class II bicycle lanes in both directions; these lanes connect to buffered green-painted Class II bicycle lanes on West San Fernando Street. Figure 3.2-7 illustrates the existing bicycle facilities in the San Jose Diridon Station area.

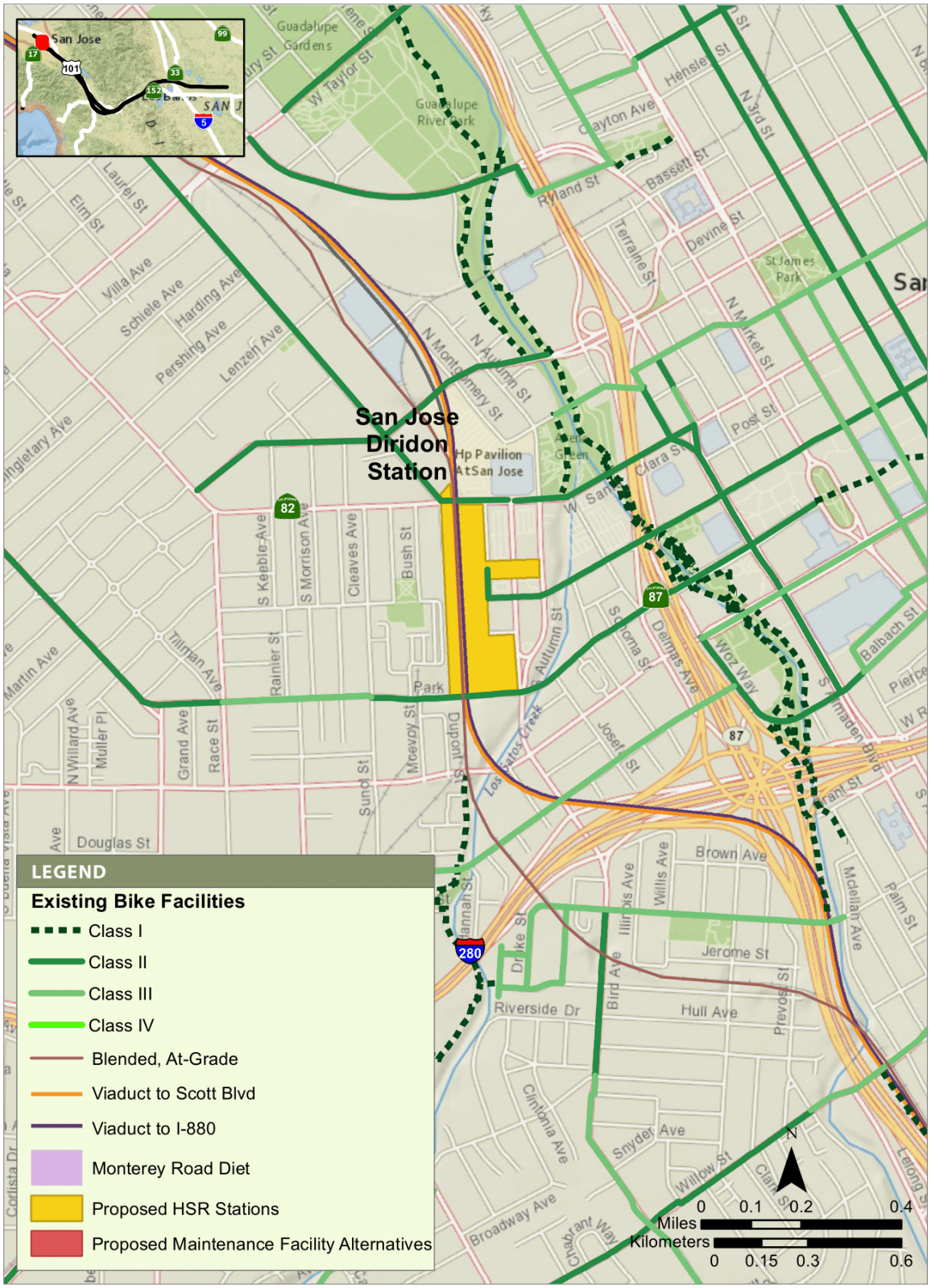
The station provides 16 bicycle parking spaces at outdoor bicycle racks, and 48 bicycle parking spaces in reserved lockers, for a total of 64 bicycle parking spaces. A 27-space Bay Area Bike Share station is located on the south side of Crandall Street.

Pedestrian facilities (e.g., sidewalks, curb ramps, marked crosswalks, sidewalk furniture such as benches or trash cans, and pedestrian signals) in the San Jose Diridon Station Approach Subsection include sidewalks throughout the station footprint, on both sides of Cahill Street, West San Fernando Street, Crandall Street, Stover Street, South Montgomery Street, West Santa Clara Street, and Park Avenue. Sidewalks are provided on all sides of the bus facility, and along the driveway between two parking facilities between Cahill Street and South Montgomery Street.

Most intersections in the station area provide marked pedestrian crossings on all approaches of the intersection. At the intersection of Santa Clara Street and Cahill Street, the north side of the intersection has a marked pedestrian crosswalk, and the east and south sides of the intersection have marked continental-style crosswalks. There is no crosswalk on the west side of the intersection. At the intersection of The Alameda, Stockton Avenue, and White Street, there are marked crosswalks on the north, west, and south sides of the intersection. There is no crosswalk on the east side of the intersection. Pedestrians and cyclists in the station area primarily travel in an east-west direction between San Jose Diridon Station and downtown San Jose. Pedestrian volumes increase substantially for short time periods before and after events at the SAP Center on Santa Clara Street.

Continental Crosswalks

There are two types of crosswalk designs: traditional parallel lines and high-visibility patterns. High-visibility patterns include the ladder, continental, and diagonal designs. The continental design uses thick, solid lines that cross the street perpendicular to the direction of pedestrian traffic.



Source: Authority 2019a

APRIL 2019

Figure 3.2-7 San Jose Diridon Station Existing Bicycle Facilities

Monterey Corridor Subsection

Monterey Road provides Class II bicycle lanes in both directions from north of the Capitol Expressway interchange to Bernal Way. The bicycle lanes from Capitol Expressway to approximately 400 feet north of the interchange with Blossom Hill Road have a striped space between the bike lane and the vehicle travel lane that provides a buffer between cars and bikes. Monterey Road provides continuous sidewalks on the east side of the roadway from the Capitol Expressway interchange to Tennant Avenue and from Hicks Lane to Bernal Way. There are no sidewalks between Tennant Avenue and Hicks Lane where the road passes under SR 85. Monterey Road provides a sidewalk on the east side of the roadway from Hicks Lane to Forsum Road. No sidewalks are provided on either side from Forsum Road to Metcalf Avenue. For this portion of the roadway, the Coyote Creek multiuse trail operates parallel to the roadway to the east.

Marked pedestrian crossings are present at most signalized intersections along Monterey Road. Side street stop-controlled intersections do not have marked crosswalks at most locations. At the Monterey Road and Blossom Hill Road on-ramps, a pedestrian bridge, Xander's Crossing, provides pedestrian access across Monterey Road just south of Blossom Hill Road.

Morgan Hill and Gilroy Subsection

There are no on-street bicycle facilities within the Downtown Gilroy Station project footprint. The existing Caltrain station provides 13 bicycle racks and 30 bicycle lockers, for a total of 43 bicycle parking spaces. Nearby Class II bike lane facilities are provided on Chestnut Street between 6th Street and 10th Street, 6th Street between Maple Street and Camino Arroyo, West 10th Street west of Monterey Road, and Monterey Road south of 10th Street. Figure 3.2-8 illustrates the existing bicycle facilities in the Downtown Gilroy Station area.

Sidewalks are provided on Monterey Road in both directions in the Downtown Gilroy Station area. East 7th Street includes sidewalks on both sides of the right-of-way, as well as an at-grade pedestrian crossing of the existing rail tracks. Alexander Street includes sidewalks on the east side of the street only from the Old Gilroy Street/East 7th Street intersection to approximately 170 feet north of East 10th Street. Beginning 170 feet north of East 10th Street, there are sidewalks on both sides of Alexander Street. While East 10th Street provides sidewalks on both sides of the roadway, south of East 10th Street there are sidewalks only on the east side of Alexander Street through the remainder of its length in the station area.

Marked pedestrian crossings are provided at all signalized intersections in the station area. Stop-controlled intersections, such as Alexander Street/Old Gilroy Street and Monterey Road/Ninth Street, have no marked crossings. At the East Gilroy Station site, Leavesley Road currently provides sidewalks and Class II bike lanes between Monterey Road and Arroyo Circle. Marked pedestrian crossings are provided on at least three approaches of all signalized intersections. East of Arroyo Circle, there are no bike or pedestrian facilities on Leavesley Road. There are no bicycle or pedestrian facilities provided on SR 152, SR 25, Bloomfield Road, or Frazier Lake Road in the RSA near the MOWF sites.

Pacheco Pass Subsection

Because it is a rural area, no nonmotorized transportation facilities are provided in the Pacheco Pass Subsection RSA. Walking and biking are accommodated along the shoulder of SR 152 and other rural roadways in the RSA.

San Joaquin Valley Subsection

Because it is a rural area, no nonmotorized transportation facilities are provided in the San Joaquin Valley Subsection RSA. Walking and biking are accommodated along the shoulder of Henry Miller Road and other rural roadways in the RSA.

Source: Authority 2019a

APRIL 2019

Figure 3.2-8 Gilroy Station Existing Bicycle Facilities

3.2.5.6 *Freight Rail Service*

Railroad subdivisions and control points in the transportation RSA are illustrated on Figure 3.2-9 and Figure 3.2-10. North of CP[5] Coast at Caltrain milepost (MP) 43.9 in Santa Clara, freight trains and Caltrain passenger trains both use the same tracks in the PCJPB-owned Caltrain Corridor, although there are areas where freight has exclusive spur tracks and sidings that lead to customer locations outside the PCJPB right-of-way. From CP Coast to CP Lick (MP 52.0, south of downtown San Jose in the Communication Hill area), freight service operates on a UPRR-owned dedicated freight track (MT-1) in the PCJPB-owned Caltrain corridor along with other tenant passenger service (ACE, Amtrak, and Capitol Corridor). South of CP Lick, freight service operates on UPRR-owned track and right-of-way to Gilroy and points farther south. From CP Lick to Gilroy, freight shares track with Caltrain service. South of Gilroy, freight service operates on the Coast Subdivision to Salinas and points south and on a spur line (the Hollister Branch) from Carnadero to Hollister. In the Central Valley, a short-line operator operates freight on the Westside Line from Tracy to Los Banos.

Caltrain dispatches all tracks in the Caltrain Corridor north of CP Lick. South of CP Lick, UPRR dispatches trains on its system, including Caltrain passenger trains. Analysts reviewed PCJPB dispatch data for freight operations in the Santa Clara to Gilroy area in December 2012,[6] which indicated an average of five round trips per day and a daily one-way trip that traverse portions of the RSA as follows:

- Mission Bay—From South San Francisco freight yard to Newhall Yard in San Jose, one daily round trip.
- Salinas—From south of Gilroy to CP Coast and points east, one daily round trip.
- Granite Rock 1—From south of Gilroy to Newhall Yard in San Jose, one daily round trip.
- Granite Rock 2—From Warm Springs Subdivision and points east (via CP Stockton, MP 45.6) to Newhall Yard in San Jose, one daily round trip.
- Permanente—From Vasona Industrial Lead (via CP Bird at MP 46.9) and points west to Warm Springs Subdivision (via CP Shark, MP 46.3), one daily round trip.
- MRVSJ—From Roseville to San Jose via CP Coast, one daily one-way trip.

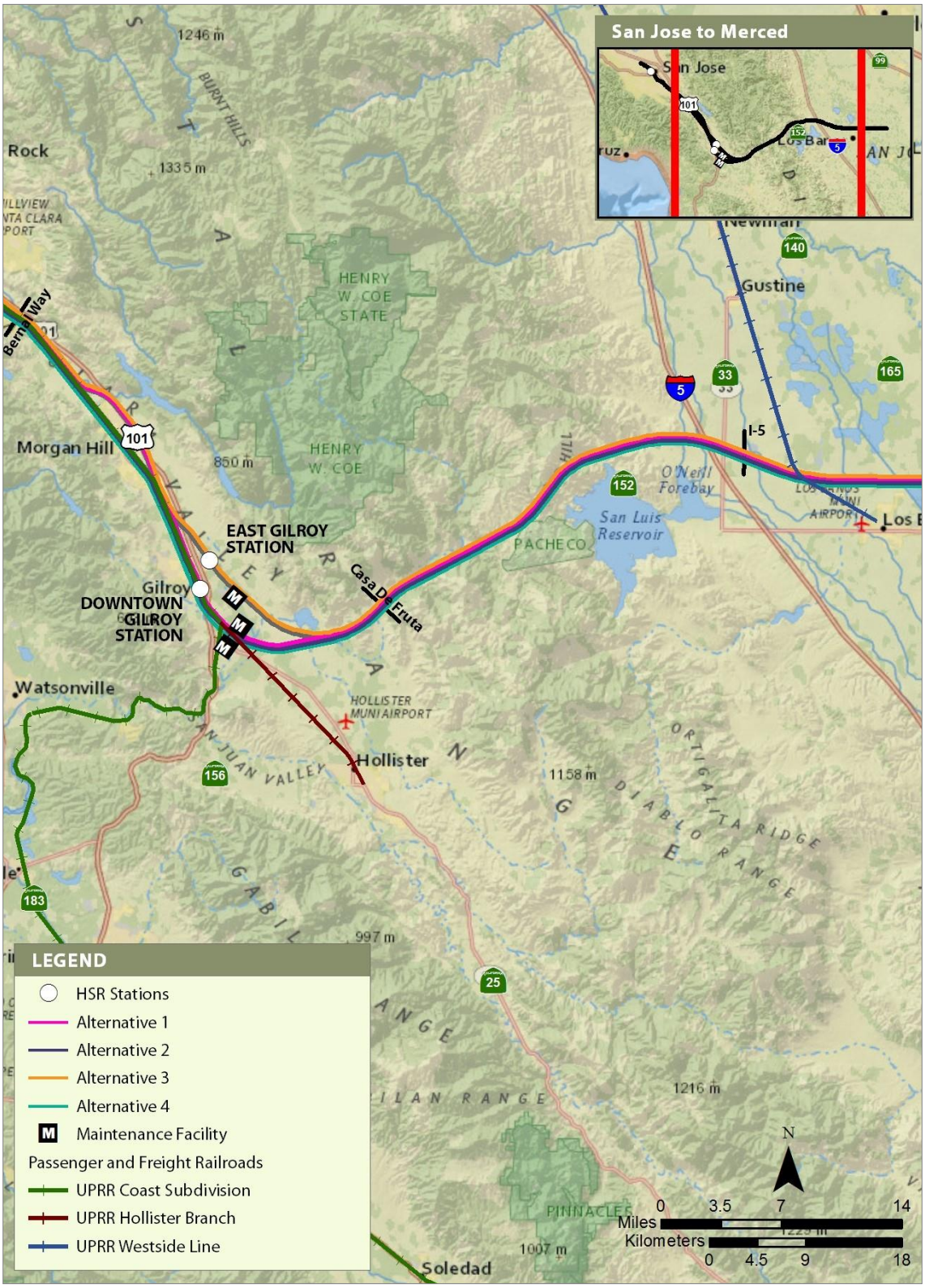
Freight service varies in response to freight customer needs and activity. For example, there was a notable decline in freight operations during the 2008–2009 recession and slow recovery afterwards, but freight service has been increasing in recent years with the acceleration of the economic recovery. In addition to the routine daily traffic, freight operators also run periodic trains to serve nonroutine episodic freight needs. The Peninsula Freight Rail User's Group estimates that the number of rail cars between San Jose and San Francisco over the past decade has averaged about 60 to 80 cars per day in each direction (once loaded, once empty). This translates to 20,000 to 30,000 loaded rail cars carrying 2 to 3 million tons of cargo between San Jose and the San Francisco Peninsula each year, the equivalent of at least 100,000 truck trips annually. During peak years in the past decade, the numbers were substantially higher (Peninsula Freight Rail User's Group 2014).

[5] A control point is a location with signals where the dispatcher controls track access. Control points are commonly associated with track junctions.

[6] This was the only data made available to HSR by Caltrain.

Source: Authority 2019a MARCH 2019

Figure 3.2-9 Railroad Control Points and Subdivisions in the RSA (San Jose Diridon Station Approach Subsection)



Source: Authority 2019a MARCH 2019

Figure 3.2-10 Railroad Control Points and Subdivisions in the RSA (Morgan Hill and Gilroy and Pacheco Pass Subsections)

South of Gilroy, UPRR operates on the Coast Subdivision to Salinas and on the Hollister Branch. The Coast Subdivision south of Gilroy has one and sometimes two tracks, and has approximately four to six daily freight trains. The Coast Subdivision south of Gilroy is parallel to the RSA for a short distance. The Hollister Branch is a light-density branch line that diverges from the Coast Subdivision at Carnadero about 2.3 miles south of the Caltrain Gilroy Station. The Hollister Branch, which has one track parallel to the RSA for a short distance, operates limited to no daily freight service. There are no freight lines and no freight service from Gilroy to Los Banos.

East of the Pacheco Pass, California Northern leases UPRR's Westside Line for freight service from Tracy to Los Banos. The Westside Line has one track with infrequent daily freight service. The RSA crosses the Westside Line near Volta north of Los Banos.

Where freight and HSR would share corridors, adequate clearance would need to be provided by the overhead passenger service wires to accommodate freight rail service. Analysts reviewed dispatch data to identify the highest freight car (or *load*) that PCJPB authorized on different portions of Caltrain corridor in the RSA. Between Scott Boulevard and CP Lick, the highest freight car height was 20.25 feet (Caltrain dispatch data 2006–2013, as cited in the PCEP EIR [PCJPB 2015]).[7]

Trackage Rights Agreement between the Peninsula Corridor Joint Powers Board and Union Pacific Railroad

When the PCJPB acquired the Caltrain corridor, PCJPB and UPRR's predecessor, the Southern Pacific Transportation Company, entered into a trackage rights agreement (TRA) that established the rights of each of the parties relative to the corridor. The parties negotiated the TRA in 1991, with the understanding and expectation that passenger service would increase over time. This increase could ultimately affect the available times for freight operations in the corridor.

In December 2016, UPRR and PCJPB agreed to a series of agreements related to the implementation of PCJPB's project to electrify the line that included a proposed transfer of the freight rights and intercity passenger rights from UPRR to the PCJPB for the portion of the Caltrain corridor from CP Coast north to San Francisco. The agreement established a three-phase process by which PCJPB and UPRR would initiate a selection process to identify a third-party short-line railroad operator, select an operator and obtain Surface Transportation Board approvals, and then PCJPB would obtain the freight and intercity passenger rights for this portion of the Caltrain corridor, among other requirements. As of September 2019, the existing TRA is still in force for the Caltrain corridor until the transfer is implemented north of CP Coast and a new TRA is established for the area between CP Coast and CP Lick.

The following are key requirements regarding freight or passenger rights pursuant to the existing TRA and December 2016 agreement:

- PCJPB owns the right-of-way, known as the Peninsula Main Line, and associated tracks between San Francisco and CP Lick, and controls the commuter passenger rail rights.
- UPRR owns certain tracks along the corridor including the track referred to as MT-1 from Santa Clara (CP Coast) southward.
- UPRR owns the freight rights and intercity passenger rail rights of the Caltrain corridor and has agreed conditionally to transfer the freight rights and intercity passenger rail rights north of CP Coast per the December 2016 agreement.
- The TRA does not limit freight service hours on the UPRR-owned MT-1 track between CP Coast and CP Lick.

[7] Freight heights have not changed since 2013 as there are overhead height limits that constrain use of taller equipment.

- The existing TRA, as amended by subsequent agreements with UPRR regarding the PCEP, establishes required vertical clearance heights at specific constrained locations along the corridor.[8]
- The existing TRA requires PCJPB to allow for one daytime 30-minute freight window between 10 a.m. and 3 p.m., but the freight trains must be capable of operating at *commuter service train speeds* (up to 79 miles per hour) and must do so if directed by PCJPB. Once PCJPB obtains the freight rights, it can amend this requirement north of CP Coast pursuant to the terms of a TRA to be entered into with the new freight operator selected pursuant to a competitive procurement process.
- The existing TRA requires PCJPB to provide one track for exclusive freight use between midnight and 5 a.m. Once PCJPB obtains the freight rights, it may be possible to modify this requirement north of CP Coast pursuant to the terms of a TRA to be entered into with the new freight operator selected pursuant to a competitive procurement process.
- Section 8.3(c) of the existing TRA recognizes that if PCJPB has a need to construct a transportation system that is a significant change in the method of delivery of commuter service and that system is inconsistent with freight service, PCJPB can file for permission from the Surface Transportation Board to abandon freight service over the affected area and UPRR may not object to or oppose such a filing.

3.2.6 Environmental Consequences

3.2.6.1 Overview

This section discusses the potential transportation impacts that would result from implementing the project alternatives. It is organized according to topic: roadways, freeways, and intersections (vehicle circulation); parking; transit; nonmotorized travel; and freight rail service. Each topic area discusses potential impacts from construction (temporary conditions) and operations (permanent conditions) of the project. Impacts on transportation from implementing the project would include intersection or freeway LOS impacts, construction-period impacts on adjacent properties, impacts on feeder transit services, impacts on nonmotorized modes of travel such as bicycle and pedestrian facilities, and impacts on freight service.

The project includes project features (IAMFs) that would minimize impacts on transportation during construction by requiring the contractor to develop and implement plans and actions to minimize or avoid potential construction impacts (Volume 2, Appendix 2-E). These IAMFs include implementing construction hours and parking for construction vehicles, maintaining truck routes and construction for special events during project construction, maintaining bicycle and pedestrian access, protecting freight and passenger rail services, maintaining transit access, and meeting design standards and guidance for transportation facilities. However, temporary road closures and construction traffic, including traffic from truck deliveries and construction employee trips, would result in localized temporary impacts in a number of areas in the RSA. Permanent transportation consequences would result from the long-term presence of HSR track and systems. There would be an increase in localized trips near the stations, as well as localized consequences for intersection and freeway operations, transit service, and bicycle and pedestrian facilities.

While the project may result in temporary impacts during construction and operations at isolated areas around stations and in the project footprint, its overall impact on transportation resources in the region and state would be beneficial through substantial reductions in VMT, increased transit connectivity, and reduction in the need to expand freeways and airports.

[8] Within the Caltrain Corridor from CP Lick to Scott Boulevard, the effective overhead clearance height in the TRA allows for Plate H equipment (20.25 feet).

3.2.6.2 Roadways, Freeways, and Intersections (Vehicle Circulation)

Construction and operations of the project alternatives would result in temporary and permanent changes to roadways, freeways, and intersections to accommodate the new HSR infrastructure. Project construction would affect major roadways and intersections through temporary and permanent road closures and relocations that would result in temporary or permanent diversion of traffic onto other roadways and freeways. Permanent changes to roadways and intersections would also cause increased congestion where vehicle capacity is reduced or changed, for example, along Monterey Road in San Jose. Project-related construction traffic would affect vehicle circulation in areas where construction activities are occurring, either through the temporary closure of traffic lanes or through heavy truck traffic delivering or removing materials from the project site. Construction activities would have a greater effect under Alternatives 1, 2, and 3 due to construction related to the narrowing of Monterey Road. Project operations would affect major roadways, freeways, and intersections through traffic generated by passengers traveling to and from the station areas and maintenance facility. Project trips would affect intersection and freeway LOS by increasing the amount of traffic traveling to and from the station or reducing roadway capacity, causing intersections and freeway segments that currently operate at acceptable conditions to fail, or contribute to already failing intersections and freeway segments to have higher delays.

No Project Conditions

The Authority studied two future years under the No Project conditions—2029 and 2040. The population in the Bay Area and San Joaquin Valley is expected to see continued growth through 2040 (Section 2.5.1.1, Planned Land Use). The population in the San Joaquin Valley is projected to grow at a higher rate than in any other region in California. Development in the Bay Area and San Joaquin Valley to accommodate the population increase would continue under the No Project Alternative and result in associated direct and indirect impacts on transportation. Such planned and other reasonably foreseeable projects anticipated to be built by 2029 and 2040 include residential, commercial, industrial, recreational, and transportation projects. A full list of anticipated future development projects is provided in Volume 2, Appendix 3.18-A, Cumulative Plans and Nontransportation Projects List, and Appendix 3.18-B, Cumulative Transportation Projects List.

Although future transportation improvement projects as identified in RTPs (Volume 2, Appendix 3.19-B) would provide transportation benefits such as expanded capacity, thus improving safety, and reducing traffic volumes in the short term, the programmed transportation network capacity improvements would not be enough to meet long-term future demand and population growth. Under the No Project Alternative, traffic volumes on regional roadways would continue to increase as a result of anticipated development through 2040, thereby affecting existing roadways, freeways, and intersections and resulting in increased delays and a degradation of LOS.

To accommodate continued growth in the Bay Area and San Joaquin Valley, programmed transportation improvements would expand existing capacity. Without the additional capacity provided by the project, additional improvements to highways, airports, and other transportation facilities beyond those currently programmed would be required to meet the growing demand regionally and statewide. The Authority estimates that additional highway and airport projects (up to 4,300 highway lane miles, 115 airport gates, and 4 airport runways) would be needed to achieve equivalent capacity and relieve the increased pressure (Authority 2018a). Table 3.2-11 shows the improvements programmed for implementation by 2029 and 2040. These consist primarily of individual interchange improvements and roadway widening projects on segments of the existing transportation network. Most of the projects listed would be completed by 2029 and were considered in both analysis scenarios, with the notable exception of a number of projects in Gilroy. These projects would primarily affect the San Jose Diridon Station area and MOWF alternatives in Gilroy.

Table 3.2-11 2029 and 2040 No Project Conditions Roadway Improvements

Roadway Change	Source	2029	2040
San Jose Diridon Station Approach Subsection			
Hedding Street road diet[1]	*Envision: San José 2040 General Plan*	X	X
Signal modifications	*Diridon Station Area Plan*	X	X
Montgomery Street conversion to two-way traffic	*Diridon Station Area Plan*	X	X
Montgomery Street closure south of West San Fernando	*Diridon Station Area Plan*	X	X
Autumn Street conversion to two-way traffic	*Diridon Station Area Plan*	X	X
New facility: Autumn Street extension	*Envision: San José 2040 General Plan*	X	X
Park Avenue road diet[1]	*Envision: San José 2040 General Plan*	X	X
Bird Avenue road diet[1]	*Envision: San José 2040 General Plan*	X	X
Delmas Avenue and West Santa Clara Street new traffic signal	City of San Jose	X	X
Coleman Avenue widening	*Envision: San José 2040 General Plan*	X	X
Monterey Corridor Subsection			
Blossom Hill Road lane reduction	*Envision: San José 2040 General Plan*	X	X
Blossom Hill Road interchange widening	*Envision: San José 2040 General Plan*	X	X
Morgan Hill and Gilroy Subsection			
New facility: US 101 and Buena Vista ramps	*North Gilroy Neighborhood Districts Urban Service Area Amendment*		X
Monterey Road widening	*North Gilroy Neighborhood Districts Urban Service Area Amendment*	X	X
New facility: Camino Arroyo extension	*2020 General Plan*		X
New facility: Cameron Boulevard extension	*2020 General Plan*		X
New facility: IOOF Avenue extension	*2020 General Plan*		X
10th Street widening	*North Gilroy Neighborhood Districts Urban Service Area Amendment*	X	X
SR 152 widening	*North Gilroy Neighborhood Districts Urban Service Area Amendment*	X	X

Sources: City of San Jose 2018, 2014; City of Gilroy 2002, 201.
US = U.S. Highway
SR = State Route
[1] A road diet is a reduction in roadway capacity, usually achieved by removing lanes.

Table 3.2-12 shows the number of freeway segments forecast to operate at LOS E or F in 2029 and 2040 No Project conditions (Tables 4 and 6 in Appendix 3.2-A provide the LOS for all freeway segments). Five of the segments in the 2029 No Project conditions and seven of the segments in the 2040 No Project conditions that operate at LOS E or F are northbound freeway segments in the AM peak hour.

Table 3.2-12 2029 and 2040 No Project Freeway Segment Operations

Subsection	Number of Study Freeway Segments	Segments Operating at LOS E or F	
		2029 No Project	2040 No Project
Monterey Corridor	10	7	7
Morgan Hill and Gilroy	10	0	2

Source: Authority 2019a

In the 2029 No Project condition in the northbound direction, the freeway segments from lane drop (southbound) to SR 85, SR 85 to Bernal Road, Bernal Road to Silver Creek Valley Road, Silver Creek Valley Road to Hellyer Avenue, and Hellyer Avenue to Yerba Buena Road operate at LOS E or F. In the 2029 No Project condition in the southbound direction, Silver Creek Valley Road to Hellyer Avenue and Hellyer Avenue to Yerba Buena Road segments would operate at LOS E or F. In the 2040 No Project condition in the northbound direction, SR 25 to Monterey Road, SR 152 to Leavesley Road lane drop (southbound) to SR 85, SR 85 to Bernal Road, Bernal Road to Silver Creek Valley Road, Silver Creek Valley Road to Hellyer Avenue, and Hellyer Avenue to Yerba Buena Road segments would operate at LOS E or F. In the 2040 No Project condition in the southbound direction, Silver Creek Valley Road to Hellyer Avenue and Hellyer Avenue to Yerba Buena Road segments would operate at LOS E or F.

Table 3.2-13 shows the number of intersections forecast to operate at LOS E or F in the 2029 and 2040 No Project conditions (Tables 3 and 5 in Appendix 3.2-A provide the LOS for all intersections). In the San Jose Diridon Station Approach Subsection, the traffic generated by projected jobs and population in San Jose create high demand volumes and a congested roadway system, particularly in downtown San Jose around Diridon Station. In the Monterey Corridor Subsection, the high level of congestion is from high demand and constrained roadway choice. Thirteen of the 30 intersections operating at LOS E or F are located on Monterey Road. In the Morgan Hill and Gilroy Subsection, intersections experience lower demand volumes than the San Jose Diridon Station Approach and Monterey Corridor Subsections, and therefore significantly fewer intersections operate at LOS E or F. No intersections were studied in the Pacheco Pass Subsection. The San Joaquin Valley Subsection intersection experiences low demand volumes and does not operate at LOS E or F in 2029, but would operate deficiently in 2040.

Table 3.2-13 2029 and 2040 No Project Intersection Operations

Subsection	Number of Study Intersections	Intersections Operating at LOS E or F	
		2029 No Project	2040 No Project
San Jose Diridon Approach	50	16	26
Monterey Corridor	46	20	30
Morgan Hill and Gilroy	101	11	17
Pacheco Pass	0	0	0
San Joaquin Valley	1	0	1

Source: Authority 2019a

Project Impacts

Construction Impacts

Impact TR#1: Temporary Congestion/Delay Consequences on Major Roadways, Freeways, and Intersections from Temporary Road Closures, Relocations, and Modifications

Construction activities in urban areas associated with the station, platform, and track alignment would require temporary roadway closures or modifications, lane closures and underground utility

work that would lead to changes in vehicle circulation, temporary disruption of transportation systems operations, and possible damage to the roadway system such as pavement and bridges. Changes related to major roadways, freeways, and intersections would include:

- Temporary full or partial roadway closures, with associated detours
- Temporary lane closures with associated detours
- Temporary damage to pavement conditions because of construction traffic and rerouting
- Temporary changes to traffic signal operations, timing, and/or phasing to accommodate project construction
- Temporary lane width reductions and/or reduced speed limits
- Temporary loss of or modifications to parking, bicycle facilities or pedestrian facilities

Exact locations of temporary closures, changes, and disruptions would be determined and minimized during the development of a construction transportation plan (CTP).

Construction activities related to MOWFs in more rural areas would result in the same temporary effects on roadways. Construction of station, platform, and track and track alignment structures would require temporary construction easements (TCE), which would require the temporary closures of parking areas or roadway travel lanes, and the construction of overcrossings and interchanges. These activities would increase traffic congestion on roadways, freeways, and intersections because of lane or street closures, diversions in traffic from temporary detours, and other temporary disruptions to traffic.

In rural areas, construction activities would include the demolition and clearance of structures in the rights-of-way, construction of grade separations that would require temporary relocation of existing roads or construction of new temporary roads, construction of the MOIS, and placement of railbeds and HSR track and systems. In rural areas, the primary traffic consequences during construction would occur at locations where overcrossings would be needed to carry minor roadways over the tracks.

Construction of Alternatives 1, 2, and 3 would include a new HSR overcrossing of I-280, including the construction of foundations for bridge pier footings, placement of structural elements, and removal of falsework. Construction of Alternative 4 would include a substantial widening of the existing overcrossing along the same alignment. These activities would result in temporary highway lane closures and width reductions, reduced speed limits, temporary on- and off-ramp closures, detours, and temporary freeway closures. The duration would range from several hours in the case of a short-term freeway lane closure to months in the case of substantial roadway modifications. A limited number of weekend full closures of I-280 would be required to construct the overcrossing of the freeway under all four alternatives. These closures would be done in close coordination with Caltrans.

In the San Jose Diridon Station Approach Subsection, Alternative 1 would have fewer construction effects than Alternatives 2 and 3 because the northern terminus of dedicated HSR track on a viaduct would be at I-880 rather than Scott Boulevard. Viaduct construction in this subsection would extend approximately 2.4 miles farther north under Alternatives 2 and 3, thereby affecting properties and transportation facilities in those areas. Two additional roadway overcrossings would be affected under Alternatives 2 and 3. Viaduct construction generally involves relocating utilities, pouring footings, forming and pouring columns, forming and pouring an aerial bridge, and constructing track. Alternative 4 would have fewer construction effects than Alternatives 1, 2, and 3 because it would not require viaduct construction and much of the work would occur in the existing UPRR right-of-way.

In the Monterey Corridor Subsection, Alternatives 1 and 3 would continue the viaduct construction farther south in the median of Monterey Road. This work would largely be accomplished in the existing right-of-way of Monterey Road (between Capitol Expressway and Blossom Hill Road). While temporary road closures and detours would be necessary to construct the viaduct in this

area, there would be less construction effects than Alternative 2. Under Alternative 2, the project would be built on an embankment. Embankment construction in the Monterey Corridor Subsection would have more effects on transportation facilities because it would require the relocation and reconstruction of Monterey Road to the east. This would entail roadway closures, detours, and relocations. New overcrossings and interchanges would be necessary at Capitol Expressway, Skyway Drive, Branham Lane, Chynoweth Avenue, and Blossom Hill Road. In order to reconstruct these overcrossings/ interchanges, either new temporary facilities would need to be built or the roadways would need to be closed. Under either approach, the temporary roadway detours and relocations would likely result in temporary increases in travel times, delay, and inconvenience to the traveling public. Alternatives 1, 2, and 3 would narrow Monterey Road from six to four lanes between Capitol Expressway and Blossom Hill Road during construction, with the elimination of left turn movements from Monterey Road onto all connecting streets. These narrowing and turn restrictions would occur for approximately 18 to 24 months. Construction of Alternative 4 would not require narrowing of Monterey Road. Alternative 4 would be built at grade and would build new quad gates at Skyway Drive, Branham Lane, and Chynoweth Avenue. There would be temporary closures and detours during off-peak travel times for deliveries and construction access. Alternative 4 would have fewer construction effects than Alternatives 1, 2, and 3 because Monterey Road would retain its existing cross section.

Under Alternatives 1, 2, and 3, narrowing Monterey Road during construction would shift traffic patterns along Monterey Road and in the surrounding area, causing increased delays and congestion at many intersections. During construction of Alternatives 1, 2, and 3, 27 out of 46 intersections studied in the Monterey Corridor Subsection would operate at LOS E or F; 23 of these would be affected by the project. Under Alternative 2, Skyway Drive Variants A and B would have the same construction effects. Eleven of the 23 affected intersections are on Monterey Road, while the remaining 12 would occur because of traffic diversion on to neighborhood streets. For Alternative 4, 10 intersections would continue to operate at LOS E or F, and no intersections would be adversely affected by the project because Monterey Road would not be narrowed. Volume 2, Appendix 3.2-A, Table 11, presents the intersection effects for the Monterey Corridor Subsection during construction.

The four project alternatives would be different in the Morgan Hill and Gilroy Subsection. Alternative 1 would entail predominantly viaduct construction through the subsection, with all HSR track and systems grade-separated from existing transportation infrastructure. Limited closures of some roadways would be necessary to build this project alternative, including US 101 just south of downtown Gilroy for one or a limited number of weekends. Of the four project alternatives, construction of the embankment for Alternative 2 would have the greatest effects. Reconstruction of existing transportation facilities would be necessary to implement this project alternative. New interchanges and overcrossings would be necessary at Bailey Avenue, Palm Avenue, Live Oak Avenue, Madrone Parkway, Monterey Road, Main Avenue, East Dunne Avenue, San Pedro Avenue, Tennant Avenue, East Middle Avenue, West San Martin Avenue, Church Avenue, Masten Avenue, Rucker Avenue, Buena Vista Avenue, Las Animas Avenue, Leavesley Road, East 6th Street, East 7th Street, East 9th Street and East 10th Street. In order to reconstruct these overcrossings and interchanges, either new temporary facilities would need to be built or the roadways would need to be closed. Under either approach, the temporary roadway detours and relocations would likely result in temporary increases in travel times, delay and inconvenience to the traveling public. Alternative 3 would be similar to Alternative 1 in that it would be fully grade-separated from existing and planned transportation infrastructure. However, Alternative 3 would be routed through east Gilroy rather than through downtown, thereby affecting fewer and less-traveled transportation facilities. The viaduct construction under Alternatives 1 and 3 would affect the roadways it crosses; however, it would not involve substantial reconstruction of the existing roadway infrastructure included under Alternative 2. Alternative 4 would build a blended at-grade system that runs through downtown Gilroy. New quad gates would be installed at Blanchard Road, Palm Avenue, Live Oak Avenue, Tilton Avenue, East Main Avenue, East Dunne Avenue, San Pedro Avenue, Tennant Avenue, East Middle Avenue, East San Martin Avenue, Church Avenue, Masten Avenue, Rucker Avenue, Buena Vista Avenue, Cohansey Avenue, Las Animas Avenue, Leavesley Road, IOOF Avenue, Lewis Street, Martin Avenue, East

6th Street, East 10th Street, Luchessa Avenue, and Bloomfield Road. In order to build these gates, temporary roadway detours and relocations would be required and would likely result in temporary increases in travel times, delay and inconvenience to the traveling public.

All four alternatives would require that Pacific Gas and Electric (PG&E) reinforce the electric power distribution network to meet HSR traction and distribution power requirements by replacing (reconductoring) approximately 11.1 miles of existing power line associated with the Spring to Llagas and Green Valley to Llagas 115-kilovolt power lines. The power lines to be reconductored would reuse the existing poles and towers, beginning at the Morgan Hill Substation on West Main Avenue in Morgan Hill, then crossing to the east side of Peak Avenue and Dewitt Avenue, spanning West Dunne Avenue, Chargin Drive, Spring Avenue, and several residences. The alignment would continue south across an open space area, then follow Sunnyside Avenue for approximately 0.5 mile. The alignment would continue south for approximately 4 miles, spanning active vineyards and the Corde Valle Golf Course. The alignment would then turn east along the north side of Day Road before heading south for approximately 2.5 miles and terminating at the Llagas Substation in Gilroy. Construction of these facilities would potentially require temporary roadway or lane closures, which would increase travel times and inconvenience the public.

In both the Pacheco Pass and San Joaquin Valley Subsections, the effects of the four project alternatives on existing and planned transportation infrastructure would be common across the alternatives. In the Pacheco Pass Subsection and San Joaquin Valley Subsection, the HSR alignment would be developed on the south side of SR 152 and Henry Miller Road, respectively. Major construction would include demolition and clearance of structures in the right-of-way, construction of temporary roads at new grade separations (shoofly), construction of new grade separations, MOIS, and placement of railbeds and HSR track and systems on at-grade and embankment sections. For all four alternatives, there would be four new grade separations at Mercey Springs Road, Delta Road, Turner Island Road, and Carlucci Road. These grade separations would each require approximately 2 to 2.5 years to construct, 6 months to relocate roads, 1.5 years to build the new road, and 2 to 6 months to remove the temporary road. The grade separations would relocate the existing road to the west of the current alignment for approximately 2 years. At these and other locations, the affected roadway would either be rerouted onto a temporary alignment or temporarily closed. Temporary closures would be viable if traffic volumes on the affected roadway were very low and a detour route was available that did not require an extraordinary amount of additional travel.

To reduce traffic conflicts caused by construction, the contractor would prepare a CTP (TR-IAMF#2). The CTP, which would be reviewed and approved by the Authority, would address, in detail, the activities to be carried out in each construction phase. The CTP would provide a traffic control plan that would identify when and where temporary closures and detours would occur, with the goal of maintaining traffic flow, especially during peak travel periods. The traffic control plan would be developed for each affected location and would include, at a minimum, signage to alert drivers to the construction zone, traffic control methods, traffic speed limitations, and alternative access and detour provisions during road closures. Any temporary closure or removal of parking areas or roadways during construction would be temporary and would be restored upon completion of construction. Efforts would be made to minimize their removal or shorten the length of time that these facilities are inoperable to the extent possible.

CEQA Conclusion

Construction of all four project alternatives would create temporary increases in automobile delay and travel time for the public. Under CEQA, automobile delay is not a significant environmental impact.

Impact TR#2: Temporary Congestion/Delay Consequences on Major Roadways, Freeways, and Intersections from Construction Vehicles

Construction work on stations, MOWF, platform, PG&E upgrades, and track alignment would result in construction traffic, including heavy truck traffic delivering and removing materials and heavy construction equipment moving onto the construction site. Use of heavy equipment and delivery or removal of materials by trucks have the potential to add to traffic congestion, especially if movements occur during morning or evening peak periods. Construction traffic would

also result from construction worker trips. Worker vehicles entering and leaving the job sites at the beginning and end of shifts have the potential to increase delays on roadways and at intersections. Construction traffic would lead to interference with local vehicle circulation and operational hazards.

The construction traffic effects would be similar for all four project alternatives for the San Jose Diridon Station Approach, Monterey Corridor, Pacheco Pass, and San Joaquin Valley Subsections. In the Morgan Hill and Gilroy Subsection, the differences would be pronounced because of the different geographic alignments. Alternatives 1, 2, and 4 would route construction traffic through downtown Gilroy while Alternative 3 would focus this activity near the East Gilroy Station location, east of US 101.

Standard construction procedures related to traffic management would be used, including development of a CTP (TR-IAMF#2), which would be reviewed and approved by the Authority and would include details on the activities to be carried out during each construction phase, including construction vehicle operations. The CTP would implement a detailed traffic control plan for each affected location prior to beginning any construction activities. The TCP would identify when and where temporary closures and detours would occur, with the goal of maintaining traffic flow, especially during peak travel periods. At a minimum, the TCP would include temporary signage to alert drivers to the construction zone, personnel operating flags or other methods of traffic control, traffic speed limitations, identified construction traffic routes, and provisions to allow safe access to residences and business to reduce effects on major roadways from construction vehicle traffic.

All truck traffic, either for hauling spoil or for transporting construction materials to the site, would use the designated truck routes in each city (TR-IAMF#7) to the extent feasible. As part of the CTP, truck routes would be established away from schools, day care centers, and residences, or along the routes with the least effect to minimize operations hazards. A detailed construction access plan would be developed and implemented for the project prior to beginning any construction activities. The construction access plan would be reviewed by local city, county, and transit agencies. The movement of heavy construction equipment such as cranes, bulldozers, and dump trucks to and from the site would generally occur during off-peak hours on designated truck routes. Once on site, heavy construction equipment would remain there until its use for that job was completed, so that equipment would not be moved repeatedly to and from the construction site over public streets.

Trips for construction workers would generally occur outside of the peak hours for roadway and freeway traffic. The contractor would limit the number of construction employees arriving or departing the site between the hours of 7 a.m. and 8:30 a.m. and 4:30 p.m. and 6 p.m. (TR-IAMF#6). The contractor would also limit construction material deliveries between 7 a.m. and 9 a.m. and between 4 p.m. and 6 p.m. on weekdays to reduce traffic conflicts generated by construction traffic.

To facilitate truck and worker access to the project site during project construction, improvements would be made to an existing at-grade intersection on SR 152 in the Pacheco Pass Subsection. The intersection is 3.25 miles east of the Casa De Fruta overcrossing and currently provides access to agricultural parcels south of the highway. Existing traffic volumes at the tee-intersection are low; left and right turns in and out from the south are permitted. The southern (minor street) approach is controlled by a stop sign while eastbound and westbound traffic on the highway is not required to stop. The project proposes to improve the intersection by installing acceleration and deceleration lanes for vehicles entering and exiting the southerly access in both the eastbound and westbound directions for both left and right turning movements. Improvements to the intersection would be made in accordance with all Caltrans design standards regarding truck access to State highway facilities so that safe movements can be executed at this location during project construction.

Existing traffic volumes on SR 152 at the intersection are approximately 43,000 vehicles per day, with 4,300 vehicles traveling the highway during the peak commute hour. Following area commute patterns, travel in the westbound direction predominates in the morning peak hour with travel in the eastbound direction higher in the evening peak hour. The signed speed limit on this

section of SR 152 is 55 miles per hour as it moves through moderately rolling terrain with large horizontal curves.

The intersection would be used for access by project construction vehicles for approximately eight years. During the peak periods of project construction, approximately 50 truck trips and 330 vehicle trips by HSR workers are expected to use the improved intersection on a daily basis. In this context, a trip represents either an inbound or an outbound movement (i.e., a truck traveling to and from the project site making a delivery would represent two trips). In the peak hour during these peak construction periods, roughly five truck trips and 160 worker trips would use the intersection.

While the operations of ambient traffic on SR 152 would remain largely unimpeded during these periods of project construction (traffic on SR 152 is not required to stop at the intersection), peak hour delays for project construction vehicles entering and exiting the site would be high. During the morning and evening peak hours, the LOS for construction vehicles entering SR 152 would be F, with high levels of vehicle delay. The right turn-in movement from the west would function well with vehicles entering the site unimpeded. The left turn-in movement from the east would operate at LOS E/F for construction vehicles seeking to enter the site from the east. Sufficient gaps in traffic do not exist at this location during peak commute hours because of the high levels of eastbound and westbound traffic on SR 152.

During peak periods when the left turn-out movement is difficult to make because of a lack in gaps in traffic, the alternative is for vehicles to make a right turn onto SR 152 with a subsequent downstream U-turn to complete travel to the west. The nearest location for this to occur safely is at the Santa Nella Road/SR 152 interchange located approximately 22 miles to the east. For vehicles turning left into the site from the east, the nearest downstream turn around for a safe U-turn is at the Casa De Fruta/SR 152 interchange 3.25 miles to the west.

This temporary effect during construction would not adversely affect travel for the public, as the only vehicles that would be meaningfully delayed would be project-related construction traffic. Nevertheless, to facilitate efficient ingress and egress, project-related construction traffic should be directed to occur outside of peak periods to the extent possible, consistent with TR-IAMF#7.

CEQA Conclusion

Construction of all four project alternatives would involve temporary construction vehicle operations that would interfere with local vehicle circulation resulting in delays or reductions in peak hour LOS operations. Under CEQA, automobile delay is not a significant environmental impact. Project features include actions to control and manage construction vehicle traffic through implementation of traffic control plans for each affected location prior to beginning construction activities, which would include efforts to minimize effects on major roadways from construction vehicle traffic through signage to alert drivers, traffic control methods, construction traffic routes, and alternative access and detour provisions. In addition, construction worker trips and material deliveries would be limited to off-peak hours for roadway and freeway traffic.

Impact TR#3: Permanent Delay/Congestion Consequences on Freeways and Roadways from Permanent Road Closures and Relocations

Permanent roadway closures and roadway modifications associated with project construction would cause shifts in travel patterns. Decreased capacity at key intersections and roadways, particularly on Monterey Road, would cause trips to shift from surface streets to freeways or other parallel roadway facilities. The additional freeway traffic caused by the permanent construction changes would lead to a degradation of LOS and increased congestion on freeway segments. The effects of these permanent closures were studied under the Existing Plus Project conditions. Impact TR#7: Continuous Permanent Delay/Congestion Consequences on Freeway Operations describes quantitative freeway effects in 2029 and 2040 from construction and operation activities, which were analyzed together as part of the operations analysis.[9]

[9] Impacts from construction activities are described qualitatively for 2029 and 2040 under Construction Impacts, while combined impacts from construction and operations are described quantitatively under Operations Impacts.

Project construction would require changes and closures to be made throughout the roadway network to accommodate the stations, platforms, track alignment, and MOWFs. Table 3.2-14 presents the permanent roadway network changes and closures proposed by each project alternative. The types of roadway modifications, similar under all four alternatives, would include road closures, road narrowing, road realignment, and modified or new grade separations. Modifications unique to Alternative 4 would include the installation of quad gates around at-grade rail crossings. Alternative 1 would require permanent closure of 17 roadways, and relocation or modification of 27 roadways. Alternative 2 would require the most permanent road closures and roadway modifications, including 29 permanent road closures, and relocation or modification of 59 roadways. Alternative 3 would require permanent road closure of 17 roadways, and relocation or modification of 32 roadways. Alternative 4 would require 15 permanent road closures and the relocation or modification of 39 roadways.

Table 3.2-14 Permanent Roadway Closures and Changes by Subsection and Alternative

Roadway	Type of Change	Description of Change	Alternative			
			1	2	3	4
San Jose Diridon Station Approach						
Grant St	Other roadway modification	Shorten road		X	X	
De la Cruz Blvd	Grade separation	Change from overcrossing to undercrossing		X	X	
West Hedding St	Other roadway change	Rebuild existing overcrossing	X			
West Hedding St	Grade separation	Change from overcrossing to undercrossing		X	X	
Stockton Ave	Road closure	Convert to a cul-de-sac	X	X	X	
University Ave	Road closure	Convert to a cul-de-sac	X	X	X	
Emory St	Road closure	Convert to a cul-de-sac	X	X	X	
Chestnut St	Road closure	Realign; close from Asbury St to W Taylor St	X	X	X	
West Taylor St	Grade separation	Build new HSR undercrossing (Caltrain railroad bridge over Taylor is maintained)	X			
West Taylor St	Grade separation	Build new HSR overcrossing alongside existing Caltrain overcrossing				X
West Taylor St	Alignment change	Realign westbound Taylor St to northbound Chestnut St		X	X	
North Montgomery St	Other roadway change	Extend to maintain property access	X	X	X	
Stover St	Other roadway change	Extend Stover St from S Montgomery St to Autumn St	X	X	X	
Crandall St	Other roadway change	Extend from S Montgomery St to Autumn St	X	X	X	
Cahill St	Other roadway change	Extend to Park Ave and convert lanes to transit only	X	X	X	
Cahill St	Other roadway change	Extend to Otterson; convert to transit only lanes				X

Roadway	Type of Change	Description of Change	Alternative			
			1	2	3	4
Bird Ave	Other roadway change	Rebuild existing underpasses				X
Delmas Ave	Other roadway change	Rebuild existing underpasses				X
SR 87 on-ramp	Alignment change	Realign ramp	X	X	X	
Auzerais Ave	Install quad gates	Install quad gates across Auzerais Ave at rail crossing				X
W Virginia St	Install quad gates	Install quad gates across W Virginia St at rail crossing				X
Fuller Ave	Alignment change	Realign Fuller Ave cul-de-sac				X
Monterey Corridor						
Almaden Expwy	Alignment change	Realign on-ramp to SR 87	X		X	
Curtner Ave	Other roadway change	Rebuild overpass	X	X	X	
Monterey Rd between Capitol Expwy and Blossom Hill Rd	Lane narrowing	Narrow Monterey Rd to four lanes	X	X	X	
Monterey Rd	Other roadway change/Alignment change	Widen road for bus turnout; realign road	X		X	
Monterey Rd	Other roadway change	Close midblock SB left turn into shopping center between Senter and Skyway	X	X	X	
Skyway Drive	Grade separation	Depress Skyway Drive and realign with ramp return to Monterey Rd		X		
Skyway Drive	Install quad gates	Install quad gates across Skyway Drive at Monterey Rd				X
Branham Lane	Grade separation	Reconfigure intersection; depress Monterey Rd; remove some turn lanes		X		
Branham Lane	Install quad gates	Install quad gates across Branham Lane at Monterey Rd				X
Rice Way	Road closure	Close access from Rice Wy to Monterey Rd		X		
Waterfall Court	Other roadway change	Extend Waterfall Ct to Broken Lance Ct		X		
Waterfall Court	Road closure	Close access from Waterfall Ct to Chynoweth		X		
Chynoweth Ave	Grade separation	Reconfigure roadway; remove some turn lanes		X		
Chynoweth Ave	Install quad gates	Install quad gates across Chynoweth Ave at Monterey Rd				X

Roadway	Type of Change	Description of Change	Alternative			
			1	2	3	4
Monterey Rd	Other roadway change	Close midblock SB left turn into shopping center between Chynoweth Ave and Blossom Hill Rd	X	X	X	
Blossom Hill Rd SB Ramp from Monterey Rd to Blossom Hill	Other roadway change	Reconfigure ramps: Move SB on-ramp to other side of Monterey, access via SB lane pocket		X		
Flintwell Way	Road widening	Widen Monterey Rd at Flintwell Way	X		X	
Monterey Rd	Other roadway change	Remove southbound left turn lane into Hicks Lane	X		X	
Bernal Rd	Road widening	Widen of on-/off-ramps to Monterey Rd	X		X	
Great Oaks Pkwy	Alignment change	Realign Great Oaks Pkwy				X
Morgan Hill and Gilroy						
Monterey Rd	Other roadway change	Remove SB midblock left turn into Roding Way	X	X	X	
Monterey Rd	Other roadway change	Close left turns in and out of Forsum Rd			X	
Monterey Rd	Road widening	Widen from Metcalf Rd to Coyote Ranch Rd	X		X	
Blanchard Rd	Road closure	Close road		X		
Blanchard Rd	Other roadway change	Extend Blanchard Rd to new Emado Ave extension		X		
Blanchard Rd	Install quad gates	Install quad gates across Blanchard Rd at Monterey Rd				X
Monterey Rd	Alignment change	Realign from Blanchard Rd to Cochrane Rd		X		
Emado Rd	Road closure	Close road		X		X
Emado Rd	Other roadway change	Extend Emado Rd to Santa Teresa		X		
Charter Access Rd	Alignment change	Realign access road to charter school		X		
Richmond Ave	Road closure	Convert to cul-de-sac; widen road by adding shoulders				X
Bailey Ave	Alignment change	Realign ramps		X		
Fox Lane	Road closure	Close road		X		X
Fox Lane	Other roadway change	New Fox Court north of closed Fox Lane; new roadway would extend from Dougherty Ave		X		X
Palm Ave	Other roadway change	Remove designated left turn from SB Monterey Rd	X			
Palm Ave	Grade separation	Depress Palm Ave and realign to access Monterey Rd from opposite side of roadway		X		

Roadway	Type of Change	Description of Change	Alternative			
			1	2	3	4
Palm Ave	Install quad gates	Install quad gates across Palm Ave at Monterey Rd				X
Monterey Rd near Ogier	Alignment change	Realign with dogleg	X			
Ogier	Road Closure	Closure of a segment of Ogier.	X		X	
Live Oak Ave	Grade separation	Realign Live Oak Ave to access Monterey Rd from opposite side of roadway		X		
Live Oak Ave	Install quad gates	Install quad gates across Live Oak Ave at Monterey Rd				X
Tilton Ave	Road closure	Close road		X		
Tilton Ave	Install quad gates	Install quad gates across Tilton Ave at Monterey Rd				X
Monterey Rd	Other roadway change	Rebuild existing Monterey Rd underpasses				X
Madrone Pkwy	Grade separation	Realign Madrone Pkwy to access Monterey Rd from opposite side of roadway; extend roadway to new intersection at Hale Ave		X		
Monterey Rd	Alignment change	Realign Monterey Rd	X	X		
East Central Ave	Road closure	Realign East Central Ave cul-de-sac to the east		x		
East Main Ave	Grade separation	Widen and modify road; no changes to Monterey Rd access		X		
East Main Ave	Install quad gates	Install quad gates across East Main Ave				X
Depot St	Road closure	Close access from Depot St to Main Ave due to grade separation		X		
Diana Ave	Road closure	Relocate Diana Ave cul-de-sac to the east		X		X
East Dunne Ave	Grade separation	Widen and modify road; no changes to Monterey Rd access		X		
East Dunne Ave	Install quad gates	Install quad gates across East Dunne Ave				X
San Pedro Ave	Road closure	Relocate cul-de-sac to west of HSR	X		X	
San Pedro Ave	Grade separation	Rebuild San Pedro Ave; no changes to Monterey Rd access		X		
San Pedro Ave	Install quad gates	Install quad gates across San Pedro Ave				X
Railroad Ave	Alignment change	Modify and realign Railroad Ave roadway between Barrett Ave and Maple Ave		X		
Barrett Ave	Alignment change	Realign access to Saint John Court	X		X	
Tennant Ave	Grade separation	Build new underpass along Tennant; realign roadway; replace Railroad Ave with new frontage road that provides access to Barrett Ave and Maple Ave		X		

Roadway	Type of Change	Description of Change	Alternative			
			1	2	3	4
Tennant Ave	Install quad gates	Install quad gates across Tennant Ave				X
Fisher Ave	Road closure	Close and relocate cul-de-sac to west of HSR	X		X	
Caputo Drive	Road closure	Close off Caputo Dr. access to Tennant Ave and convert to a cul-de-sac		X		
East Middle Ave	Grade separation	Realign grade separation		X		
East Middle Ave	Install quad gates	Install quad gates across East Middle Ave				X
Monterey Rd	Other roadway change	Provide midblock SB left turn 450 feet north of Carl Court		X		
Monterey Rd	Alignment change	Realign from East Middle Ave to San Martin Ave; build new bridge over Llagas Creek		X		
Colony Ave	Alignment change	Connect Colony Ave to San Martin Ave		X		
Oak St	Grade separation	Rebuild Oak St; no changes to access on Monterey Rd		X		
East San Martin St	Grade separation	Build new underpass; realign and rebuild road; convert access to Monterey Rd to T-intersection and shift to west side of roadway; provide new access onto East San Martin St from Colony Ave and Llagas Ave		X		
East San Martin St	Install quad gates	Install quad gates across East San Martin St at Monterey Rd				X
Lincoln Ave	Road closure	Convert Lincoln Ave to cul-de-sac south of realigned San Martin Ave		X		
South St	Other roadway change	Shorten South St	X		X	
Church Ave	Grade separation	Realign Church Ave to access Monterey Rd from opposite side of roadway		X		
Church Ave	Install quad gates	Install quad gates and new traffic signal across Church Ave at Monterey Rd				X
Lena Ave	Road closure	Convert Lena Ave to a cul-de-sac		X		
Masten Ave/Fitzgerald Ave	Grade separation	Depress Monterey Rd; realign Masten Ave and Fitzgerald Ave to access Monterey Rd		X		
Masten Ave/Fitzgerald Ave	Install quad gates	Install quad gates across Masten Ave at Monterey Rd				X
Rucker Ave	Grade separation	Realign Rucker Ave to access Monterey Rd from opposite side of roadway		X		
Rucker Ave	Install quad gates	Install quad gates and new traffic signal across Rucker Ave at Monterey Rd				X

Roadway	Type of Change	Description of Change	Alternative			
			1	2	3	4
Monterey Rd	Other roadway change	Depress roadway to conform with Buena Vista Ave grade separation		X		
Denio Ave	Road closure	Convert Denio Ave to a cul-de-sac		X		
Buena Vista Ave	Grade separation	Build new underpass; realign and widen road; T-intersection with realigned Monterey Rd on west side of existing Monterey road alignment		X		
Buena Vista Ave	Install quad gates	Install quad gates and new traffic signal across Buena Vista Ave at Monterey Rd				X
Cohansey Ave	Road closure	Close road			X	
Cohansey Ave	Alignment change	Realign to merge with Las Animas Ave		X		
Cohansey Ave	Install quad gates	Install quad gates and new traffic signal across Cohansey Ave at Monterey Rd				X
Farrell Ave	Alignment change	Realign to merge with Las Animas Ave and Cohansey Ave		X		
Las Animas Ave	Grade separation	Realign to merge with Cohansey Ave		X	X	
Las Animas Ave	Install quad gates	Install quad gates across Las Animas Ave at Monterey Rd				X
Marcella Ave	Other roadway change	Build new road north and parallel to Leavesley Rd to connect the station to Marcella Ave			X	
New road north of Leavesley Rd	Other roadway change	Build new road north and parallel to Leavesley Rd west of HSR			X	
New road parallel to Marcella Ave	Other roadway change	Build new road parallel to Marcella Ave connecting Leavesley Rd to Las Animas, adjacent to Gilroy outlets			X	
Leavesley Rd	Grade separation	Build new underpass		X		
Leavesley Rd	Grade separation	Build new overpass			X	
Leavesley Rd	Install quad gates	Install quad gates across Leavesley Rd at Monterey Rd				X
Casey St	Grade separation	Build new underpass		X		
Wheeler St	Road closure	Shorten and convert to a cul-de-sac		X		
IOOF Ave	Grade separation	Build new underpass; demolish existing bridge		X		
IOOF Ave	Install quad gates	Install quad gates across IOOF Ave at Monterey Rd				X
Lewis St	Grade separation	New underpass		X		
Lewis St	Install quad gates	Install quad gates across Lewis St at Monterey Rd				X
Martin St	Road closure	Close road		X		

Roadway	Type of Change	Description of Change	Alternative			
			1	2	3	4
Martin St	Install quad gates	Install quad gates across Martin St at Monterey Rd				X
Railroad St	Road closure	Close road	X	X		X
East 6th St	Other roadway change	Build new underpass		X		
East 6th St	Install quad gates	Install quad gates across East 6th St at Monterey Rd				X
East 6th St	Alignment change	Realign		X		
Gilman Ave	Grade separation	Rebuild Gilman Ave over HSR tracks			X	
Old Gilroy St	Road closure	Close road at realigned 7th St	X			X
Old Gilroy St	Grade separation	Build new underpass along East 7th St; sever access to Railroad St, which becomes an HSR access road		X		
East 7th St	Alignment change	Realign and extend to Alexander St	X	X		
East 7th St	Road closure	Close road				X
East 9th St	Grade separation	Build new underpass; extend road to connect from Alexander St to Monterey Rd		X		
East 10th St	Grade separation	Build new underpass		X		
East 10th St	Install quad gates	Install quad gates across East 10th St at Monterey Road				X
Sheldon Ave	Road closure	South side to cul-de-sac; south side abandoned.	X	X		
Banes Lane	Other roadway change	Extend for access to new parking and cul-de-sac for access to system site	X	X		X
East Luchessa Ave	Install quad gates	Install quad gates across East Luchessa Ave at Monterey Rd				X
Bloomfield Rd	Grade separation	Build new overpass; realign road; build new roads from Bloomfield for access to maintenance facility and systems site	X	X		
Bloomfield Rd	Install quad gates	Install quad gates across Bloomfield Rd				X
Holsclaw Rd	Road closure	Close road			X	
Holsclaw Rd	Alignment change	Realign to connect with SR 152 grade separation			X	
Frazier Rd	Grade separation	Build new overpass	X	X		
SR 152	Grade separation	Build new overpass; realign road; provide on-ramp access from existing Holsclaw Rd and Frazier Lake Rd			X	
Carnadero Ave	Road closure	Close road closure				X
Frazier Lake Rd	Grade separation	Rebuild intersection with SR 152 and reconfigure to maintain access			X	

Roadway	Type of Change	Description of Change	Alternative			
			1	2	3	4
SR 152/Pacheco Pass Hwy	Road widening	Widen road; build additional turn-out and transition lane on westbound SR 152 and additional left turn lane and transition lane on eastbound SR 152 (additional lanes provide queueing space for vehicles going from SR 152 to TPSS site)	X	X	X	X
Pacheco Pass						
N Romero Rd	Alignment change	Realign N Romero Rd	X	X	X	X
San Joaquin Valley						
Fahey Rd	Alignment change	Realign Fahey Rd	X	X	X	X
Volta Rd	Road closure	Realign intersection and close roadway to the north of Henry Miller Rd	X	X	X	X
Henry Miller Rd	Grade separation	Realign road near Volta Rd	X	X	X	X
Henry Miller Rd	Other roadway change	Build new road from Badger Flat Rd to Nantes Ave along south of HSR	X	X	X	X
Johnson Rd	Road closure	Close road losure	X	X	X	X
Nantes Ave	Road closure	Close road	X	X	X	X
Mercey Springs Rd	Grade separation	Rebuild intersection as grade-separated and realign to access Henry Miller Rd as T-intersection	X	X	X	X
Santa Fe Grade	Road closure	Close road	X	X	X	X
Baker Rd	Road closure	Close road	X	X	X	X
Midway Rd	Road closure	Close road	X	X	X	X
Box Car Rd	Road closure	Close road	X	X	X	X
Delta Rd	Grade separation	Rebuild intersection as grade-separated and realign to access Henry Miller Rd as T-intersection	X	X	X	X
Turner Island Rd	Grade separation	Rebuild intersection as grade-separated and realign to access Henry Miller Rd as T-intersection	X	X	X	X
Hutchins Rd	Road closure	Close road	X	X	X	X
Carlucci Rd	Grade separation	Build new grade separation; reconfigure intersection access to Henry Miller Rd	X	X	X	X

Source: Authority 2019a
I = interstate
SR = state route
SB = southbound
HSR = high-speed rail

All alternatives would be constructed in accordance with applicable engineering design standards. Transportation network modifications, including roadway closures and modifications would not substantially increase hazards because of a design feature (such as sharp curves or dangerous intersections) or the introduction of an incompatible use, as discussed further in Section 3.11, Safety and Security.

Across all alternatives, most road closures would occur in unincorporated Merced County along Henry Miller Road, which would be rebuilt with a number of new grade-separated roadways and eight road closures under each alternative. Roadway modifications and realignments would be distributed along the length of the alternatives. There would be no closures or changes to any public roads in Pacheco Pass.

Alternative 1 would construct a viaduct to downtown Gilroy. On Monterey Road, the viaduct would run down the median of the roadway, resulting in a road diet and expansion of the raised center median to accommodate the additional space required by the viaduct structure. This road diet would reduce through lanes from six lanes to four between Southside Drive and Bernal Way and close a number of turn pockets. The viaduct would continue through Morgan Hill and Gilroy, resulting in closure of a midblock left turn lane on Monterey Road and the closure of Railroad Street near the Downtown Gilroy Station.

Alternative 2 would construct an embankment to downtown Gilroy. The alignment would be constructed between Monterey Road and the existing UPRR tracks. This alternative would reconstruct Monterey Road to shift the right-of-way to the east. Monterey Road would be narrowed at the same places as Alternative 1 but would have more turn pocket closures. Under this project alternative, the southbound on-ramp from Monterey Road to Blossom Hill Road would be removed and reconstructed on the east side of the roadway. The embankment would continue through Morgan Hill and Gilroy along Monterey Road. A large number of grade separations and intersection reconfigurations would be built in Morgan Hill, San Martin, and Gilroy. Five minor streets would also be closed and traffic redirected to parallel local routes. The roadway changes around the Downtown Gilroy Station would be the same as Alternative 1, except that the extension of 9th Street through the station area from Monterey Road to Alexander Street would not be built under Alternative 2.

Alternative 3 would construct a viaduct east of Gilroy. The roadway changes to Monterey Road and through most of Morgan Hill and Gilroy would be identical to Alternative 1. There would be no changes around the existing Downtown Gilroy Station because the HSR station would be in east Gilroy. The changes to the roadway network in east Gilroy would include two local road closures and four new roadway grade separations.

Alternative 4 would be built at grade to downtown Gilroy. The alignment would be built as a blended system with two electrified tracks for HSR and Caltrain and a separate non-electrified track for freight and other passenger services. The alternative would construct pick-up and drop-off spaces throughout the San Jose Diridon Station area that would differ from Alternatives 1, 2, and 3, and it would not include the extension of Cahill Road through to Park Avenue. The alternative would not narrow Monterey Road as would occur under the other alternatives. New quad gates would be installed at all at-grade rail crossings. The roadway changes around the Downtown Gilroy Station would be the same as Alternative 1, except for the extension of 9th Street through the station area from Monterey Road to Alexander Street, which would not be built under Alternative 4. Access to a parking lot off Alexander Street would be provided on Alexander Street and Chestnut Street, while Alternatives 1 and 2 would only provide access from Alexander Street.

The Authority studied the effects of these permanent closures under the Existing Plus Project conditions. Of the 20 freeway segments studied in the RSA, six segments would operate at LOS E or F under the Existing Plus Project conditions under Alternatives 1, 2, and 3. Two of the freeway segments, on US 101 between the lane drop north of Masten Avenue and SR 85 and from SR 85 to Bernal Road, would have a V/C ratio of more than 0.04 over the existing conditions and would therefore be affected by the project. The increase in vehicle traffic on the freeway would be due to diversion of traffic away from the reduction of capacity on Monterey Road with Alternatives 1, 2, and 3. No freeway segments would be affected by Alternative 4, because this

alternative would not reduce capacity on Monterey Road. Volume 2, Appendix 3.2-A, Table 12, shows the results for the Existing Plus Project freeway LOS.

CEQA Conclusion

Changes to the geometry and capacity of roadways (as shown in Table 3.2-14) under Alternatives 1, 2, and 3 in the Existing Plus Project conditions would increase automobile delays on freeway segments in the Monterey Corridor Subsection. These delays would not occur under Alternative 4. Under CEQA, automobile delay is not a significant environmental impact.

Impact TR#4: Permanent Delay/Congestion Consequences on Intersections from Permanent Road Changes

Project construction would require changes and closures throughout the roadway network to accommodate the stations, platforms, track alignment, and MOWFs. The locations of permanent road closures and relocations are described in Impact TR#3: Permanent Delay/Congestion Consequences on Freeways and Roadways from Permanent Road Closures and Relocations. Volume 2, Appendix 3.2-A, Table 12, presents the results for Existing Plus Project LOS at intersections by subsection. Intersections would be affected by the project if operations were to degrade to LOS E or F and result in an increase in average traffic delay of 4 or more seconds for signalized intersections and 5 seconds or more for unsignalized intersections, over the baseline condition.

In the San Jose Diridon Station Approach Subsection, the permanent closures and modifications to the roadway network would result in some shifting of traffic, but there would be no changes to the capacity of modified roadways. In this subsection, none of the 50 intersections studied would operate at LOS E or F.

In the Monterey Corridor Subsection, the effects of permanent road changes are more pronounced. The road diet on Monterey Road would reduce capacity on the corridor, creating increased congestion and delays on Monterey Road that would shift traffic to the surrounding roadway network. For Alternatives 1 and 3, 17 out of 46 intersections studied would operate at LOS E or F, and 13 of these intersections would be affected by the project. For Alternative 2, 16 out of 46 intersections studied would operate at LOS E or F, and 12 of these intersections would be affected by the project. For Alternative 4, 11 of 46 intersections studied would operate at LOS E or F, but none of these intersections would be affected by the project. Alternative 4 would have fewer effects because Monterey Road would not be narrowed. Alternative 2 would have fewer effects than Alternatives 1 and 3 because of lower volumes at key intersections where traffic would be diverted by the removal of turn lanes. Under Alternative 2, both Skyway Drive Variants A and B were studied. Variant A would connect Skyway Drive to Monterey Road with a connector ramp to create a three-leg intersection, while Variant B would connect Monterey Road to Skyway Drive to create a four-leg intersection. Variant A would have higher intersection delays than Variant B.

In the Morgan Hill and Gilroy Subsection, there would be changes to the roadway network under Alternatives 2 and 4. Under Alternative 1, four of the 101 intersections studied would operate at LOS E or F, and one of these intersections would be affected by the project. Under Alternative 2, seven intersections would operate at LOS E or F and four of those intersections would be affected by the project. Under Alternative 3, four intersections would operate at LOS E or F and one would be affected by the project. Under Alternative 4, six intersections would operate at LOS E or F and two would be affected by the project.

No major physical changes would occur to the roadway network in the Pacheco Pass Subsection; therefore, effects on intersections were not analyzed for this subsection. In the San Joaquin Valley Subsection, one existing intersection, SR 165 and Henry Miller Road, would be affected by the project, but it does not currently operate at LOS E or F. The project would rebuild the intersection under all four project alternatives and would build a new intersection, but the LOS would not degrade to E or F.

CEQA Conclusion

The changes to the geometry and capacity of intersections under Alternatives 1, 2, and 3 would result in automobile delay. These delays would not occur under Alternative 4. Automobile delay is not a significant impact under CEQA.

Operations Impacts

The project would be fully operational in 2029 and 2040, with trains servicing passengers at San Jose Diridon Station and the Gilroy station. Trains would be maintained at the Gilroy MOWF. Passengers traveling to the station areas and maintenance workers traveling to MOWFs in vehicles would add vehicle trips to the roadway network. Chapter 2, Alternatives, describes the project's operations and maintenance activities.

Vehicle trips around the stations would increase because of the addition of passengers and HSR workers traveling to station areas. Many of these trips would occur during peak hours. In 2029, the project would generate approximately 400 peak hour vehicle trips at San Jose Diridon Station, approximately 360 peak hour vehicle trips at the Downtown Gilroy Station, and approximately 410 peak hour vehicle trips at the East Gilroy Station. In 2040, the project would generate approximately 1,100 peak hour vehicle trips at San Jose Diridon Station, approximately 690 peak hour vehicle trips at the Downtown Gilroy Station, and approximately 750 peak hour trips at the East Gilroy Station. This added traffic combined with traffic shifts caused by the Monterey Road lane reduction in Alternatives 1, 2, and 3, and delays from gate down time in Alternative 4 would lead to increased volume, congestion, and delays on freeways and at intersections.

Impact TR#5: Continuous Permanent Impacts on Vehicle Miles Traveled

When operational, the HSR system would divert vehicle trips from airports and other intercity travel hubs and would shift vehicle trips to train trips. This diversion of trips, even with the addition of new trips at the stations and maintenance facilities, would change regional and statewide travel patterns. Overall, the impacts of these shifts and changes would reduce VMT. In 2029, the annual total No Project VMT in Santa Clara County would be 12.186 billion miles and the annual With Project VMT would be 12.027 billion miles, a reduction of 159 million miles. In San Benito County, the annual interregional No Project VMT would be 733 million miles and the annual With Project VMT would be 633 million miles, a reduction of 99 million miles. In Merced County, the annual interregional No Project VMT would be 1.507 billion miles and the annual With Project VMT would be 1.381 billion miles, a reduction of 125 million miles. In 2040, the annual total No Project VMT in Santa Clara County would be 13.201 billion miles and the annual With Project VMT would be 12.972 billion miles, a reduction of 230 million miles. In San Benito County, the annual interregional No Project VMT would be 846 million miles and the annual With Project VMT would be 676 million miles, a reduction of 170 million miles. In Merced County, the annual interregional No Project VMT would be 1,842 billion miles and the annual With Project VMT would be 1.642 billion, a reduction of 200 million miles. This reduction in VMT would be the same for all four project alternatives, as ridership and trip diversion associated with the project alternatives would be the same. For the 2029 and 2040 Plus Project conditions, vehicle trips around the stations would increase because of the addition of passengers and HSR workers traveling to station areas. The impacts at the stations would be offset by the overall decrease in VMT throughout the region and the state.

CEQA Conclusion

The impact under CEQA would be less than significant for all four project alternatives because the 2029 and 2040 Plus Project conditions would not result in a net increase of VMT over the baseline condition. The project would result in an overall decrease in VMT throughout the region and the state, resulting in a beneficial impact on VMT. The project would also be fully consistent with CEQA Guidelines Section 15064.3. Therefore, CEQA does not require mitigation.

Impact TR#6: Continuous Permanent Delay/Congestion Consequences on Freeway Operations

The 2029 and 2040 Plus Project conditions are presented in Volume 2, Appendix 3.2-A, Tables 4 and 6, respectively. High demand volumes in 2029 and 2040 under Plus Project conditions would

result in increased congestion and a degradation of LOS. Project traffic and traffic shifted from the Monterey Road road diet would degrade LOS on some segments.

Under Alternatives 1, 2, and 3, two northbound segments along US 101 in the Monterey Corridor Subsection in southern San Jose would be affected in the AM peak hour under 2029 Plus Project conditions. The first segment, at the southbound lane drop north of Masten Avenue to SR 85, would experience an increase in the V/C ratio from 0.98 to 1.04 under 2029 Plus Project conditions compared to the 2029 No Project conditions. The second segment, at SR 85 to Bernal Road, would experience an increase in the V/C ratio from 1.19 to 1.23. Both segments would operate at LOS F under the 2029 No Project conditions and would remain at a LOS F under the 2029 Plus Project conditions. Under Alternative 4, no freeway segments studied would be affected under 2029 Plus Project conditions. Additional delays from gate down time at the at-grade crossings would shift traffic to US 101, but would not substantially degrade the LOS on any freeway segments.

Under Alternatives 1, 2, and 3, two northbound segments along US 101 in the Monterey Corridor Subsection in southern San Jose would be affected in the AM peak hour under 2040 Plus Project conditions. The first segment, at the southbound lane drop to SR 85, would experience an increase in the V/C ratio from 1.01 to 1.07 under 2040 Plus Project conditions compared to the 2040 No Project conditions. The second segment, at SR 85 to Bernal Road, would experience an increase in the V/C ratio from 1.24 to 1.29 under 2040 Plus Project conditions compared to the 2040 No Project conditions. Both segments would operate at a LOS F under the No Project conditions and would remain at a LOS F under the 2040 Plus Project conditions. Under Alternative 4, no freeway segments studied would be affected under 2040 Plus Project conditions. Additional delays from gate down time at the at-grade crossings would shift traffic to US 101, but would not substantially degrade the LOS on any freeway segments.

CEQA Conclusion

Alternatives 1, 2, and 3 would increase automobile delays for two segments of US 101 in the Monterey Corridor Subsection in southern San Jose. The permanent reduction in traffic lanes on Monterey Road would redistribute traffic, resulting in degradation of LOS and an increase in the V/C ratio over No Project conditions on segments of US 101. These delays would not occur under Alternative 4 to the same degree, if at all, because Monterey Road would not experience lane reductions that would cause traffic redistribution to result in LOS degradation or an increase in the V/C ratio. Automobile delay is not a significant impact under CEQA.

Impact TR#7: Continuous Permanent Delay/Congestion Consequences on Intersection Operations

Intersection LOS by subsection under 2029 No Project and 2029 Plus Project conditions are presented in Volume 2, Appendix 3.2-A, Tables 14 and 16 respectively. Under 2029 Plus Project conditions in the San Jose Diridon Station Approach Subsection, 19 intersections would operate at LOS E or F and 14 of these intersections would be affected by the project under Alternatives 1, 2, and 3. All 14 affected intersections would experience effects in the AM peak hour, while only 9 of these intersections experience effects in the PM peak hour. Under Alternative 4, 19 intersections would operate at LOS E or F and 9 of these intersections would be affected by the project. LOS was calculated using the weighted average of delay of all movements of an intersection. Therefore, when fewer trips are added to a movement that is already experiencing high delay, it is more likely to cause a degradation in LOS than when more trips are added to a movement that is experiencing lower delay. Although more intersections operate at LOS E or F in the PM peak hour, project trips would be added to movements experiencing high delay at more intersections in the AM peak hour. Although there are fewer affected intersections under Alternative 4 in the San Jose Diridon Station Approach Subsection, there would be more substantial effects at the at-grade crossings and on Autumn Boulevard and Montgomery Street in the station area from additional gate down time at the at-grade crossings and the absence of the Cahill Street extension to Park Avenue.

Intersection effects by subsection under 2040 No Project and 2040 Plus Project conditions are presented in Volume 2, Appendix 3.2-A, Tables 14 and 16 respectively. Under 2040 No Project

conditions, 26 intersections would operate at LOS E or F. Under 2040 Plus Project conditions in the San Jose Diridon Station Approach Subsection, 26 intersections would operate at LOS E or F and 16 of these intersections would be affected by the project under Alternatives 1, 2, and 3. Under Alternative 4, 25 intersections in this subsection would operate at LOS E or F and 11 of these intersections would be affected by the project.

In 2029 No Project conditions in the Monterey Corridor Subsection, 20 intersections would operate at LOS E or F. 2029 Plus Project conditions in the Monterey Corridor Subsection under Alternatives 1 and 3, 29 intersections would operate at LOS E or F and 23 of these intersections would be affected by the project. Under Alternative 2, 28 intersections would operate at LOS E or F, and 23 of those intersections would be affected by the project. This high level of congestion is due to the high demand volumes throughout this corridor and constrained roadway choice. Under Alternative 2, both Skyway Drive Variants A and B were studied. Variant A would connect Skyway Drive to Monterey Road with a connector ramp that would create a three-leg intersection, while Variant B would connect Monterey Road to Skyway Drive with a four-leg intersection. Both variants would operate at LOS F in both peak hours, although Variant A would have higher intersection delays than Variant B. Under Alternative 4, 24 intersections would operate at LOS E or F and 5 of those intersections would be affected by the project. Alternative 4 would cause fewer effects than the other alternatives in this subsection because it would not reduce lane capacity on Monterey Road.

In 2040 No Project conditions in the Monterey Corridor Subsection, 30 intersections would operate at LOS E or F. In 2040 Plus Project conditions in the Monterey Corridor Subsection under Alternatives 1 and 3, 32 intersections would operate at LOS E or F and 25 of these intersections would be affected by the project. Under Alternative 2, 31 intersections would operate at LOS E or F, and 26 of those intersections would be affected by the project. The same configurations under Alternative 2 for Skyway Drive Variant A and B were studied in the 2040 Plus Project conditions; both variants would operate as LOS F during both peak hours. Under Alternative 4, 33 intersections would operate at LOS E or F and 5 of those intersections would be affected by the project. As in 2029, Alternative 4 would have fewer effects than the other alternatives in this subsection because it would not reduce lane capacity on Monterey Road.

In the 2029 Plus Project conditions in the Morgan Hill and Gilroy Subsection under Alternative 1, 18 intersections would operate at LOS E or F and 9 of these intersections would be affected by the project. Under Alternative 2, 20 intersections would operate at LOS E or F and 12 of these intersections would be affected by the project. Under Alternative 3, 11 intersections would operate at LOS E or F and 4 of these intersections would be affected by the project. Under Alternative 4, 18 intersections would operate at LOS E or F and 13 of these intersections would be affected by the project. Alternative 3 would cause the fewest effects because the East Gilroy Station location would be removed from the downtown area. Alternative 2 would cause more effects than Alternatives 1 and 3 because of the larger number of roadway modifications of the at-grade track alignment. Alternative 4 would cause the most effects because of the increased gate down time at the at-grade crossings through downtown Gilroy. Relatively low demand volumes, even with added project traffic, would create conditions where most studied intersections in Morgan Hill and Gilroy would not have demand volumes that degrade conditions beyond an acceptable level.

In 2040 Plus Project conditions in the Morgan Hill and Gilroy Subsection under Alternative 1, 19 intersections would operate at LOS E or F and 8 of these intersections would be affected by the project. Under Alternative 2, 22 intersections would operate at LOS E or F and 13 of these intersections would be affected by the project. Under Alternative 3, 16 intersections would operate at LOS E or F and 2 of these intersections would be affected by the project. Under Alternative 4, 28 intersections would operate at LOS E or F and 15 of these intersections would be affected by the project. Alternative 3 would cause the fewest effects because of station location in east Gilroy would be removed from the downtown area. Alternative 2 would cause more effects than Alternatives 1 and 3 because of the larger number of roadway modifications of the at-grade track alignment. Alternative 4 would cause the most effects from the increased gate down time at the at-grade crossings through downtown Gilroy. Relatively low demand volumes,

even with added project traffic, would create conditions where most studied intersections in Morgan Hill and Gilroy would not have demand volumes that degrade conditions beyond an acceptable level.

No major physical changes to the roadway network in the Pacheco Pass Subsection would occur. Therefore, effects on intersections were not studied for this subsection.

In the San Joaquin Valley Subsection, the one intersection studied at SR 165 and Henry Miller Road would be permanently converted to two intersections during project construction under all four project alternatives. In the 2029 and 2040 No Project conditions, the existing intersection would degrade to LOS F. In the 2029 and 2040 Plus Project conditions, both intersections would operate at an acceptable level.

CEQA Conclusion

The project would result in traffic delays at some intersections under all project alternatives in the San Jose Diridon Station Approach, Monterey Corridor, and Morgan Hill and Gilroy Subsections. Automobile delay is not a significant impact under CEQA.

3.2.6.3 Parking

No Project Conditions

The No Project conditions would be the same as described in Section 3.2.6.2. Growth in the Bay Area and the San Joaquin Valley would continue through the 2040 planning horizon, and the development and transportation projects listed in Appendices 3.18-A and 3.18-B would be implemented, contributing to pressure on transportation systems and parking availability. It is anticipated that parking conditions would evolve as people alter their modes and patterns of travel in response to changing land uses and transportation options under the No Project conditions.

Project Impacts

Construction Impacts

Impact TR#8: Temporary Construction-Related Effects on Parking

Temporary Effects during Construction (in areas other than San Jose Diridon Station/SAP Center)

Construction activities in urban areas associated with station, platform, and track alignment construction would require temporary removal of public parking. These activities would result in decreased parking availability and increased vehicle congestion and queuing around areas with decreased parking supply. MOWFs and construction activities in rural areas are not expected to remove or disrupt existing parking.

Any closure or removal of parking areas or roadways during construction would be temporary. Every attempt would be made to minimize their removal, shorten the length of time that these facilities are inoperable, and provide signage directing users to alternate facilities. Upon completion of construction, all parking areas would be restored.

To minimize effects on public on-street parking, the contractor would identify temporary locations to accommodate off-street parking for all construction-related vehicles (TR-IAMF#3). If adequate parking cannot be provided on the construction sites, the contractor would designate existing off-site remote parking areas in the CTP and, if the remote parking areas are distant from the construction site, would provide shuttles to carry construction workers to and from the construction area.

Temporary Effects during Construction adjacent to San Jose Diridon Station and SAP Center

Project construction would temporarily displace parking adjacent to the Diridon Station and the SAP Center, affecting San Jose Diridon Station and SAP Center users.

As shown in Table 3.2-15, Alternatives 1, 2, and 3 would affect up to 2,083 publicly available parking spaces and Alternative 4 would affect up to 397 publicly available parking spaces. These totals include parking within the temporary construction footprint. At any one time, some of this parking may be available for station or special event users, but this analysis conservatively assumes that temporary loss of these spaces may occur at the same time. Construction of the

San Jose Diridon Station and approaches and related parking displacement could take 2 to 2.5 years.

The loss of up to 2,083 (Alternatives 1, 2, and 3) or 397 (Alternative 4) parking spaces adjacent to San Jose Diridon Station during construction would affect 15 percent (Alternatives 1, 2, 3) or 3 percent (Alternative 4) of the approximately 13,695 total publicly available parking spaces within 0.5 mile of the station and 61 percent (Alternatives 1, 2 and 3) or 12 percent (Alternative 4) of 3,390 total publicly available parking spaces within 0.33 mile of the station.[10]

The amount of parking still available for use under Alternatives 1, 2, and 3 within 0.33 mile of the San Jose Diridon Station (1,307 spaces) or under Alternative 4 (2,993 spaces) would not meet the parking obligations specified in the Arena Management Agreement between the SAP Center and the City of San Jose (3,175 spaces). All alternatives would leave sufficient parking outside construction areas (11,612 spaces under Alternatives 1, 2, and 3; 13,298 spaces under Alternative 4) to meet agreement requirements relative to the 0.5 mile radius requirements (6,175 spaces).[11]

Per TR-IAMF#8, project construction contractors would identify adequate off-street parking using existing remote parking areas or vacant land to replace any temporary displacement of parking utilized for special events at the SAP Center on a 1:1 basis during construction. Contractors would arrange for shuttle vehicles between the remote parking areas and the SAP Center for any remote parking areas that are more than 0.5 mile from the SAP Center. Contractors would also work with the SAP Center to provide advance and real-time information about parking availability for special events during times in which construction displaces existing available special event parking.

[10] The count of total available spaces takes into account the temporary loss of 755 spaces during BART Phase II construction.

[11] The count of total available spaces takes into account the loss of 715 spaces permanently displaced by the BART Phase II Extension.

Table 3.2-15 Displacement of Parking Adjacent to San Jose Diridon Station

Location	Total Spaces	Alts 1,2,3 Temporary	Alt 4 Temporary	Alt 1, 2, 3 Permanent	Alt 4 Permanent	Notes
SAP Center Lots A, B, and C	1,422	1,422	81	247	52	Temporarily displaced spaces would be replaced by off-site remote parking and shuttles for special events (TR-IAMF#8). Permanent displacement for Alternatives 1, 2, and 3 includes all existing spaces in footprint. Since the alignment would be on aerial structure over the parking lot, the actual displacement would be less than shown. Permanently displaced spaces would be replaced with a new parking structure on the northern part of the existing lot.
SAP Center Lot D	228	0	0	0	0	
Cahill Lots 1, 2 (northeast of station)	180	0	0	0	0	
Cahill Lot 3 (northeast of station)	162	162	0	0	0	Temporarily displaced spaces would be replaced by off-site remote parking and shuttles for special events (TR-IAMF#8).
Cahill Lot 4 (north of station)	148	148	148	148	148	Temporarily displaced spaces would be replaced by off-site remote parking and shuttles for special events (TR-IAMF#8). Permanently displaced spaces would be replaced by new parking structures northwest and east of the station.
Cahill Center Lot (east of station)	90	90	90	0	0	Temporarily displaced spaces would be replaced by off-site remote parking and shuttles for special events (TR-IAMF#8).
Cahill Lots (south of Station)	78	78	78	78	78	Temporarily displaced spaces would be replaced by off-site remote parking and shuttles for special events (TR-IAMF#8).
Stephen's Meat Loaf	135	68	0	68	0	Temporarily displaced spaces would be replaced by off-site remote parking and shuttles for special events (TR-IAMF#8). Permanently displaced spaces would be replaced by new parking structures northwest and east of the station.
Navlets	65	65	0	65	0	Permanently displaced spaces would be replaced by new parking structures northwest and east of the station.

Location	Total Spaces	Alts 1,2,3 Temporary	Alt 4 Temporary	Alt 1, 2, 3 Permanent	Alt 4 Permanent	Notes
Palermo and adjacent	70	0	0	0	0	
On-Street Parking	95	50	0	0	0	Temporarily displaced spaces would be replaced by off-site remote parking and shuttles for special events (TR-IAMF#8).
TOTAL	**2,578**	**2,083**	**397**	**606**	**278**	

The feasibility of providing replacement off-street parking spaces during construction per TR-IAMF#8 is supported by the *San Jose Diridon Station Area Parking Study* (as described in VTA and FTA 2018: pages 5-104–5-107) and additional research by the Authority. The parking study was prepared by the City of San Jose in collaboration with VTA, Caltrain, the Authority, and Sharks Sports and Entertainment to identify interim parking solutions to help address effects during construction of various improvements. Available land in the area was evaluated for use for interim parking during 2018–2025. The study identified four possible sites that could accommodate more than 1,400 total parking spaces that met the goals and needs of interim parking for stakeholders. These sites are all within 0.5 mile from San Jose Diridon Station and at the intersections of Montgomery Street and West St. John Street, Montgomery Street and San Fernando Street, and Montgomery Street and Park Avenue (two lots). Of these parking spaces, 525 are within 0.33 mile. In addition to the lots identified in the parking study, as described in Section 3.2.5.3, there are additional parking areas within 0.5 mile that will not be affected by construction that can also provide additional special event parking opportunities. Also, as noted in Section 3.2.5.4, an additional 4,798 public parking spaces (open 24 hours) as well as private parking areas between 0.5 mile and 1 mile of the San Jose Diridon Station would be available in downtown San Jose as well as additional parking areas beyond 1 mile of the station that could be utilized with remote parking shuttles. Based on this evidence, there are sufficient opportunities for off-street parking in the San Jose Diridon Station and SAP Center area to offset temporarily displaced parking spaces for special events.

In addition, San Jose Diridon Station is an existing multimodal transportation center in San Jose's downtown urban core. It is served by several transit modes including VTA's light rail and express and local bus service, ACE, Amtrak, Capitol Corridor, and regional bus lines to Alameda and Santa Cruz Counties. This station is well connected to the City's and County's regional bicycle network and is well-served with pedestrian facilities. Consequently, many multimodal options are available for SAP Center customers and transit riders to access the station during construction.

Operations Impacts

Impact TR#9 Permanent Effects Related to Parking

Permanent Effects during Operations (Downtown Gilroy Station/East Gilroy Station)

The FRA and the Authority have a strategy for long-term coordination with local transit agencies and cities to develop transit connectivity plans for HSR station areas and for connectivity to neighboring communities where high HSR ridership is projected. This strategy, as outlined in LU-IAMF#2, is expected to minimize the overall demand for parking at stations by facilitating alternative methods of station access (refer to *HST Station Area Development: General Principles and Guidelines* [Authority 2011]). LU-IAMF#2 would improve connections to HSR stations, reducing the demand for HSR parking. Therefore, parking included in the project footprint, in combination with other access modes, would be sufficient to meet projected 2040 demand.

As shown in Table 3.2-3, the total number of trips related to parked vehicles in 2040 would be 2,100 at the Downtown Gilroy Station (Alternatives 1, 2, and 4) and 2,700 at the East Gilroy Station (Alternative 3). Each parking space is associated with 1.66 trips (as some vehicles are parked for multiple days). As shown in Table 3.2-4, the average number of passengers per parked car for the Gilroy stations is 1.31. Consequently, the daily access/egress trips associated with the Downtown Gilroy Station would create an additional demand for 966 parking spaces (beyond current existing demand); daily trips associated with the East Gilroy Station would create a demand for 1,242 parking spaces.

At the Downtown Gilroy Station (Alternatives 1, 2, and 4), HSR would provide an additional 970 spaces, exceeding the projected 2040 additional demand for 966 parking spaces. The total resultant parking spaces would be 1,710 spaces including the new parking spaces. All displaced parking at the Downtown Gilroy Station would be replaced at a 1:1 ratio.

At the East Gilroy Station (Alternative 3), HSR would provide 1,520 new parking spaces, exceeding the projected 2040 demand of 1,242 spaces; no compensatory parking would be

needed, because this would be a new station and there would be no displacement of existing parking spaces.

Because the parking provided at the Gilroy stations would exceed the additional parking demand created by HSR riders, there would be no need for construction of additional off-site parking facilities and there would be no secondary environmental effects from construction of such facilities and no secondary effects (e.g., traffic, VMT, air quality, noise, safety, land use, socioeconomic effects) caused by insufficient parking supply.

Permanent Effects during Operations (San Jose Diridon Station and SAP Center)

Permanent Loss of Existing Parking

As shown in Table 3.2-15, Alternatives 1, 2, and 3 would permanently displace up to 247 and Alternative 4 would permanently displace up to 52 publicly available parking spaces in the SAP Center Lots A, B, and C. For Alternatives 1, 2, and 3, the total includes all parking spaces within the viaduct footprint. However, there would be an opportunity for some parking beneath the viaduct between the viaduct columns; consequently, the actual amount of displacement would be less than 247. Replacement parking (on a 1:1 basis for all alternatives) would be provided in a new parking structure on the north side of SAP Center Lots A, B, and C.

As shown in Table 3.2-15, all alternatives would permanently displace up to 226 publicly available parking spaces in and around San Jose Diridon Station. Replacement parking (on a 1:1 basis) would be provided in new parking facilities on the northwest side of the intersection of Stockton Avenue and The Alameda (all alternatives), near the intersection of Cahill Street and Crandall Avenue (Alternatives 1, 2, and 3), and near the intersection of Cahill Street and Park Street (Alternative 4).

There would no permanent loss of parking caused by the project compared to No Project conditions.

Increased Parking Demand

As shown in Table 3.2-3, the total number of trips related to parked vehicles in 2040 would be 2,340 at the San Jose Diridon Station. Each parking space is associated with 1.66 trips (as some vehicles are parked for multiple days). As shown in Table 3.2-4, the average number of passengers per parked car for the San Jose Diridon Station is 1.33. Consequently, the daily access/egress trips associated with the San Jose Diridon Station would create an additional demand for 1,060 parking spaces (beyond current existing demand).

The increased HSR demand of 1,060 parking spaces would affect 31 percent of the approximately 3,430 publicly available parking spaces within 0.33 mile of the San Jose Diridon Station and 8 percent of the approximately 13,735 parking spaces within 0.5 mile.[12] As noted in Section 3.2.5.3, San Jose Diridon Station and SAP Center Parking, there are 4,798 public parking spaces between 0.5 and 1 mile from the San Jose Diridon Station as well as private parking lots, and additional parking opportunities more than 1 mile from the station, including at the San Jose International Airport.

The Authority would rely on commercially available parking to meet HSR parking demand, provided and priced in accordance to local conditions.

The SAP Center (capacity of approximately 17,500) is similar to the Oakland Coliseum/Oracle Arena (capacity of approximately 19,600), which is adjacent to the Coliseum BART Station (although the walk to the SAP Center is shorter, with the San Jose Diridon Station being directly across the street). There are approximately 170 events at the SAP Center each year and 200 events at the Oakland Coliseum/Oracle Arena. In 2016, of tickets sold for Oakland Coliseum/Oracle Arena events, 20 to 30 percent of patrons accessed the event from the Coliseum BART station.

[12] These calculations take into account the permanent loss of 715 spaces due to the BART extension.

The final supplemental EIS/EIR for the BART Phase II Extension (VTA and FTA 2018: pages 5-104–5-107) proposed a more conservative estimate of 10 percent of patrons (1,750) accessing SAP Center events by BART. Assuming a vehicle occupancy of 2.5 persons per vehicle for SAP patrons, a 10 percent BART mode share would reduce parking demand by 700 spaces, which would nearly offset the loss of 715 spaces caused by the BART Phase II Extension. In addition to new BART service, the PCEP would also increase peak hour capacity of the San Jose Diridon Station by 20 percent over existing conditions, increasing transit rider access to the SAP Center and resulting in additional offset of parking demand. With the SAP Center served in the future by BART, electrified Caltrain, VTA light rail, rapid bus, and intercity bus service, a 10 percent transit mode share is considered highly conservative, and a 20 to 30 percent transit mode share can be anticipated.

A 20 to 30 percent mode shift would reduce parking demand by 1,400 to 2,100 cars per event (assuming 2.5 persons per vehicle)[13]. Assuming a 20 percent increase in transit share, the transit increase would offset demand for 1,400 parking spaces, leaving a net increased demand of 375 parking spaces (increase demand due to permanent loss of 715 parking spaces due to BART and 1,060 spaces of demand due to HSR riders minus the offset of 1,400 parking spaces). This net demand of 375 parking spaces would affect 11 percent of the approximately 3,430 remaining publicly available parking spaces within 0.33 mile of Diridon Station and 3 percent of the approximately 13,735 parking spaces within 0.5 mile.[14] As noted in Section 3.2.5.3, San Jose Diridon Station and SAP Center Parking, there are an additional 4,798 public parking spaces between 0.5 and 1 mile from the San Jose Diridon Station, as well as private parking lots and additional parking opportunities more than 1 mile from the station, including at the San Jose International Airport. Assuming a 30 percent increase in transit share, the transit increase would offset demand for 2,100 parking spaces, which would more than offset the loss of 715 spaces due to BART and the 1,060 parking space demand for HSR riders. In any case, there would be adequate remaining parking in the general proximity of the SAP Center for SAP Center patrons.

The decision to not provide park-and-ride facilities for HSR service at San Jose Diridon Station is consistent with the *Envision: San Jose 2040 General Plan*, Commercial Downtown Land Use Plan Policies and Transportation Policies (adopted November 2011). The Commercial Downtown Land Use Policies state that “all development within this designation should enhance the ‘complete community’ in downtown, support pedestrian and bicycle circulation, and increase transit ridership. The Downtown Urban Design Policies speak to the urban, pedestrian-oriented nature of this area. As such, uses that serve the automobile should be carefully controlled in accordance with the Downtown Land Use Policies.”

San Jose’s Transportation Goals, Policies, and Actions aim to establish circulation policies that increase bicycle, pedestrian, and transit travel, while reducing motor vehicle trips, to increase the City’s share of travel by alternative transportation modes. The policy of Goal TR-1.3, Balanced Transportation System, is to “increase substantially the proportion of commute travel using modes other than the single-occupant vehicle. The 2040 commute mode split target for San Jose residents and workers are presented in Table TR-1”, which displays the goal for Drive alone as no more than 40 percent and Transit as at least 20 percent (City of San Jose 2018). San Jose Diridon Station is intended to be in alignment with the City’s mode shift goal.

The Authority initiated the San Jose Diridon Station Intermodal Working Group to coordinate the planning, design, and delivery of concurrent and interrelated transportation infrastructure projects: HSR, BART Phase II, and PCEP. The Authority has funded two grants to prepare the station area for HSR operations, including the development of strategies to address the supply, demand, and management of parking in the station area. The grant to the City of San Jose funded an evaluation of short-term and long-term parking needs during construction and operation of both

[13] The assumption of 2.5 passengers/vehicle for SAP patrons is based on a factor of 2.41 passengers/vehicle from a study of passengers/vehicle for the Oakland Coliseum (Authority 2019b) that was rounded up to 2.5. No data were located for passengers/vehicle for the SAP Center.

[14] These calculations take into account the permanent loss of 715 spaces due to the BART extension.

HSR and BART Phase II, and is supporting several site-specific parking studies in the San Jose Diridon Station area to develop a Parking Program for the Diridon Station Area Plan. The grant to VTA is to prepare a San Jose Diridon Station Facilities Master Plan to address both station and station area facilities, criteria for replacing any parking displaced for new station facilities, and a program to manage the evolution of parking demand and supply over time to reflect changes in ridership and park-and-ride mode share. The City of San Jose and VTA studies will inform a multimodal access plan, which will be developed prior to design and construction of the station. This plan will be developed in coordination with local agencies and will include a parking strategy that will inform the final location, amount, and phasing of parking.

The San Jose Diridon Station is well served by existing multimodal options that are planned to improve with the Caltrain electrification and BART extension projects, which would increase transit options for SAP customers and transit riders to access the station. HSR service would only add to the many multimodal options available to travelers with the San Jose Diridon Station as their intended destination. In view of these characteristics, the project's increased parking demand is not expected to result in insufficient parking for either the San Jose Diridon Station or the SAP Center or to result in the construction of additional remote parking facilities.

Indirect Environmental Effects Related to the Diridon Station and SAP Center

As previously described, the project would replace all permanently displaced parking with nearby replacement parking facilities on a 1:1 basis. The project's demand for additional parking can be met by existing parking facilities, especially in light of the increased transit service planned for San Jose Diridon Station. The SAP Center's parking demand can similarly be met through the combination of existing parking facilities, the replacement parking facilities provided by the project, and the offsetting effect on parking demand caused by planned increases in transit services. Thus, no new additional remote parking facilities would be required to meet these demands.

While parking demands can be met, because of the BART Phase II Extension permanent displacement of 715 spaces near the San Jose Diridon Station and the potential for some HSR riders to use spaces near the station, it is possible that some station users and SAP Center patrons would need to use more distant parking spaces. The extensive information on available parking provided by Caltrain, City of San Jose (Park San Jose), the SAP Center, and private vendors and the increasing use of web-based and mobile applications (including real-time applications) means that most station users and SAP Center patrons would be able to readily locate parking without extensive circling. Furthermore, parking information would be advanced through integrated planning by the City of San Jose, VTA, the Authority, and other partners as development in the station area advances, such that information available by the time HSR is operational would be superior to that currently available. While there may some minor increases in local travel due to the use of slightly more remote lots, this local travel is expected to be more than offset by the overall reduction in parking demand resulting from increased transit service.

Potential secondary environmental effects of the use of slightly more remote parking facilities are reviewed below:

- **Transportation**—Minor increases in circling could contribute to traffic congestion on streets near the San Jose Diridon Station and SAP Center as well as minor increases in VMT. However, as previously discussed, the net demand for parking is expected to decrease due to transit service expansion (including planned Caltrain service increases as well as the additions of new BART and HSR service) which would more than offset any effects caused by the use of more remote parking facilities. In addition, the HSR project would substantially reduce overall VMT, also reducing traffic on major roadways accessing downtown San Jose.
- **Air Quality**—As previously discussed, overall parking demand is expected to decrease, even taking into account the loss of parking caused by the BART Phase II project and the increased parking demand of HSR, such that vehicle emissions caused by localized use of more remote parking lots would be more than offset. Furthermore, as described in Section 3.3, Air Quality and Greenhouse Gases, local intersections most affected by project-

related traffic do not have sufficient traffic volumes to trigger local carbon monoxide hot spots. Finally, the project overall would substantially reduce regional criteria pollutants.

- **Noise**—As previously discussed, with an overall net reduction in parking demand resulting from increased transit service, the increased use of more remote parking lots is not expected to substantially change traffic volumes or traffic noise. Furthermore, as described in Section 3.4, Noise and Vibration, project-related traffic noise near stations would not result in an increase in noise levels above the project-related train noise.
- **Safety**—As described in this section and in Section 3.11, Safety and Security, the area around the San Jose Diridon Station and the SAP Center is well served by existing roadway, transit, bicycle, and pedestrian facilities. Existing pedestrian facilities connect remote lots to the station and the SAP Center. Increased use of remote parking lots would not increase safety risks for people accessing the station or the SAP Center.
- **Land Use**—Parking at the San Jose Diridon Station would be accommodated in existing lots, with the additional construction of two small new lots. The construction of the proposed new parking lots near the San Jose Diridon Station to accommodate demand would not create land use conflicts because they would be consistent with applicable plans, would be compatible with adjacent land uses under existing zoning, and would not ultimately change existing conditions for adjacent land uses outside the project area or change land use patterns. Since the project would not result in the construction of new remote parking lots (other than those included in the project description), the project would not displace any additional land uses or disrupt existing land use patterns through construction of any such additional remote parking lots.

Socioeconomic Effects

As previously discussed, demand for all modes of access to the San Jose Diridon Station and the SAP Center, including parking, can be accommodated through existing parking facilities, project parking facilities, and the offsetting reduction of parking demand through the increase in transit service. Consequently, the SAP Center is not expected to experience a reduction in patronage for special events. The recent experience of other downtown sports and event-serving arenas in transit-accessible locations further supports a conclusion that the economic vitality of the SAP Center would not be adversely affected and may actually receive a benefit (Authority 2019b).

Over the last 20 years, 18 new arenas have been built for National Basketball Association and National Hockey League franchise teams in the U.S. Fifteen arenas are in downtown, transit-accessible locations adjacent to central business districts to maximize access and competitiveness to attract regional market demand for sports and entertainment events. A downtown arena location adjacent to a central business district offers the opportunity to benefit from regional transit and highway access created for commuters, the sharing of off-peak employment parking, and direct walking access for the downtown employment base to events.

Several new arenas, such as the Golden 1 Center for the Sacramento Kings, the Chase Center for the Golden State Warriors, and the Little Caesar's Arena for the Detroit Pistons and the Red Wings are part of an American trend where cities—not the suburbs—have returned as the primary generators of the nation's economic growth according to the Federal Reserve. In the effort to reduce GHG emissions and fight climate change, U.S. cities are transitioning away from auto-dependence by investing in transit and TOD. Arenas are contributing to and benefiting from this urban downtown renaissance, with billion-dollar public and private investments in transit and mixed-use TOD composed of office, retail, and housing. This resurgence of downtowns is attracting millennials as well as baby boomers to the vibrancy of urban living without needing a car.

Research on event day parking information for the 18 National Basketball Association and National Hockey League arenas built over the last 20 years demonstrates that downtown arenas are benefiting from regional transit service and the use of shared parking to meet event travel demand. Parking is priced based on proximity and convenience to the venue, with highest cost premium convenience parking adjacent to the arena and lower cost options located a 5- to 10-

minute walk (or more) from the arena. Transit service is adjacent to or within a short walk of most of these facilities and, in some cases, additional event day transit service is offered. Websites such as StadiumParkingGuide.com provide maps with the location, availability, and pricing of event parking so attendees can make choices on how to most conveniently and affordably access the event in advance or at the time of the event.

All these venues, including the SAP Center, ranked in the top 100 venues worldwide in ticket sales in 2018 by Pollstar Magazine, indicating that a transit-accessible downtown location supports economic success.

CEQA Conclusion

The impact under CEQA would be less than significant for all four project alternatives because secondary environmental effects on transportation, air quality, noise, safety, or land use related to parking would either not occur or would be less than significant using the thresholds for evaluation of these subjects. The temporary displacement of existing parking from construction activities would be managed through project features, including temporary replacement of any displaced parking for special events at the SAP Center. Permanently displaced parking spaces at the San Jose Diridon Station and SAP Center area would be replaced on a 1:1 basis to preclude permanent loss of parking spaces for station users or SAP Center patrons. The increase in parking demand caused by HSR riders at the San Jose Diridon Station would be accommodated through existing parking facilities, project parking facilities, and the offsetting effect of increased transit service to the San Jose Diridon Station such that no non-project remote parking facilities would need to be built. The project would not result in significant secondary environmental effects (on transportation, air quality, noise, safety, or land use) related to parking demands or non-project remote parking facilities. Therefore, CEQA does not require mitigation.

3.2.6.4 Transit

Construction and operations of the project alternatives would result in temporary and permanent impacts on bus transit operations and temporary impacts on passenger rail operations. Project construction would disrupt roadway and rail transit services. Project operations would increase the number of station passengers and would change the demand for transit services at the shared San Jose Diridon Station and the downtown Gilroy station. Project operations would also include use of Caltrain rail lines between I-880 and Scott Boulevard under Alternative 1.

No Project Conditions

The No Project conditions are the same as those described in Section 3.2.6.2, Roadways, Freeways, and Intersections (Vehicle Circulation). Population in Santa Clara, San Benito, and Merced Counties is projected to increase through 2029 and 2040. Development projects to accommodate projected population growth, including residential, commercial, industrial, recreational, and transportation projects, would continue under the No Project conditions and would result in increased demands on transit services and the resulting need to continue expanding transit services.

The No Project conditions include the implementation of transit projects identified and funded in *Plan Bay Area 2040* (ABAG and MTC 2017) and other plans identified in Section 3.2.2.3, Regional and Local. These projects include new or enhanced rail and bus facilities to expand transit capacity and performance in the RSA. The 2029 and 2040 No Project transit improvements, which are shown in Table 3.2-16, would primarily affect San Jose Diridon Station.

Table 3.2-16 2029 and 2040 No Project Transit Improvements

Project Name	Description
Peninsula Corridor Electrification Project	The PCEP will include the installation of electrification infrastructure including traction power facilities, poles and OCS, and EMUs along over 50 miles of the Caltrain corridor between San Francisco and San Jose. Advanced signal systems will be installed to increase operational safety and establish a communication-based overlay signal system, known as positive train control, and the existing diesel locomotive-hauled fleet for service from Tamien north to San Francisco will be replaced with EMUs to facilitate the Blended Caltrain and HSR System. The PCEP does not include electrification of service south of the Tamien Station and does not include any changes in diesel commuter rail service between the Gilroy station and the Tamien Station. PCEP is planned for completion by 2022.
BART to Silicon Valley	The BART to Silicon Valley project would implement a 16-mile extension from Warm Springs Station in Fremont to Santa Clara in two phases. Phase I, the Berryessa Extension Project, would connect Warm Springs to new stations in Milpitas and Berryessa, while Phase II would connect Berryessa Station to new stations in Alum Rock, downtown San Jose, San Jose Diridon Station, and Santa Clara. This project is planned for completion by 2025.
VTA Bus Rapid Transit Projects	The Santa Clara/Alum Rock BRT project would enhance service for 7.2 miles at 11 planned stations, from the Eastridge Transit Center to the Arena Station in downtown San Jose using Capitol Expressway, Alum Rock Avenue, and Santa Clara Street. The project would include enhanced bus stops along Santa Clara Street near San Jose Diridon Station and dedicated bus lanes along a portion of Alum Rock Avenue. This project was substantially completed in 2017. The Stevens Creek BRT project would upgrade the current VTA Limited 323 bus route that travels along Stevens Creek Boulevard and San Carlos Street between De Anza College in Cupertino and the Downtown San Jose Transit Mall in San Jose. BRT service would also extend east to the Eastridge Transit Center along the Santa Clara–Alum Rock corridor. A stop is planned at the intersection of Bird Avenue and San Carlos Street approximately 2,000 feet from San Jose Diridon Station. The new service (Rapid 523) started at the end of 2019.
VTA Light Rail Extensions	The Capitol Expressway light rail extension would extend light rail service approximately 2.5 miles from Alum Rock Station to the Eastridge Transit Center, adding two new stations at Storey Road and Eastridge. This project is planned for completion by 2025. The Vasona light rail extension Phase II would extend light rail service approximately 1.6 miles from Winchester Station to SR 85 in Los Gatos. The schedule for completion has not been established.
TAMC Monterey County Rail Extension	The Monterey County Rail Extension Project would extend passenger rail service from Santa Clara County south to Salinas. The initial phase (called the "Kick Start Project) includes Salinas train station circulation improvements, train layover facility, and Gilroy track improvements and two daily round trips. Future phases will expand up to six round trips as demand warrants. Construction is starting in 2019 for the first phase. The schedule for subsequent phases has not been established.

Sources: Caltrain 2017; VTA 2017a,; ABAG and MTC 2017
BART = Bay Area Rapid Transit System
BRT = bus rapid transit
EMU = electric multiple unit train
HSR = high-speed rail
OCS = overhead contact system
PCEP = Peninsula Corridor Electrification Project
SR = State Route
TAMC = Transportation Agency for Monterey County
VTA = Santa Clara Valley Transportation Authority

After implementation of the PCEP project, rail service would increase along the project extent. Twenty-two trains would be added between Santa Clara Station and San Jose Diridon Station, totaling 138 passenger trains per day. South of San Jose Diridon Station, future rail service would

remain less concentrated: between San Jose Diridon Station and Tamien Station, the corridor would serve 46 passenger trains per day, while south of Tamien Station the corridor would continue to serve six passenger trains per day.

Project Impacts

Construction Impacts

Impact TR#10: Temporary Impacts on Bus Transit

Project-related construction staging and traffic would interfere with bus transit along roadways and at the existing San Jose Diridon and Downtown Gilroy Stations. The construction of the HSR stations, platforms, and track alignment would require TCEs. The TCEs would require the temporary closure of parking areas, bus stops, transit stations, or roadway travel lanes. Any closure of bus stops, transit stations, roadways, or transit lines during construction would be temporary.

The impact of roadway, bus stop, or bus line routing changes would depend on the location and duration of these changes. Impacts on bus facilities would include the following:

- Temporary closure and relocation of bus stops.
- Temporary rerouting of bus lines because of temporary roadway closures.
- Temporary closure of parking to accommodate relocated bus facilities.
- Temporary closure and relocation of sidewalks, crosswalks, and curb ramps used to access bus stops.

In accordance with the construction management plan (CMP) and CTP, the contractor would attempt to provide temporary bus stops, parking areas, and access with the same features and amenities that the relocated facility had, such as lighting, seating, shelters, and signage. However, some riders would experience inconvenience and changes in access. Rerouting and detours of bus lines would increase travel time for passengers. Increased travel times and modified access would temporarily reduce bus ridership for the duration of construction.

Alternatives 1, 2, and 3 would have more effects than Alternative 4 in the Monterey Corridor Subsection. The lane narrowing on Monterey Road under Alternatives 1, 2, and 3 would result in more temporary bus stops than Alternative 4, which would not require lane narrowing.

The contractor would attempt to minimize disruption or shorten the length of time that transit facilities are inoperable and would provide signage to alternate facilities. Upon completion of construction, the contractor would restore parking areas, bus stops, and roadway travel lanes. To minimize conflicts with transit during construction, the contractor would prepare a specific CMP (TR-IAMF#11) to maintain transit access and safe and adequate access for these users during construction. In addition, the CTP would include methods to minimize construction traffic. A CTP traffic control plan would include provisions to maintain transit flows and access, minimize operations hazards through alternative access and bus route detour provisions, minimize transit schedule disruptions, identify temporary bus stops away from construction locations, and separate transit users from construction locations. Implementation of standard construction practices would establish construction truck routes, restrictions on construction hours, and construction vehicle parking.

CEQA Conclusion

The impact under CEQA would be significant for all four project alternatives because construction vehicles or temporary roadway closures would interfere with bus routes and bus stops, which, in turn, would materially decrease the performance of certain bus routes. Changes to bus routes and bus stops would be managed through development and implementation of a CMP and CTP, but material decreases in certain bus routes would still occur. The CMP and CTP would include methods to maintain bus transit operations and access including traffic control methods, safe alternate access locations, restrictions on construction hours, designated truck routes, and construction vehicle parking to minimize operations hazards and interference with the local

roadway network. Decreases to the performance of bus transit facilities would be minimized through implementation of plans to control and manage construction vehicle traffic; however, material decreases in the performance of certain bus routes would still occur. No mitigation measures are available to address this impact.

Impact TR#11: Temporary Impacts on Passenger Rail Operations

Project-related construction, staging, and traffic would contribute to temporary interference with passenger rail transit. The construction of the HSR stations, platforms, and track alignment would require TCEs. The TCE may require the temporary closure of transit stations, passenger rail platforms, and passenger rail track for other operators where the systems interface. Any closure of passenger rail stations, platforms, and track during construction would be temporary (on the scale of hours or days except as related to the Caltrain College Park Station for certain alternatives). Where passenger rail stations are closed (other than College Park), temporary stations would be established to avoid cessation of service at that station. The key areas of disruption to passenger rail systems are summarized as follows, including estimated locations (from north to south) and estimated durations of disruption.

Alternative 3 would have the least disruption to passenger rail operations during construction, followed by Alternative 1 and Alternative 4. Alternative 2 would have the most disruption to passenger rail operations during construction.

Alternative 1 would include the following locations of potential disruption to passenger rail operations:

- **Entire route**—Alternative 1 would include some utility relocation work at discrete locations, but this is not expected to result in delay or closure of passenger rail service.
- **San Jose Diridon Station Approach Subsection**—Alternative 1 would require relocation of three existing tracks, MT-1, MT-2 and MT-3 from north of I-880 to Julian Street. During connection of the existing tracks to the new tracks, the existing track may shut down for 1 to 2 days (on weekends if feasible), which would affect Caltrain, ACE, Amtrak, and Capitol Corridor service. Alternative 1 would also require a rebuild of the Caltrain College Park Station and the tracks leading into the station; this station would be shut down for 1 to 2 years. At San Jose Diridon Station, construction of the aerial HSR station would require closure of one platform (two tracks) at a time; the station would continue to operate for Caltrain, ACE, and Capitol Corridor, but during peak times there would be more congestion with the closure of two tracks and one platform. Alternative 1 would cross over the Caltrain Corridor just east of the SR 87 crossing. Construction of the crossovers has the potential for several-day closures (on weekends if feasible). South of West Alma Avenue to CP Lick, Alternative 1 would require relocation of the existing tracks eastward, affecting Caltrain and Amtrak service during the several days of connecting existing track and new track.
- **Monterey Corridor Subsection**—Alternative 1 would cross over the UPRR right-of-way where it enters Monterey Road near Fehren Drive with potential for several-day closures (on weekends if feasible) that would affect Caltrain and Amtrak service.
- **Morgan Hill and Gilroy Subsection**—Alternative 1 would cause no major disruptions except at the Downtown Gilroy Station where the UPRR tracks would be relocated from just north to south of the station, which may result in several days of disruption to Caltrain and Amtrak service.
- **Pacheco Pass Subsection and San Joaquin Valley Subsection**—Alternative 1 would not disrupt passenger rail service east of Gilroy.

Alternative 2 would include the following locations of potential disruption to passenger rail operations:

- **Entire route**—Alternative 2 would relocate utilities at discrete locations, but this is not expected to result in delay or closure of passenger rail service.

- **San Jose Diridon Station Approach Subsection**—Alternative 2 would require relocation of two tracks, MT-1 and MT-2 from just south of Scott Boulevard to CP Coast and relocation of three tracks, MT-1, MT-2, and MT-3 from CP Coast to just south of I-880. During connection of the existing tracks to the new tracks, there may be a shutdown of the existing track for 1 to 2 days (on weekends if feasible), which would affect Caltrain, ACE, Amtrak, and Capitol Corridor service. At San Jose Diridon Station and south of the station, Alternative 2 would have the same impacts as Alternative 1.
- **Monterey Corridor Subsection**—Alternative 2 would cross over the UPRR right-of-way when it enters Monterey Highway near Fehren Drive with potential for closures of 1 to 2 days (on weekends if feasible). Alternative 2 would include grade separations that cross the UPRR right-of-way at Skyway Drive, Branham Avenue, and Chynoweth Avenue, each of which would result in 1- to 2-day closures (on weekends if feasible). Alternative 2 would also require the temporary relocation of the Caltrain Capitol and Blossom Hill Stations. Temporary stations would be built along the Caltrain right of way in adjacent/nearby areas prior to closure of the existing station and shoofly tracks (bypass tracks) would be built at the existing stations. The temporary stations would be in operation for 1 to 3 years. In south San Jose south of Menard Avenue from UPRR MP 58.1 to MP 59.4 at the PG&E Metcalf Station, approximately 1.3 miles of the UPRR tracks would be realigned. Caltrain and Amtrak service would be closed for several days during connection of the new tracks to the existing tracks.
- **Morgan Hill and Gilroy Subsection**—Alternative 2 would require the temporary relocation of the Caltrain Morgan Hill, San Martin, and Gilroy Stations. Temporary stations would be built along the Caltrain ROW in nearby/adjacent areas prior to closure of existing stations and shoofly tracks (bypass tracks) would be built at the existing stations. Alternative 2 would include grade separations that cross the UPRR right-of-way at 18 locations,[15] each of which would result in 1- to 2-day closures (on weekends if feasible). Alternative 2 would also require track relocation in the following areas: approximately 1.8 miles of tracks from south of Maple Avenue (near UPRR MP 69.5) to just south of San Martin Avenue (near MP 71.3); approximately 1.5 miles of UPRR tracks from south of Cohansey Avenue (near MP 75.1) to IOOF Avenue (between MP 76.6 and 76.7); and approximately 1.4 miles from 6th Street (MP 77.1) to south of US 101 (approximately MP 78.5). Caltrain and Amtrak service would be closed for several days at each track realignment location during connection of the new tracks to the existing tracks.
- **Pacheco Pass Subsection and San Joaquin Valley Subsection**—Alternative 2 would not disrupt passenger rail service south or east of Gilroy.

Alternative 3 would include the following locations of potential disruption to passenger rail operations:

- **Entire route**—Alternative 3 would include some utility relocation work at discrete locations, but this is not expected to result in delay or closure of passenger rail service.
- **San Jose Diridon Station Approach Subsection**—Alternative 3 would have the same impacts as Alternative 2.
- **Monterey Corridor Subsection**—Alternative 3 would have the same impacts as Alternative 1.
- **Morgan Hill and Gilroy Subsection**—Alternative 3 would not cause major disruptions to passenger rail service.
- **Pacheco Pass Subsection and San Joaquin Valley Subsection**—Alternative 3 would not disrupt passenger rail service east of Gilroy.

[15] Palm Avenue, Live Oak Avenue, Madrone Parkway, East Dunne Avenue, Barrett Avenue, San Pedro Avenue, Tennant Avenue, East Middle Avenue, East San Martin Street, Oak Street, Church Avenue, Masten Avenue, Leavesley Road, IOOF Avenue, Lewis Street, 6th Street, Old Gilroy Street, and 10th Street.

Alternative 4 would include the following locations of potential disruption to passenger rail operations:

- **Entire route**—Alternative 4 would include some utility relocation work at discrete locations, but this is not expected to result in delay or closure of passenger rail service.
- **San Jose Diridon Station Approach Subsection**—North of San Jose Diridon Station (De La Cruz Boulevard to Santa Clara Street), Alternative 4 would include a new dedicated freight track between CP Coast and CP Shark, the construction of which may result in periodic disruption to passenger service on adjacent tracks. The College Park station would be rebuilt and San Jose Diridon Station would be modified. From San Jose Diridon Station to CP Lick (Park Ave to Daylight Way), Alternative 4 would convert the current double-track corridor to three tracks with a single dedicated track for freight, ACE, Amtrak, and Capitol Corridor and two electrified tracks under a cantilever overhead contact system (OCS) for Caltrain and HSR. This track configuration will maintain current capacity for UPRR, ACE, Amtrak, and Capitol Corridor and the planned increases for Caltrain with the Peninsula Corridor Electrification Project and the proposed HSR service. Bridges over Bird Avenue and Delmas Avenue would be modified to accommodate three tracks. The Michael Yard would be reconfigured.
- **Monterey Corridor Subsection**—Between CP Lick and CP Coyote, Alternative 4 would convert the corridor to a single dedicated freight track and two electrified tracks under OCS, which would require track shifts. The Caltrain Capitol and Blossom Hill Stations would be rebuilt.
- **Morgan Hill and Gilroy Subsection**—Alternative 4 would convert the corridor to a single dedicated freight track and two electrified tracks under OCS, requiring track shifts. Alternative 4 would replace the rail bridge across the Upper Llagas Creek floodway. The Caltrain Morgan Hill and San Martin Stations would be rebuilt. Alternative 4 would include reconfiguration of the Gilroy station to accommodate UPRR, HSR, Caltrain, Amtrak, and TAMC, and would add a freight rail spur to supply HSR maintenance facility.
- **Pacheco Pass Subsection and San Joaquin Valley Subsection**—Alternative 4 would not disrupt passenger rail service east of Gilroy.

The contractor would attempt to minimize disruption to passenger rail facilities or shorten the length of time that these facilities would be inoperable. To minimize conflicts with passenger rail transit caused by construction, the contractor would repair any damaged sections to the equivalent of their original structural condition or better and would implement scheduling and the use of existing alternative tracks where available. As noted in Alternative 2, contractors would construct a shoofly track, a temporary track that allows trains to bypass construction sites (TR-IAMF#9) for the temporary relocation of the Caltrain Capitol, Blossom Hill, Morgan Hill, San Martin, and Gilroy Stations. When connecting existing tracks to shoofly tracks, there may be a temporary period of service disruption. The temporary disruption would occur over several hours to several days. Where feasible, the contractor would schedule cessation of passenger rail service during the night or on weekends to minimize disruption of passenger rail service. Upon completion, HSR contractors would open and repair tracks or construct new mainline track, and remove the temporary shoofly track.

The contractor would identify specific measures in the CMP (TR-IAMF#11) to maintain transit access and safe and adequate access for transit users during construction activities. In addition, the CTP would include methods to minimize construction traffic. A traffic control plan developed as part of the CTP would include provisions for maintaining traffic flow and access and minimizing operations hazards through alternative access and detour provisions, routes for construction traffic, and scheduled transit access. The contractor would establish construction truck routes, restrictions on construction hours, and construction parking as part of the CTP. While

implementation of the CMP would control passenger rail operations and minimize disruption, there would still be residual disruptions to passenger rail operation at times.

CEQA Conclusion

The impact under CEQA related to temporary disruption would be significant for all four project alternatives because of the disruptions expected in the San Jose Diridon Station Approach Subsection that would decrease the performance of multiple public transit systems. In addition, Alternative 2 would also have significant disruptions in the Monterey Corridor and Morgan Hill and Gilroy Subsections. The contractor would minimize disruption to passenger rail transit through construction of new or alternative tracks to continue service, maintenance of transit access, and implementation of traffic control measures to maintain traffic flow and access. Despite these measures, construction would still disrupt passenger rail operations in the San Jose Diridon Station Approach (all alternatives) and the Monterey Corridor and Morgan Hill and Gilroy Subsections (Alternative 2). Temporary construction conditions would materially decrease the performance of passenger rail operations. Mitigation measures to address this impact are identified in Section 3.2.9, CEQA Significance Conclusions. Section 3.2.7, Mitigation Measures, describes these measures in detail.

Impact TR#12: Permanent Impacts on Bus Transit

Project construction would require modifications and closures throughout the roadway network to accommodate the stations, platforms, track alignment, and MOWFs. The permanent road closures and relocations are described in detail under Impact TR#4.

Permanent road closures and reduction in roadway capacity on Monterey Road would shift vehicle trips and reduce capacity along high-frequency VTA bus routes (routes with service every 15 minutes or less), contributing to bus performance delay for VTA's bus services. These changes, implemented for Alternatives 1, 2, and 3, would redirect traffic in the area, affecting five high-frequency bus routes on Monterey Road. Project-related roadway modifications would contribute to delay for all VTA bus routes that operate on Monterey Road, including Routes 522, 64, 66, 68, and 70. The project-related roadway modifications would affect bus on-time performance and operating speeds. The reduction in the number of travel lanes on Monterey Road between Capitol Expressway and Blossom Hill Road, consistent with the *Envision: San José 2040 General Plan* (City of San Jose 2018), would reduce the capacity of Monterey Road. Alternative 4 would not reduce the number of travel lanes on Monterey Road and would not affect these bus routes in the Monterey Corridor. In the Downtown Gilroy Station area, Alternative 4 would affect high-frequency VTA bus route 68 through project-related roadway closures.

CEQA Conclusion

The impact under CEQA would be significant for Alternatives 1, 2, and 3 because the project would decrease the performance of five high-frequency bus routes and would be significant under Alternative 4 because the project would decrease the performance of one high-frequency bus route. Mitigation Measures to address this impact are identified in Section 3.2.9, CEQA Significance Conclusions. Section 3.2.7, Mitigation Measures, describes these measures in detail.

Operations Impacts

Impact TR#13: Continuous Permanent Impacts on Bus Services

For the 2029 and 2040 Plus Project conditions, the project would be fully operational. Vehicle trips around the stations would increase because of the addition of HSR passengers and workers traveling to and from station areas. This added traffic would lead to increased volumes, congestion, and delays around San Jose Diridon Station and the Gilroy station. As population and employment would continue to increase between 2029 and 2040, the 2029 No Project conditions would have lower traffic volumes and shorter delays than in 2040. Implementation of the Monterey Road road diet under Alternatives 1, 2, and 3 would reduce capacity on Monterey Road and adjacent roadways, leading to congestion and delays at intersections along Monterey Road and along adjacent roadways. Gate down time at the at-grade crossings under Alternative 4 would increase delay on routes that travel through at-grade crossings.

As detailed in impact TR#7, 27 intersections would operate at LOS E or F in the Monterey Corridor Subsection in the 2029 Plus Project conditions versus 31 in the 2040 Plus Project conditions.

The increased congestion and delay would occur along high-frequency VTA bus routes (routes with service every 15 minutes or less), contributing to bus performance delay for VTA's services. The addition of project-related vehicle trips would affect bus on-time performance and operating speeds. All project alternatives would add project-related trips affecting 10 high-frequency bus routes near San Jose Diridon Station, Monterey Road, and the Gilroy station. Alternative 4 would add gate down time, further affecting one high-frequency bus route in the Monterey Corridor Subsection. Alternatives 1 and 3 would have comparable impacts, while Alternative 2 would have slightly greater impacts on the affected bus routes from higher overall levels of delay at study intersections. Table 3.2-17 shows Plus Project bus performance delay impacts from vehicle trips. The same bus routes would be affected in the 2029 and 2040 Plus Project conditions.

Table 3.2-17 Plus Project Bus Performance Delay Impacts from Vehicle Trips

Subsection	Affected Bus Routes	Alternative
San Jose Diridon	VTA Routes 181, 22, 64, 72, 73, DASH	1, 2, 3 and 4
Monterey Corridor	VTA Routes 522, 64, 66, 68, 70	1, 2, 3 and 4
Monterey Corridor	VTA Route 73	4
Morgan Hill and Gilroy	VTA Routes 64, 66, 68, 70	1, 2 and 4

Source: Authority 2019a
VTA = Santa Clara Valley Transportation Authority

CEQA Conclusion

The impact under CEQA would be significant for all four project alternatives because increased delays at intersections caused by the project would contribute to increased delays on 10 high-frequency bus routes predominantly in San Jose, affecting the performance of bus operations. Mitigation measures to address this impact are identified in Section 3.2.9, CEQA Significance Conclusions. Section 3.2.7, Mitigation Measures, describes these measures in detail.

Impact TR#14: Continuous Permanent Impacts on Passenger Rail and Bus Access

For the 2029 and 2040 Plus Project conditions, the project would be fully operational. Transit, nonmotorized, and vehicle trips around the stations would increase because of the addition of HSR passengers and workers traveling to station areas. Most of these trips would occur during peak hours. The project would generate approximately 700 peak hour transit trips at San Jose Diridon Station, approximately 130 peak hour transit trips at the Downtown Gilroy Station, and approximately 30 peak hour trips at the East Gilroy Station in 2029. In 2040, the project would generate approximately 1,200 peak hour transit trips at San Jose Diridon Station, approximately 230 peak hour transit trips at Downtown Gilroy Station, and approximately 50 peak hour trips at East Gilroy Station. These project-generated transit trips, when added to the non-project–related nonmotorized and vehicle trips around the station areas and transit riders not accessing HSR, create additional demand for station facilities.

Station design would take into account the changes in demand and would provide access for passengers using HSR as well as other bus and passenger rail services. The Authority would work with Caltrain, ACE, Capitol Corridor, VTA, and Amtrak during station design to provide adequate access to all passenger rail and bus services. The project would have dedicated HSR platforms at San Jose Diridon Station and the Gilroy station and thus would have no impact during operations on platform access for other passenger rail services. Project design plans would sufficiently accommodate the operational needs of all modes for affected transportation facilities in the project footprint. By designing for all modes of transportation, including bus and rail transit, these project features would provide permanent adequate access for all passengers in the station area. Alternative 4 would provide improvements to the Caltrain system that are not

provided in Alternatives 1, 2 and 3, including electrified rail south of Tamien and reconstructed Caltrain stations.

CEQA Conclusion

The impact under CEQA would be less than significant for all four project alternatives. Passengers for other passenger rail and bus services would be able to access these services unimpeded, and the project would not materially decrease the performance of these services. Therefore, CEQA does not require mitigation.

Impact TR#15: Continuous Permanent Impacts on Transit Ridership

Because all project alternatives would have the same operational LOS and ridership, the impact analysis applies equally to all alternatives.

HSR riders at HSR stations would create new demands for Caltrain and other transit systems because of transfer from HSR to reach destinations served by these other systems. In addition, HSR would compete with Caltrain for riders from Gilroy and San Jose northward. This analysis focuses on the impacts on systemwide transit ridership and potential secondary physical impacts from transit system improvements to address changes in ridership. Because HSR ridership and service would be greater in 2040 than in 2029, the 2040 analysis serves as a conservative estimate of impacts.

The Authority modeled transit access and egress for HSR passengers from San Jose Diridon Station for 2029 and 2040 and for the Gilroy station options for 2029 and 2040 using the California Statewide Travel Demand Model (Caltrans 2018). As shown in Table 3.2-3, the increase in HSR service over time would result in increased use of connecting transit systems.

The Authority also modeled 2040 Caltrain system ridership using the same model. The Authority modeled both the increase in demand for transfers between Caltrain and HSR and the competitive impact of parallel Caltrain and HSR service to Gilroy, San Jose, Millbrae, and San Francisco. As shown in Table 3.2-18, in 2040, HSR service would result in a net increase in Caltrain ridership by 6.5 percent compared to 2040 No Project conditions.

Table 3.2-18 Changes in Caltrain System Average Weekday Ridership, 2040 Plus Project 2040

Transit System	Existing	2040 No Project	2040 Plus Project	Percent Change Between 2040 No Project and Plus Project
Caltrain[1,2]	62,190	114,527	121,930	6.5

[1] Existing results from Caltrain 2017 ridership report (Caltrain 2017).
[2] 2040 estimates from HSR Statewide Model results for a HSR medium-ridership scenario, using Caltrain Peninsula Corridor Electrification Project EIR assumptions for Caltrain and BART fares and LOS (PCJPB 2015). The statewide model produces results in average daily ridership of 89,049 for 2040 No Project and 94,805 for 2040 Plus Project, which analysts then converted to average weekday ridership based on comparison of the 2016 ratio between average daily and average weekday ridership.
BART = Bay Area Rapid Transit
EIR = environmental impact report
HSR = high-speed rail
LOS = level of service
PCJPB = Peninsula Corridor Joint Powers Board

The primary source of increase to Caltrain ridership would be the increase in HSR riders at San Jose Diridon Station, followed by HSR riders at the Gilroy Station. HSR would have fewer stops than Caltrain service between Gilroy, San Jose, Millbrae, and San Francisco and thus would have shorter travel times, which may result in some Caltrain commuters shifting to HSR to these limited destinations. However, Caltrain would continue to provide service to the five non-HSR stations between Gilroy and San Jose and 24 stations between San Jose and San Francisco and would likely continue to have lower fares. Caltrain would also serve as a feeder service to and from HSR for passengers along the Caltrain service route to access statewide travel with HSR. Overall, the addition of HSR to the corridor from Gilroy to San Jose (and on to San Francisco) would add passenger rail service capacity. It is expected over time that an equilibrium would be reached between Caltrain and HSR service based on the different services that each provides.

The primary source of increase to VTA and BART system ridership would be the increase in HSR riders at San Jose Diridon Station using the existing VTA connections (light rail and bus) and the presumed future BART extension to San Jose Diridon Station. HSR fares would be higher than competing transit services but would provide time savings for some regional commutes. HSR would be competitive with other transit services in time, but not price. HSR would have limited competitive impact on VTA's bus service, because it would be limited to competing with regional bus connections between Gilroy and San Jose, where minimal time savings are achieved. HSR should pose no competition to VTA's light-rail service, as HSR would not serve any of its light-rail destinations other than San Jose Diridon Station. HSR would pose some competition with BART by providing a more direct connection from San Jose to San Francisco, whereas BART service to San Francisco would be via the East Bay. As shown, bus and rail use are expected to increase over time with project operations.

Growth in the region by 2040 would increase demand for increased transit service. HSR is one of many projects in the planning phase to address that increased demand. HSR service would result in increased ridership for other transit feeder systems. If excess capacity is available for other transit service providers, the introduction of new riders would have a net benefit by increasing farebox revenue. Systems that operate at capacity may require changes in service levels and additional transit vehicles. Transit providers must plan for their future needs and build the facilities to meet their system rider demands as feasible given funding availability. Thus, project operations may increase ridership on other transit systems, but would not materially harm the ability of other transit providers to serve their customers and would not conflict with adopted policies, plans, or programs regarding public transit, or otherwise materially decrease the performance of such facilities.

A second concern is whether physical improvements on other transit systems would be needed to accommodate HSR-induced transit ridership and whether they would result in physical impacts on the environment. Caltrain facilities already contain multimodal access and thus the 6.5 percent increase in system ridership should not result in substantial new capital improvements for Caltrain stations beyond what is planned without HSR service. A similar conclusion applies for VTA and BART.

It is not anticipated that the relatively modest increases in HSR-induced ridership for other transit services would require the construction of substantial additional transit infrastructure. Secondary impacts from construction of limited amounts of additional facilities (such as bus stops/shelters) at existing rail, light rail, and bus facilities are not expected to result in secondary environmental impacts; however, improvements by other transit agencies would be the subject of independent environmental analysis.

CEQA Conclusion

The impact under CEQA would be less than significant for all four project alternatives. The project would increase the demand for Caltrain and other transit services, which would enhance the financial viability of these public transit services where excess capacity is available. The project would not materially harm the ability of other transit services to serve their customers and would not conflict with adopted policies, plans, or programs regarding public transit, or otherwise materially decrease the performance of such facilities. Transit service expansions would result in limited physical improvements not likely to result in secondary environmental impacts. Therefore, CEQA does not require mitigation.

Impact TR#16: Continuous Permanent Impacts on Passenger Rail System Capacity

For the 2029 and 2040 Plus Project conditions, the project would be fully operational. All stations, platforms and track alignments would be built and in use.

Most of the Alternatives 1, 2, and 3 alignments would be on dedicated tracks that would not affect other passenger rail systems. For these alternatives, only a small portion of the alignment would be shared by HSR and other passenger rail systems. Under Alternatives 2 and 3, HSR would have dedicated tracks for the entire project extent, from Merced to Scott Boulevard. Under Alternative 1, HSR would have dedicated tracks from Merced to just south of I-880 in San Jose, where HSR would transition to blended service on shared tracks (MT-2 and MT-3) with Caltrain from I-880 to Scott Boulevard. Under Alternative 4, HSR and Caltrain would have blended

operations between Gilroy and San Jose and between San Jose and San Francisco. The project would have no impact on capacity for other passenger rail operations (ACE, Capitol Corridor, Amtrak) as these other services all use MT-1.

The Authority evaluated blended service with Caltrain between San Jose and San Francisco using operational modeling for the San Francisco to San Jose Project Section (Authority 2017). The analysis focused on the blended service between I-880 and Scott Boulevard under Alternative 1. The model has shown that average Caltrain service times between San Francisco and San Jose would be nearly the same with blended service as without any HSR trains for an alternative without a passing track. Caltrain average service would be approximately 2.5 minutes slower for an alternative with the Short-Middle-4 passing track option.[16] The addition of HSR trains would result in some supplemental time (from 4.8 to 7.6 minutes) for Caltrain trains that may be negatively perceived by Caltrain riders. However, the operations results show that the blending of service between I-880 and Scott Boulevard under Alternative 1 for this project would not result in a substantial increase of Caltrain average service times.

Terminology

Supplemental time refers to the time when Caltrain is waiting at a station or operating at less-than-optimal speed to provide time for passing HSR trains.

The operations impact analysis also examined whether blended service between San Jose and San Francisco would allow Caltrain to operate a regular interval service and avoid bunching of trains. Caltrain would be able to operate northbound and southbound trains at regular hourly times. With the no passing track option in the San Francisco to San Jose Project Section, there would be no substantial bunching of Caltrain service. With the San Francisco to San Jose Project Section Short-Middle-4 passing track option, there would be slightly more bunching than under the No Project Alternative or the option with no passing tracks.

With Alternative 4, HSR and Caltrain would have blended operations between San Jose and Gilroy in addition to those between San Jose and San Francisco. The Authority analyzed the impact of blended operations on Caltrain passenger service between Gilroy and San Jose (Authority 2018b). At present, Caltrain operates three northbound trains from Gilroy in the morning that stop at the San Martin, Morgan Hill, Blossom Hill, Capitol, and Tamien Stations prior to reaching San Jose Diridon Station and three southbound trains that stop at all of these stations on the way to Gilroy in the evening. The morning trains depart Gilroy between 6:10 and 7:10 a.m. and the evening trains depart Gilroy between 4:45 and 7:15 p.m. With blended service, there would be up to eight HSR trains per direction per peak hour between San Jose and Gilroy. As noted, Alternative 4 would include two dedicated tracks between San Jose and Gilroy for the exclusive use of HSR and Caltrain. These two tracks would provide capacity for up to 12 trains per peak hour per direction, based on Authority modeling, which would leave up to four trains per peak hour per direction for Caltrain service. Thus, there would be adequate capacity to match current levels of train service.

Alternative 4 would require a change in the Caltrain stopping pattern because HSR trains would operate up to 110 miles per hour under this alternative between Gilroy and San Jose and no siding tracks would be installed in this section for HSR or Caltrain use. Instead of every train stopping at every station between Gilroy and Tamien, a skip-stop pattern would be used by Caltrain in order to increase Caltrain transit times, which would allow HSR trains to operate more efficiently. In order to maintain the number of current stops at each Caltrain station between Gilroy and Tamien (e.g,. three trains in the morning and three trains in the evening), Caltrain service would increase to six trains in the morning and six trains in the evening with up to four trains per peak hour per direction. Because existing levels of Caltrain service would be maintained, including the amount of stops at each Caltrain station, Caltrain capacity would be maintained and would actually expand compared to existing conditions. In addition, with electrification of the blended tracks, Caltrain would be able to extend electric multiple unit operations to Gilroy, which would decrease Caltrain service times compared to existing conditions.

[16] The passing track options are evaluated in San Francisco to San Jose Project Section EIR/EIS.

CEQA Conclusion

The impact under CEQA would be less than significant for all four project alternatives. The project would not result in a substantial increase in Caltrain average service times relative to the blending of service. Caltrain would be able to operate a regular interval schedule without substantial bunching. The project would not conflict with adopted policies, plans, or programs regarding public transit, or otherwise materially decrease the performance of passenger rail. Therefore, CEQA does not require mitigation.

3.2.6.5 Nonmotorized Travel

Project construction and operations would result in temporary and permanent impacts on nonmotorized travel. Project construction would disrupt bicycle and pedestrian facilities in the project footprint. Project operations would increase the number of station passengers and would change the demand for bicycle and pedestrian facilities that service the shared stations at San Jose Diridon Station and the Gilroy station.

No Project Conditions

The population under the No Project conditions is projected to increase through 2029 and 2040. Development projects to accommodate projected population growth, including residential, commercial, industrial, recreational, and transportation projects, would continue under the No Project Alternative and would result in impacts on bicyclist and pedestrian transportation, including changes to bicycle and pedestrian access.

The No Project Alternative includes the implementation of bicycle and pedestrian projects from plans identified in Section 3.2.4, Method for Evaluating Impacts. These projects include the implementation of bike lanes or trails, and pedestrian sidewalk, crosswalk, and signal timing enhancements. Table 3.2-19 shows the active transportation improvement projects that would be constructed by 2029 and 2040 in the transportation RSA.

Table 3.2-19 No Project Conditions Bicycle and Pedestrian Improvements

Subsection or Station	Pedestrian Projects	Bicycle Projects
San Jose Diridon Station	Enhanced underpass connections along SR 87 and Caltrain underpasses. Pedestrian scramble[1] at the intersection of Santa Clara Street and Montgomery Avenue. Sidewalk and crosswalk enhancements around station area.	Class I bike trail extensions of Los Gatos Creek Trail and North Railroad Trail, including grade-separated trail crossings along Los Gatos Creek Trail. Class II bike lanes on Autumn Street, Montgomery Street, The Alameda, Race Street, Julian Street, and Auzerais Avenue.
Monterey Corridor	No changes	Class II bike lanes on Monterey Road between Metcalf Road and Bailey Avenue. Class III bike route on Roeder Road at Monterey Road.
Morgan Hill and Gilroy: Downtown Gilroy Station	No changes	No changes
Morgan Hill and Gilroy: East Gilroy Station	Extension of sidewalks along Leavesley Avenue	Extension of bike lanes along Leavesley Avenue.

Sources: City of Gilroy 2002; City of San Jose 2009, 2014.

[1] A pedestrian scramble is a type of traffic signal phasing that temporarily stops all vehicular traffic and allows pedestrians to cross an intersection in every direction, including diagonally, at the same time.

SR = state route

Project Impacts

Construction Impacts

Impact TR#17: Temporary Impacts on Pedestrian and Bicycle Access

Construction activities associated with station, MOWF, platform, and track alignment construction would result in temporary roadway lane or road closures, underground utility work, and disruption of transportation systems operations in urban areas. Construction activities associated with the station, platform, and track alignment would require TCEs, which would result in the temporary closure of pedestrian or bicycle facilities. Any closure or removal of pedestrian facilities, bicycle lanes, and paths during construction would be temporary.

Alternatives 1, 2, and 3 would have more effects than Alternative 4 in the Monterey Corridor Subsection. The lane narrowing on Monterey Road under Alternatives 1, 2, and 3 would result in more temporary loss of access for cyclists and pedestrians than Alterative 4, which does not require lane narrowing.

Temporary closure of bicycle and pedestrian facilities would result in a loss of access for cyclists and pedestrians in the area of the closure. An attempt would be made to minimize the removal of pedestrian and bicycle facilities and to shorten the length of time that these facilities are inoperable. Upon completion of construction, all pedestrian facilities and bicycle lanes would be restored. To minimize construction impacts on bicycles and pedestrians, the contractor would prepare specific CMPs (TR-IAMF#4 and TR-IAMF#5) to address maintenance of pedestrian and bicycle access during construction activities. To maintain pedestrian and bicycle access, the contractor would provide a technical memorandum (TR-IAMF#12), which would describe how pedestrian and bicycle accessibility would be provided and maintained across the HSR corridor, to and from stations, and on station property. Access to community facilities for vulnerable populations would be maintained or enhanced.

To reduce access conflicts caused by construction, the contractor would prepare a CTP (TR-IAMF#2). The CTP, which would be reviewed and approved by the Authority, would address in detail the activities to be carried out in each construction phase. The CTP would provide a traffic control plan to identify when and where temporary closures and detours would occur, with the goal of maintaining traffic flow, especially during peak travel periods. The traffic control plan would be developed for each affected location and would include, at a minimum, signage to alert pedestrians to the construction zone, traffic control methods, traffic speed limitations, provisions for safe pedestrian and bicycle passage or convenient detours, and safe pedestrian access to local businesses and residences.

CEQA Conclusion

The impact under CEQA would be less than significant for all four project alternatives because the project would not conflict with adopted policies, plans, or programs regarding bicycle or pedestrian facilities, or otherwise materially decrease the performance of such facilities. The contractor would prepare CMPs, which would maintain safe and adequate access for pedestrians and cyclists during construction. A CTP would be developed containing standard construction procedures related to traffic management, including development of a detailed traffic control plan for each affected location prior to beginning any construction activities. Pedestrian and bicycle accessibility would be maintained and would be prioritized over motor vehicle access. The traffic control plan would include efforts to maintain safe and adequate pedestrian and bicycle access through signage to alert pedestrians to the construction zone, traffic control methods, traffic speed limitations, provisions for safe pedestrian and bicycle passage or convenient detours, and safe pedestrian access to local businesses and residences. Therefore, CEQA does not require mitigation.

Impact TR#18: Permanent Impacts on Pedestrian and Bicycle Access

Project construction would require changes to the pedestrian and bicycle facilities in the HSR station areas that would have permanent impacts. There would also be a substantial number of pedestrian and bicycle facilities being rebuilt, permanent roadway closures and relocations, and

roadways that would require repairs or reconstruction because of damage during construction. The permanent road closures and relocations are described in detail under Impact TR#4.

Changes to the pedestrian and bicycle facilities in HSR station areas and on roadways changed or reconstructed by the project would provide safe and accessible connections. In the San Jose Diridon Station area, new bike facilities to access the station would be provided on Cahill Street between Santa Clara Street and Park Avenue and on various local streets between the Alameda and Park Avenue. In the Downtown Gilroy Station area, new bike facilities would be provided on 7th Street between Monterey Road and Alexander Street, on Monterey Road between 6th Street and Ervin Court, on Forest Street between 8th Street and 10th Street, and on Alexander Street between 7th Street and 10th Street. In the East Gilroy Station area, new bike facilities would be provided on Leavesley Road from the outlet mall to Marcella Avenue. These new facilities in the Downtown Gilroy Station area and East Gilroy Station area would provide station access for bikes. Designated bike parking areas would also be provided for all station areas.

To maintain pedestrian and bicycle access, project design plans would include specifications for vehicle lanes, passenger loading zones, sidewalks, crosswalks, bike lanes, trails, bus stops, parking, and intersection controls (TR-IAMF#12). These would address how pedestrian and bicycle accessibility would be provided and maintained across the HSR corridor, to and from stations, and on station property. Local access programs, such as Safe Routes to Schools, would be maintained or enhanced. Access to community facilities for vulnerable populations would be maintained or enhanced. All reconstructed roadways would replace all bicycle and pedestrian facilities upon completion of construction. All new and replaced facilities would be designed with specifications for passenger loading zones, sidewalks, crosswalks, bike lanes, trails, bus stops, parking, and intersection controls. Project designs would work to incorporate best practice multimodal design standards and guidance from the American Association of State Highway and Transportation Officials, the National Association of City Transportation Officials, and the Institute of Transportation Engineers.

CEQA Conclusion

The impact under CEQA would be less than significant for all four project alternatives because the project would not conflict with adopted policies, plans, or programs regarding bicycle or pedestrian facilities, or otherwise materially decrease the performance of such facilities. The project would provide safe and accessible bike and pedestrian facilities. For all reconstructed roadways, all bicycle and pedestrian facilities would be replaced upon completion of construction to maintain nonmotorized access. Pedestrian and bicycle accessibility would be provided and maintained and would be prioritized over motor vehicle access. Thus, the project would not materially decrease the performance of pedestrian and bicycle facilities. Therefore, CEQA does not require mitigation.

Operations Impacts

Impact TR#19: Continuous Permanent Impacts on Pedestrian and Bicycle Access

For the 2029 and 2040 Plus Project conditions, the project would be fully operational. Transit, nonmotorized, and vehicle trips around the stations would increase because of the addition of passengers and HSR workers traveling to station areas. The project would generate approximately 450 peak hour nonmotorized trips at San Jose Diridon Station, approximately 110 peak hour nonmotorized trips at the Downtown Gilroy Station, and approximately 10 peak hour trips at East Gilroy Station in 2040. The planned station area facilities would be designed to adequately serve forecasted volumes of nonmotorized traffic.

To maintain pedestrian and bicycle access, project design plans would include specifications for vehicle lanes, passenger loading zones, sidewalks, crosswalks, bike lanes, trails, bus stops, parking, and intersection controls (TR-IAMF#12). These would describe how pedestrian and bicycle accessibility would be maintained across the HSR corridor, to and from stations, and on station property. Local access programs, such as Safe Routes to Schools, would be maintained. Access to community facilities for vulnerable populations would be maintained or enhanced as new facilities are added at stations. Bicycle and pedestrian facilities would be replaced upon

completion of reconstructed roadways. All new and replaced facilities would be designed with specifications for passenger loading zones, sidewalks, crosswalks, bike lanes, trails, bus stops, parking, and intersection controls. Project design plans would incorporate best practice multimodal design standards and guidance from the American Association of State Highway and Transportation Officials, the National Association of City Transportation Officials, and the Institute of Transportation Engineers.

CEQA Conclusion

The impact under CEQA would be less than significant for all four project alternatives because the project would not conflict with adopted policies, plans, or programs regarding bicycle or pedestrian facilities, or otherwise materially decrease the performance of such facilities. The project would provide safe and accessible bike and pedestrian facilities. All roadways that are reconstructed would replace all bicycle and pedestrian facilities upon completion of construction. This would maintain or enhance nonmotorized access. Facilities would be designed to latest standards and guidance and would provide adequate access. Pedestrian and bicycle accessibility would be provided and maintained and would be prioritized over motor vehicle access. Thus, the project would not materially decrease the performance of pedestrian and bicycle facilities. Therefore, CEQA does not require mitigation.

3.2.6.6 Freight Rail Service

Project construction would temporarily disrupt freight service where freight tracks would be modified. Project operations would increase the amount of passenger trains using tracks shared by passenger trains and freight trains from Santa Clara north. The project would also modify overhead electrical lines installed by Caltrain under the Peninsula Corridor Electrification project from Santa Clara north.

No Project Conditions

Population, employment, and economic activity in Santa Clara, San Benito, and Merced Counties will increase through 2029 and 2040. Development projects to accommodate projected population growth and economic growth, including residential, commercial, industrial, recreational, and transportation projects, would continue under the No Project Alternative and would result in increased demands for transport of freight by rail and the resulting need to expand freight services.

The exact amount of freight rail transport is difficult to predict. Freight levels depend on not only the overall level of economic activity but also the specific demand for bulk and oversize commodities that dominate freight carried by rail. As a conservative assessment, analysts assumed that freight would increase in the future at a rate of 3.5 percent per annum (Caltrans 2014). This rate is an informal rate that freight operators, such as UPRR, often cite. Table 3.2-20 shows existing and assumed future freight levels along different parts of the project extent.

Table 3.2-20 Existing and Assumed Future Freight Train Operations

Year	Time Period	Total Daily Number of Trains (Both Directions) per Segment				
		Lawrence–Santa Clara	Santa Clara–Diridon	Diridon–Tamien	Tamien–Gilroy	South of Gilroy
2016[1]	Total	2	9	4	4	4
2029[2]	Total	3	15	7	7	7
2040[2]	Total	5	23	10	10	10

Source: Authority 2019a
[1] Caltrain Corridor - from PCEP EIR; assumed freight levels on UPRR south of Tamien same as north of Tamien
[2] Growth factor of 3.5 percent from Caltrans 2014 rounded up conservatively to 4 percent per annum change every year starting in 2017.
EIR = environmental impact report
PCEP = Peninsula Corridor Electrification Project
UPRR = Union Pacific Railroad

In the project extent, the section from San Jose Diridon Station to CP Coast (just north of the Santa Clara Caltrain Station) is a pinch point for rail services, including freight rail, as freight from the south (via the Coast Subdivision), the southwest (via the Vasona Industrial Lead), the north (via the Caltrain Corridor), and the northeast (Coast Subdivision and Warm Springs Subdivision) all traverse the Caltrain Corridor in a 3.1-mile segment, which Caltrain refers to as the south terminal area. This area is a key focus of the impact analysis concerning freight rail capacity.

Several public rail projects would add additional tracks to benefit planned passenger rail service increases. These tracks would also provide capacity usable by freight in the project extent between Caltrain's Centralized Equipment Maintenance and Operation Facility and I-280 south of San Jose Diridon Station. Table 3.2-21 shows the Caltrain South Terminal Project, which is the only planned rail capacity improvement project in the section through 2040.

Table 3.2-21 2040 Planned Rail Capacity Improvements

Project Name	Description
Caltrain South Terminal Project	The South Terminal Project is a multi-phased project to improve the South Terminal area of the Caltrain Corridor between Santa Clara and San Jose to accommodate potential future passenger rail traffic levels, including ACE, Capitol Corridor, and Amtrak. Phase 1 is already complete. Phase 2 includes construction of a fourth track and new signal controls between the south end of CEMOF and the north end of San Jose Diridon Station, as well as construction of a small section of track to install a crossover north of the CEMOF. Final design and environmental clearance has been completed for this phase of the project.Phase 3 consists of the construction of an additional track south of the South Terminal, between San Jose Diridon Station and the I-280 crossing. Phase 3 has been completed.

Sources: Caltrain 2017;
ACE = Altamont Corridor Express
CEMOF = Centralized Equipment Maintenance and Operation Facility
PCJPB = Peninsula Corridor Joint Powers Board

Under 2040 No Project conditions, freight service levels are forecasted to increase compared to existing conditions. This additional freight service would benefit from the planned Caltrain improvements included in the Caltrain South Terminal Project. UPRR owns the MT-1 track in the Caltrain Corridor from CP Coast to CP Lick and the tracks southward from CP Lick to Gilroy. This track is sufficient to accommodate the potential increases in freight service shown in Table 3.2-20.[17] Caltrain service levels would increase with PCEP implementation between Santa Clara and Tamien, and ACE and Capitol Corridor may also increase service levels to San Jose (depending on funding, permitting, and UPRR consent) in the future, which would result in more train activity between Santa Clara and Tamien. Given UPRR's rights to control the use of MT-1, it can assure that there is adequate capacity for the potential freight increases, while Caltrain's South Terminal project would provide capacity for the other passenger rail services through additional track separate from MT-1. As such, under 2040 No Project conditions, adequate capacity would be available to support potential freight service increases.

Project Impacts

Construction Impacts

Impact TR#20: Temporary Impacts on Freight Rail Operations

The construction of the HSR stations, platforms, and track alignment would require building in certain areas currently used for freight service. Construction may require the temporary closure of

[17] The nominal capacity of a single-track line for freight is 30 daily trains, as indicated in the Alameda County Transportation Commission Goods Movement Strategy (2016).

tracks presently used by freight. Any closure or removal of freight track during construction would be temporary. Chapter 2, Alternatives, further describes the construction activities.

Freight rail operations occur in the rail rights-of-way that would be used for portions of the project construction, and as a result, project construction would disrupt freight rail operations. This would inconvenience freight operators and customers and could result in additional truck traffic if necessary to meet freight delivery requirements.

Project-related construction, staging, and traffic would contribute to temporary interference with freight rail operations. The construction of the HSR stations, platforms, and track alignment would require TCEs. The TCE may require the temporary closure of freight tracks. A summary of the key areas of disruption to freight rail systems is as follows, including estimated locations (from north to south) and estimated durations of disruption.

Per TR-IAMF#9, the project contractor would repair any structural damage to freight or public railways that may occur during the construction period and return any damaged sections to their original structural condition. If necessary, a shoofly track would be built to allow existing train lines to bypass any areas closed for construction activities where feasible. Upon completion, tracks would be opened and repaired or new mainline track would be built, and the temporary shoofly track would be removed. Shoofly tracks are only feasible in areas with unconstrained right-of-way with adequate space and may not be feasible in constrained areas. Where shoofly tracks are not feasible, there could be temporary delays on the order of hours or at most a few days, and the closures would usually occur at nights and on weekends and holidays to minimize disruption.

Alternative 2 would have the greatest potential to disrupt freight rail operations during construction, followed by Alternative 4, then Alternative 1, and finally Alternative 3 with the least potential.

Alternative 1 would disrupt freight rail operations at the following locations:

- **Entire route**—Alternative 1 would include some utility relocation work at discrete locations, but this is not expected to result in delay or closure of freight rail service.
- **San Jose Diridon Station Approach Subsection**—Alternative 1 would relocate MT-1 and other UPRR tracks from north of I-880 to Julian Street and would reconstruct or relocate the Lenzen Wye leading to the Union Pacific Warm Springs Subdivision. During connection of the existing tracks to the new tracks, there may be a shutdown of the existing track for several days (on weekends if feasible), which would affect freight service. At San Jose Diridon Station, construction of the aerial HSR station would close one platform (two tracks) at a time, so that the station would continue to operate, but during peak times there would be more congestion with the loss of two tracks and a platform. During closure of MT-1, freight would be rerouted to one of the open tracks around the closure. Alternative 1 would cross over the Caltrain Corridor just east of where it crosses SR 87. Crossovers have the potential for several-day closures (on weekends if feasible). South of West Alma Avenue to CP Lick, Alternative 1 would relocate the existing tracks eastward, which would affect freight service during the several-day closure during connection of the existing track and the new track. South of Almaden Expressway, the Luther Spur would be relocated.
- **Monterey Corridor Subsection**—Alternative 1 would cross over the UPRR right-of-way where it enters Monterey Highway near Fehren Drive, which has the potential for several-day closures (on weekends if feasible).
- **Morgan Hill and Gilroy Subsection**—At the Gilroy Station, the UPRR tracks would be relocated starting just north of the station to south of the station, which may result in several days of disruption to freight service. Alternative 1 would relocate a UPRR siding track south of US 101 and would build a roadway bridge over the UPRR Hollister Branch, both of which would result in several days of freight rail disruption.
- **Pacheco Pass Subsection**—There are no freight rail lines in this subsection.
- **San Joaquin Valley Subsection**—Alternative 1 would cross over the Westside Line and there may be several days of closure during construction.

Alternative 2 would include the following locations of potential disruption to freight rail operations:

- **Entire route**—Alternative 2 would include some utility relocation work at discrete locations, but this is not expected to result in delay or closure of freight rail service.
- **San Jose Diridon Station Approach Subsection**—Alternative 2 would relocate MT-1 and MT-2 from south of Scott Boulevard to CP Coast, relocate MT-1 and other freight tracks from CP Coast to just south of I-880, and rebuild or relocate the Lenzen Wye leading to the UP Warm Springs Subdivision. Connection of the existing tracks to the new tracks may shut down the existing track for 1 to 2 days (on weekends if feasible), which would affect freight service. At San Jose Diridon Station and south of the station, Alternative 2 would have the same impacts as Alternative 1.
- **Monterey Corridor Subsection**—Alternative 2 would cross over the UPRR right-of-way when it enters Monterey Highway near Fehren Drive, which would require a closure for 1 to 2 days (on weekends if feasible). Alternative 2 would include grade separations that cross the UPRR right-of-way at Skyway Drive, Branham Avenue, and Chynoweth Avenue, each of which would result in possible 1- to 2-day closures (on weekends if feasible). Alternative 2 would also include shoofly tracks at the Caltrain Capitol and Blossom Hill Stations. In south San Jose south of Menard Avenue from UPRR MP 58.1 to MP 59.4 at the PG&E Metcalf Station, approximately 1.3 miles of the UPRR tracks would be realigned. Freight service would be closed for several days during connection of the new tracks to the existing tracks.
- **Morgan Hill and Gilroy Subsection**—Alternative 2 would include grade separations that cross the UPRR right-of-way at 18 locations,[18] each of which would result in possible closures of 1 to 2 days (on weekends if feasible). Alternative 2 would include shoofly tracks at the Caltrain Morgan Hill, San Martin, and Gilroy Stations. Alternative 2 would require track relocation in the following areas: approximately 1.8 miles of tracks from south of Maple Avenue (near UPRR MP 69.5) to just south of San Martin Avenue (near MP 71.3); approximately 1.5 miles of UPRR tracks from south of Cohansey Avenue (near MP 75.1) to IOOF Avenue (between MP 76.6 and 76.7); and approximately 1.4 miles from 6th Street (MP 77.1) to south of US 101 (approximately MP 78.5). Freight service would be closed for several days at each track realignment location during connection of the new tracks to the existing tracks. Alternative 2 would relocate a UPRR siding track south of US 101 and would include a roadway bridge over the UPRR Hollister Branch, both of which would result in several days of freight rail disruption.
- **Pacheco Pass Subsection**—There are no freight rail lines in this subsection.
- **San Joaquin Valley Subsection**—Alternative 3 would have the same impacts as Alternative 1.

Alternative 3 would include the following locations of potential disruption to freight rail operations:

- **Entire route**—Alternative 3 would include some utility relocation work at discrete locations, but this is not expected to result in delay or closure of freight rail service.
- **San Jose Diridon Station Approach Subsection**—Alternative 3 would have the same impacts as Alternative 2.
- **Monterey Corridor Subsection**—Alternative 3 would have the same impacts as Alternative 1.
- **Morgan Hill and Gilroy Subsection**—Alternative 3 would have no major disruptions to freight rail service.

[18] Palm Avenue, Live Oak Avenue, Madrone Parkway, East Dunne Avenue, Barrett Avenue, San Pedro Avenue, Tennant Avenue, East Middle Avenue, East San Martin Street, Oak Street, Church Avenue, Masten Avenue, Leavesley Road, IOOF Avenue, Lewis Street, 6th Street, Old Gilroy Street, and 10th Street.

- **Pacheco Pass Subsection**—There are no freight rail lines in this subsection.
- **San Joaquin Valley Subsection**—Alternative 3 would have the same impacts as Alternative 1.

Alternative 4 would include the following locations of potential disruption to freight rail operations:

- **Entire route**—Alternative 4 would include some utility relocation work at discrete locations, but this is not expected to result in delay or closure of freight rail service.
- **San Jose Diridon Station Approach Subsection**—North of San Jose Diridon Station (De La Cruz Blvd to Santa Clara Street), Alternative 4 would include a new dedicated freight track between CP Coast and CP Shark. From San Jose Diridon Station to CP Lick (Park Avenue to Daylight Way), Alternative 4 would convert the current double-track corridor which also carries freight and conventional passenger services to three tracks with single dedicated freight track for freight, ACE, Amtrak, and Capitol Corridor and two electrified tracks under cantilever OCS for HSR and Caltrain). This will maintain capacity for freight and all existing passenger services while providing additional capacity for planned Caltrain expansion with the Peninsula Corridor Electrification Project and the proposed HSR service. Existing spurs, siding connections, at-grade crossings, and grade separations would be retained. The Michael Yard would be reconfigured to retain storage capacity with additional connection to the storage tracks at the southern end. Rail bridges over Bird Avenue and Delmas Avenue would be modified to accommodate three tracks.
- **Monterey Corridor Subsection**—Between CP Lick and Coyote, Alternative 4 would convert the corridor to a single dedicated freight track and two electrified tracks under OCS. Alternative 4 would retain the existing spur or siding connections and avoid changing existing overcrossings. Alternative 4 would add 2,500 feet of new freight siding at CP Coyote (between Blanchard Road and Bailey Avenue).
- **Morgan Hill and Gilroy Subsection**—Alternative 4 would convert the corridor to a single dedicated freight track and two electrified tracks under OCS. Alternative 4 would retain the existing spur or siding connections and avoid changing existing overcrossings. Alternative 4 would replace the rail bridge across the Upper Llagas Creek floodway. Alternative 4 would reconfigure the Gilroy station to accommodate UPRR, HSR, Caltrain, Amtrak, and TAMC, and would add a freight rail spur to supply the HSR maintenance facility. The HSR mainline and maintenance spur would be designed to minimize changes to the Hollister Subdivision and Watsonville lines. South of CP Luchessa, Alternative 4 would realign the Hollister branch line to the west, adjacent to the main line to Watsonville.
- **Pacheco Pass Subsection**—There are no freight rail lines in this subsection.
- **San Joaquin Valley Subsection**—Alternative 4 would have the same impacts as Alternative 1.

Railroad properties include the UPRR MT-1 track from CP Coast to CP Lick, the UPRR corridor south to Gilroy, the Hollister Subdivision and the Watsonville Line south of Gilroy, and the Westside line near Volta. Permission for temporary access onto railroad property would be necessary during construction. To avoid affecting railroad operations during construction, the contractor would be responsible for reaching an agreement on the timing and duration of activities prior to implementing a TCE on railroad property. Under all project alternatives, the design-build contractor would finalize specific TCEs during final project design in coordination with the affected railroads for those areas where access is required. In areas where TCEs would cross railroad property, the Authority would avoid affecting railroad operations to the extent possible.

Because construction conditions may vary, there is a possibility for disruption to or temporary delay of railroad operations. However, the Authority and the freight railroads would work together to construct the project in a manner consistent with the agreements negotiated by the Authority's contractor during the final design process. This would enable each entity to conduct its relevant activities in a manner that would reduce impacts on freight railroad operations. The

Authority would coordinate with the freight railroads to prevent incompatible uses resulting from project construction.

During project construction, the contractor would minimize disruption of freight rail service with shoofly tracks, scheduling, and use of existing alternative tracks where available. There may be a temporary period of service disruption when connecting existing tracks to shoofly tracks. Where feasible, the contractor would schedule any necessary cessation of freight rail service during the weekend to minimize disruption. Service disruptions, when they occur, would last several hours to several days.

CEQA Conclusion

The impact under CEQA would be significant for all four project alternatives because project construction would substantially disrupt or interfere with freight operations in the San Jose Diridon Station Approach Subsection between CP Coast and San Jose Diridon Station. Alternatives 2 and 4 would also have substantial disruptions in the Monterey Corridor and Morgan Hill and Gilroy Subsections resulting in delays and rescheduling of freight service. This disruption could also result in the temporary diversion of freight to trucks, causing additional noise, air quality, GHG emissions, and roadway traffic compared to transport by rail. Mitigation Measures to address this impact are identified in Section 3.2.9, CEQA Significance Conclusions. Section 3.2.7, Mitigation Measures, describes these measures in detail.

Operations Impacts

Impact TR#21: Continuous Permanent Impacts on Freight Rail Capacity

This impact concerns the potential for project operations to limit freight service because of the sharing of tracks north of CP Coast with Alternatives 1 and 4.

Under Alternative 1, HSR would operate on dedicated tracks from I-880 to Merced and there would be no operations impacts on freight service on adjacent or crossing railroads. From CP Coast to I-880, HSR trains would operate on MT-2 and MT-3 while freight rail would use MT-1, and thus project operations in this area would have no impact on freight rail operations or access to the Newhall Yard. From Scott Boulevard to CP Coast, HSR and freight would share MT-1 and MT-2 with potential freight timing and capacity conflicts.

Under Alternatives 2 and 3, HSR would have dedicated tracks for the entire length of the project from Scott Boulevard to Carlucci Road in Merced County. These project alternatives would have no impact on freight operations or access to freight facilities such as Newhall Yard.

Under Alternative 4, HSR would have dedicated tracks from Gilroy to Carlucci Road in Merced County. From San Jose to Gilroy, Alternative 4 would operate on dedicated tracks for Caltrain and HSR, which would be separate from a third-track that would be used for freight and other passenger rail operations (Amtrak Starlight and the TAMC service to Salinas). Between San Jose and Gilroy, there would remain adequate separate rail line capacity for potential freight growth, as shown in Table 3.2-21. From San Jose Diridon to CP Coast, HSR would share track with Caltrain on MT-2 and MT-3, while freight would operate on MT-1; the project would have no impact on freight rail operations or access to the Newhall Yard. From Scott Boulevard to CP Coast, HSR and freight would both share MT-1 and MT-2, with potential freight timing and capacity conflicts.

For Alternatives 1 and 4, analysts reviewed the impact of HSR, Caltrain, and freight sharing MT-1 and MT-2 north of CP Coast. Based on Caltrain dispatch data, on average there is one daily round-trip freight train (Mission Bay) that operates between CP Coast and Scott Boulevard. This service has an average start time of 7:30 p.m. and an average end time of 12:30 a.m., with an average round-trip duration of about 5 hours. About one-third of the time, the round-trip duration is more than 5 hours and two-thirds of the time the round-trip duration is less than 3 hours.

Because of the amount and speed of both HSR and Caltrain operations and the need to maintain established service as scheduled, slow-moving and long freight trains would not be able to access the Caltrain corridor mainline tracks north of CP Coast during peak hours in the morning and the evening. Freight operations would be able to operate outside peak hours including the midnight to 5 a.m. period.[19]

Between midnight and 5 a.m., regular HSR service would not be operating, but some HSR trains would still use the Caltrain Corridor to reach maintenance facilities and start locations for the next day's service. The recently adopted FRA rules concerning the sharing of HSR with conventional freight and passenger services (FRA 2016) allow for the blending of HSR with heavier freight rail.

Based on dispatch data, the Mission Bay freight service should be able to complete normal round-trip service most of the time. At times, freight operators may not be able to be complete round-trip service in a single night using a single train. In this case, trips may need to be staggered over several nights, as is currently done on the South City Local between South San Francisco and San Francisco. Alternatively, freight operators could employ additional trains operating in each direction (one-way transit per night) or longer trains in order to maintain the same LOS as a round trip that they would otherwise complete in a single night.

Constraining freight to periods outside of peak passenger service hours would require a change in current practices and would require changes in freight operations practices north of CP Coast. However, through use of longer consists or staggering over several nights, the compression of freight service hours would not result in a diversion of freight hauling from freight trains to trucks or other modes and, thus, would not result in any potential secondary impacts related to air quality, GHG emissions, noise, or traffic congestion.[20]

CEQA Conclusion

There would be no impact under CEQA for Alternatives 2 and 3. The impact under CEQA would be less than significant for Alternatives 1 and 4 because these alternatives would not cause a change in freight rail service such that resultant diversions to truck or other freight modes would occur. Freight operation hours would be constrained, which would inconvenience operators, but freight operations overall would be maintained. Diversion of freight from rail to other modes is not likely to occur with changes in freight operations hours with project operations. Thus, no significant secondary impacts related to air quality, noise, GHG emissions, or traffic operations are expected. Therefore, CEQA does not require mitigation.

Impact TR#22: Continuous Permanent Impacts on Freight Rail Operations

This impact concerns the potential for the project alternatives to affect height clearances for freight from the installation of the OCS over rail lined used by freight. This impact has the potential to occur under Alternatives 1 and 4, where OCS would be installed along tracks used by freight (but owned by Caltrain) from Scott Boulevard to CP Coast with the Caltrain Corridor.

Installation of the OCS would lower the existing vertical clearance at bridges and other crossings and structures over the Caltrain Corridor but not to a degree that would require a change in existing freight equipment used to service this corridor. The Caltrain PCEP EIR (PCJPB 2015) evaluated the overhead clearance necessary for an OCS along the Caltrain Corridor. Between Scott Boulevard and CP Coast, the highest freight equipment operating in recent past has been Plate H (20.25 feet). The OCS for HSR and Caltrain would provide clearance for freight vehicles up to 20.25 feet in height to maintain clearance for freight operations (clearance for a vehicle of a 20.25-foot height would be provided, the structure would be higher). Consequently, the project would not restrict freight vehicle height compared to existing conditions along the Caltrain Corridor for either Alternatives 1 or 4.

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[19] Freight service hours are not limited by the TRA on the UPRR-owned dedicated freight MT-1 track between CP Coast and CP Lick (Santa Clara to south of Tamien Station); operating hours would not be limited on this track.

[20] This is a common practice on other light density freight lines shared with transit such as the River Line in New Jersey and some of the San Diego Trolley system.

With Alternative 4, although OCS would be installed over tracks to be shared with Caltrain in blended operations between San Jose and Gilroy, the OCS would not be installed over the separate track for freight operations.

CEQA Conclusion

There would be no impact under CEQA for Alternatives 2 and 3 because freight service would not share tracks with HSR. The impact under CEQA would be less than significant for Alternatives 1 and 4 because the HSR OCS associated with these alternatives would not disrupt or interfere with freight operations and or require greater temporal separation. The OCS installed between Scott Boulevard and CP Coast would lower overhead height clearance at constrained locations, but the residual height clearance with the OCS would still be greater than the highest freight equipment using this portion of the Caltrain Corridor under existing conditions. Since the effective height allowance would not be altered compared to existing conditions, this alternative would not disrupt or interfere with freight operations and or require greater temporal separation and would not require a diversion of freight from rail to trucks (or other modes) and no secondary impacts related to air quality, noise, GHG emissions, or traffic operations would occur. Therefore, CEQA does not require mitigation.

3.2.7 Mitigation Measures

The transportation-specific mitigation measures shown in Table 3.2-22 would be implemented to address impacts on transit service, freight rail service, and traffic delay. These mitigation measures would be the same under each project alternative, although the amount of mitigation may vary by alternative.

Table 3.2-22 Transportation-Specific Mitigation Measures

Mitigation Measure	Alternative 1	Alternative 2	Alternative 3	Alternative 4
TR-MM#1: Potential Mitigation Measures Available to Address Traffic Delays (NEPA Effect Only)	X	X	X	X
TR-MM#2: Install Transit Signal Priority	X	X	X	X
TR-MM#3: Railway Disruption Control Plan	X	X	X	X

NEPA = National Environmental Policy Act

TR-MM#1: Potential Mitigation Measures Available to Address Traffic Delays (NEPA effect only)

Mitigation for permanent congestion/LOS effects on freeway operations (Alternatives 1, 2, and 3) could include freeway widening and the construction of express lanes, as identified in the MTC RTP (MTC 2013).

Mitigation measures to address permanent congestion/LOS effects on intersection operations from permanent road closures and relocations (all alternatives), increased gate down-time at the at-grade crossings, and vehicle flow to/from HSR stations could include one or more combinations of various standard vehicle capacity enhancements such as signal retiming or additions, lane restriping, road/intersection widening and turn pocket additions/increases (including right-of-way acquisitions as needed), and contribution to regional/joint solutions to implement such enhancements, as well as measures (to the extent not already addressed by TR-IAMF#12) to encourage diversion of HSR station access trips from via single-occupancy vehicles to other modes.

Depending on location and design, traffic mitigation measures can have substantial secondary environmental impacts, including construction disruption to roadways and rail operations, as well as construction noise, air pollutant emissions, visual aesthetic changes, right-of-way acquisition, displacement of residential and commercial development, encouragement of sprawl growth and associated VMT and air pollutant/GHG emissions, discouragement of compact walkable TOD

development, encroachment on public parks and open space, removal of trees and vegetation, and impacts on groundwater. However, it is speculative to ascribe specific impacts without detailed locations and designs.

TR-MM#2: Install Transit Signal Priority

Prior to operations, the contractor would install bus transit signal priority at all traffic signals in the following locations:

- San Jose Diridon Station Area
  - Cahill Street between West Santa Clara Street and Park Avenue
  - Montgomery Street between West Santa Clara Street and Park Avenue
  - Autumn Street between West Santa Clara Street and Park Avenue
- Monterey Road from Capitol Expressway and Blossom Hill Road
- Gilroy Station Area
- Monterey Road between 7th Street and 10th Street
- Alexander Street between 7th Street and 10th Street

This mitigation measure would be effective in improving the speed and reliability of bus routes affected by project-related trips by identifying targeted improvements to enhance operations. Implementing TR-MM#2 would not result in secondary impacts because operations improvements would be targeted and coordinated with local authorities to benefit users of bus transit services, while not adversely affecting other modes of travel.

TR-MM#3: Railway Disruption Control Plan

Prior to construction, the contractor would prepare a railway disruption control plan for Authority approval. During construction, the contractor would implement the plan. The goal of the railway disruption control plan would be to minimize the overall duration of disruption of passenger and freight operations and maintain reasonable LOS, while allowing for an expeditious completion of construction. The construction contractor would coordinate with passenger rail providers (Caltrain, ACE, Capitol Corridor, TAMC, and Amtrak) and with UPRR in advance and during any potential disruption to passenger or freight operations or passenger or UPRR facilities. The construction contractor would maintain passenger rail and UPRR's emergency access throughout construction.

With Alternatives 1 and 4, the Authority would provide a bus bridge from the College Park Station to the Santa Clara Station and San Jose Diridon Station to maintain passenger access to Caltrain service during the 1 to 2 years that the station would be closed because of track work.

This mitigation measure would be effective in minimizing the disruption of passenger and freight rail services during project construction. Implementing TR-MM#3 would not result in secondary impacts because it is anticipated that all identified improvements would occur in the existing rights-of-way or in the project footprint of the project alternatives.

3.2.8 Impact Summary for NEPA Comparison of Alternatives

As described in Section 3.1.5.4, NEPA requires the comparison of the impacts of project actions to the No Project conditions when evaluating the impact of the project on the resource. The context and intensity of the changes caused by construction and operations of the project determine the level of impact. Figure 3.2-11 and Table 3.2-23 compare the project impacts before mitigation by alternative and are followed by a summary of the impacts.

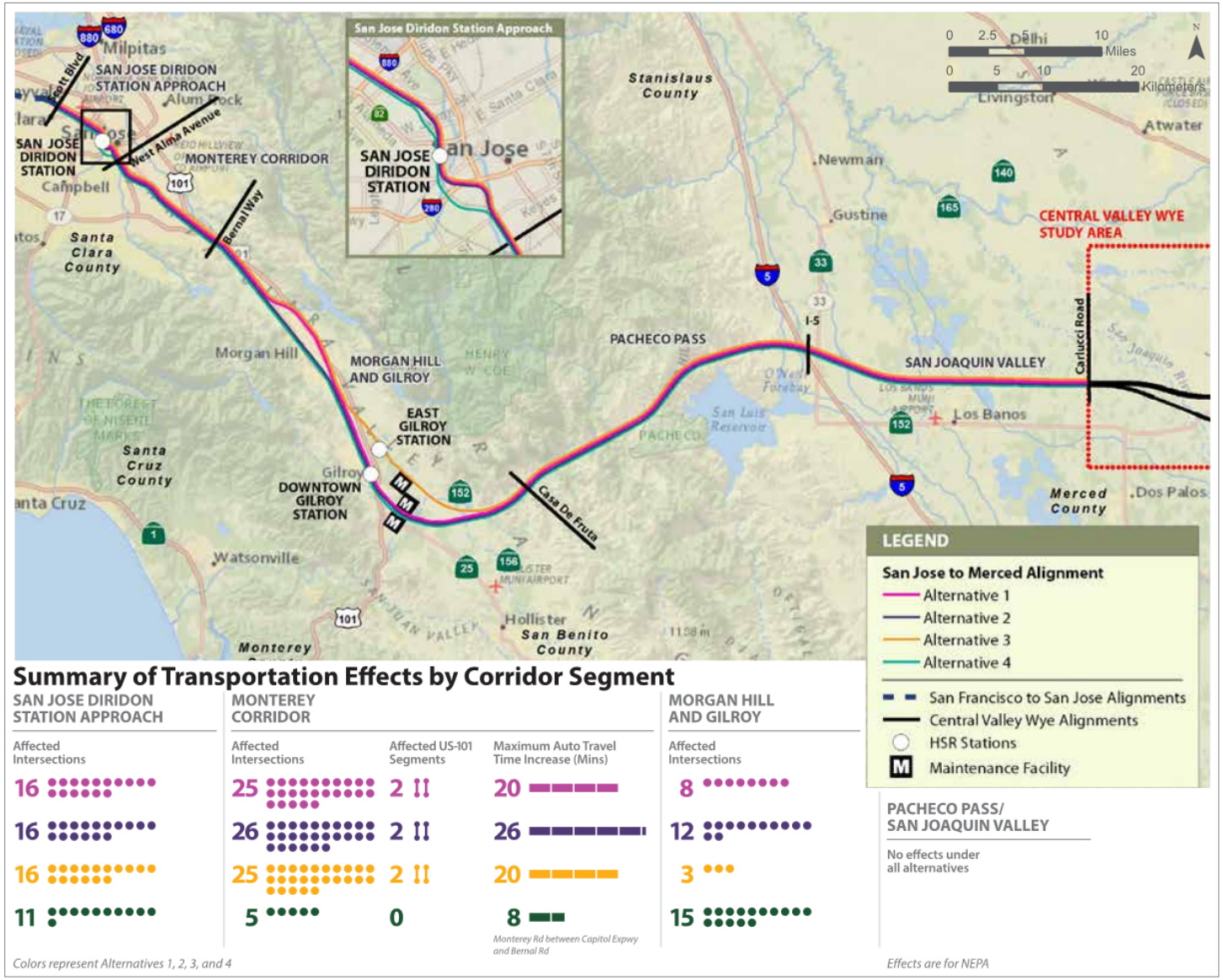

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Figure 3.2-11 Summary of 2040 With Project Transportation Effects by Subsection

Table 3.2-23 Comparison of Project Alternative Impacts for Transportation

Impacts	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Roadways, Freeways, and Intersections				
Impact TR#1: Temporary Congestion/Delay Consequences on Major Roadways, Freeways, and Intersections from Temporary Road Closures, Relocations, and Modifications	Temporary road closures and realignments would result in increases in travel times, delays, and inconvenience to the traveling public. ▪ San Jose Diridon Subsection—least impact among alternatives. ▪ Monterey Corridor Subsection—narrowing Monterey Road would affect 23 intersections. ▪ Morgan Hill and Gilroy Subsection—viaduct construction through downtown Gilroy would have fewer impacts than embankment. ▪ Pacheco Pass Subsection—impacts would be identical under all four alternatives. ▪ San Joaquin Valley—impacts would be identical under all four alternatives, closures and relocations along Henry Miller Road. The CTP would maintain traffic flow on major roadways, freeways, and intersections.	Temporary road closures and realignments would be greatest under Alternative 2. ▪ San Jose Diridon Subsection—would extend viaduct 2.4 miles farther north, affecting two additional overcrossings. ▪ Monterey Corridor Subsection—narrowing Monterey Road would affect 23 intersections. Embankment would require construction of five additional roadway overcrossings. ▪ Morgan Hill and Gilroy Subsection—greatest impact among alternatives from embankment construction through urban area. ▪ Pacheco Pass Subsection—Same as Alternative 1. ▪ San Joaquin Valley—Same as Alternative 1. The CTP would maintain traffic flow on major roadways, freeways, and intersections.	Temporary road closures and realignments would result in the least disruption of roadways under Alternative 3. ▪ San Jose Diridon Subsection—Same as Alternative 2. ▪ Monterey Corridor Subsection—narrowing Monterey Road would affect 23 intersections. ▪ Morgan Hill and Gilroy Subsection—least impact among alternatives from viaduct construction through rural area. ▪ Pacheco Pass Subsection—Same as Alternative 1. ▪ San Joaquin Valley— Same as Alternative 1. The CTP would maintain traffic flow on major roadways, freeways, and intersections.	Temporary road closures and realignments would result in increases in travel times, delays, and inconvenience to the traveling public. ▪ San Jose Diridon Subsection—similar impacts as Alternative 1. ▪ Monterey Corridor Subsection—least impact among alternatives because Monterey Road would not be narrowed. ▪ Morgan Hill and Gilroy Subsection—at-grade construction through downtown Gilroy would have fewer impacts than embankment. ▪ Pacheco Pass Subsection—impacts would be identical under all alternatives. ▪ San Joaquin Valley— Same as Alternative 1. The CTP would maintain traffic flow on major roadways, freeways, and intersections.

Impacts	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Impact TR#2: Temporary Congestion/Delay Consequences on Major Roadways, Freeways, and Intersections from Construction Vehicles	Project features such as the CTP and establishment of designated construction truck routes would control and manage construction vehicle traffic to minimize impacts on local vehicle circulation, delays, reductions in LOS, operations hazards, or loss of access to residences and community facilities.	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1
Impact TR#3: Permanent Congestion/Delay Consequences on Roadways and Freeways from Permanent Road Closures and Relocations	18 permanent road closures and 26 permanent roadway modifications would increase vehicle traffic and degrade the LOS on US 101 in two segment locations from reduced capacity on Monterey Road.	29 permanent road closures and 45 permanent roadway modifications would increase vehicle traffic and degrade the LOS on US 101 in two segment locations from reduced capacity on Monterey Road.	17 permanent road closures and 24 permanent roadway modifications would increase vehicle traffic and degrade the LOS on US 101 in two segment locations from the reduced capacity on Monterey Road.	15 permanent road closures and 34 permanent roadway modifications would increase vehicle traffic congestion but would not degrade the LOS on US 101.
Impact TR#4: Permanent Congestion/Delay Consequences on Intersections from Permanent Road Changes	Permanent road closures and modifications would affect 14 intersections operating at LOS E or F, including 13 intersections in Monterey Corridor and 1 intersection in Morgan Hill and Gilroy in the Existing Plus Project conditions.	Permanent road closures and modifications would affect 17 intersections operating at LOS E or F, including 13 intersections in Monterey Corridor and 4 intersections in Morgan Hill and Gilroy in the Existing Plus Project conditions.	Same as Alternative 1	Permanent road closures and modifications would affect 2 intersections operating at LOS E or F, including 2 intersections in Morgan Hill and Gilroy in the Existing Plus Project conditions.

Impacts	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Impact TR#5: Continuous Permanent Impacts on Vehicle Miles Traveled	By 2029, the project would reduce overall total VMT in Santa Clara County by 159 million miles, interregional VMT in San Benito County by 99 million miles, and interregional VMT in Merced County by 125 million miles. By 2040, the project would reduce overall total VMT in Santa Clara County by 230 million miles, interregional VMT in San Benito County by 170 million miles, and interregional VMT in Merced County by 200 million miles.	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1
Impact TR#6: Continuous Permanent Congestion/Delay Consequences on Freeway Operations	A lane reduction along Monterey Road would affect two freeway segments along US 101 in southern San Jose from congestion.	Same as Alternative 1	Same as Alternative 1	No lane reduction along Monterey Road. Less traffic would shift to US 101 than under the other project alternatives and no freeway segments would be affected.
Impact TR#7: Permanent Continuous Congestion/Delay Consequences on Intersection Operations	Increased project extent traffic and changes to the roadway network would affect 46 intersections operating at LOS E or F in 2029 and 49 intersections in 2040 in the San Jose Station Approach, Monterey Corridor, and Morgan Hill and Gilroy Subsections.	Increased project extent traffic and changes to the roadway network would affect 49 intersections operating at LOS E or F in 2029 and 55 intersections in 2040, resulting in the most intersection operations effects of the four alternatives.	Increased project extent traffic and changes to the roadway network would affect 41 intersections operating at LOS E or F in 2029 and 43 intersections in 2040.	Increased project extent traffic and changes to the roadway network would affect 27 intersections operating at LOS E or F in 2029 and 31 intersections in 2040 in the San Jose Station Approach, Monterey Corridor, and Morgan Hill and Gilroy Subsections.

Impacts	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Parking				
Impact TR#8: Temporary Construction-Related Effects on Parking	Some public parking may require temporary closure during construction; project features would limit impacts on public parking by providing parking for construction vehicles minimizing the time parking facilities are inoperable, and providing temporary replacement of displaced special event parking for the SAP Center.	Same as Alternative 1	Same as Alternative 1 for San Jose Diridon Station and SAP Center. For East Gilroy Station, all parking demands would be met by project parking facilities.	Same as Alternative 1, except that temporary effects on parking at the San Jose Diridon Station and SAP Center would be much smaller (displacement of up to 397 parking spaces vs. displacement of up to 2,083 spaces) and permanent displacement of existing spaces would be less (up to 278 spaces vs. up to 473 spaces). Temporary displacement of special event parking during construction would be replaced on a 1:1 basis.
Impact TR#9: Permanent Effects Related to Parking	No permanent loss of parking would occur related to the San Jose Diridon Station or Downtown Gilroy Station. Parking demands related to the San Jose Diridon Station and SAP Center can be met by existing facilities, project facilities, and the offsetting effects of increased transit service. Projected parking demands would be met by project parking facilities at the Downtown Gilroy Station.	Same as Alternative 1	Same as Alternative 1 for San Jose Diridon Station and SAP Center. For East Gilroy Station, all parking demands would be met by project parking facilities.	Permanent displacement of parking spaces near San Jose Diridon Station/SAP Center would also be replaced on a 1:1 basis.
Transit				
Impact TR#10: Temporary Impacts on Bus Transit	For all project alternatives, construction vehicles or temporary roadway closures would result in interference with bus routes and bus stops.	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1

Impacts	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Impact TR#11: Temporary Impacts on Passenger Rail Operations	Station construction in San Jose and Gilroy, and relocation of tracks in the San Jose Diridon Station Approach Subsection would result in temporary disruptions of Caltrain, ACE, Capitol Corridor, and Amtrak services. Alternative 1 would modify the tracks leading to the Caltrain College Park Station resulting in closure for 1 to 2 years.	Station construction in San Jose and Gilroy and relocation of tracks in the San Jose Diridon Station Approach, Monterey Corridor, and Morgan Hill and Gilroy Subsections would result in temporary disruptions of Caltrain, ACE, Capitol Corridor, and Amtrak passenger rail services. The construction of new grade separations and the temporary relocation of Caltrain stations in the Monterey Corridor and the Morgan Hill and Gilroy Subsections would also result in disruption to existing passenger rail. This alternative would have the most impacts on passenger rail operations among the alternatives.	Station construction in San Jose and relocation of tracks in the San Jose Diridon Station Approach Subsections would result in temporary disruptions of Caltrain, ACE, Capitol Corridor, and Amtrak passenger rail services. This alternative would have the least disruption of passenger rail service.	Station construction in San Jose and Gilroy and relocation of tracks in the San Jose Diridon Station Approach, Monterey Corridor, and Morgan Hill and Gilroy Subsections would result in temporary disruptions of Caltrain, ACE, Capitol Corridor, and Amtrak services. The temporary relocation and reconstruction of Caltrain stations in the Monterey Corridor and Morgan Hill and Gilroy Subsections would also result in disruption to passenger rail service. This alternative would have the second-most impacts on passenger rail operations among the alternatives.
Impact TR#12: Permanent Impacts on Bus Transit	Five high-frequency bus routes would experience delays from reduction of capacity on Monterey Road.	Same as Alternative 1	Same as Alternative 1	One high-frequency bus route would experience delays from reduction of capacity due to road closures in and near the Downtown Gilroy Station area.
Impact TR#13: Continuous Permanent Impacts on Bus Services	10 high-frequency bus routes in the San Jose Diridon Station area, along Monterey Road and in the Downtown Gilroy Station area would be delayed because of project-related trips and roadway network changes.	Same as Alternative 1	10 high-frequency bus routes in the San Jose Diridon Station area and along Monterey Road would be delayed because of project-related trips and roadway network changes.	10 high-frequency bus routes in the San Jose Diridon Station area, along Monterey Road and in the Downtown Gilroy Station area would be delayed because of project-related trips and roadway network changes. This alternative would have the most impacts because of additional delays on at-grade crossings.

Impacts	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Impact TR#14: Continuous Permanent Impacts on Passenger Rail and Bus Access	Passenger rail and bus access would be accommodated by project design and project features. The project would not affect the performance of these services.	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1
Impact TR#15: Continuous Permanent Impacts on Transit Ridership	Transit ridership would increase but would not hinder service by other transit providers or be inconsistent with transit plans and policies.	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1
Impact TR#16: Continuous Permanent Impacts on Passenger Rail System Capacity	Caltrain average service times would increase slightly from the blending of service with HSR between Scott Boulevard and I-880, but a regular interval schedule would be maintained. The project would not materially decrease the performance of passenger rail services.	HSR would only operate on dedicated tracks and would not affect other passenger rail service capacity.	Same as Alternative 2	Same as Alternative 1 for blending with Caltrain north of Diridon. Blending service with Caltrain south of Diridon would not impair existing capacity.
Nonmotorized Travel				
Impact TR#17: Temporary Impacts on Pedestrian and Bicycle Access	Pedestrian and bicycle access would be temporarily impeded, but project features would maintain safe and adequate access.	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1
Impact TR#18: Permanent Impacts on Pedestrian and Bicycle Access	Construction would require changes to pedestrian and bicycle facilities, but the project would be designed to maintain safe and accessible facilities.	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1

Impacts	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Impact TR#19: Continuous Permanent Impacts on Pedestrian and Bicycle Access	Operations would introduce nonmotorized trips around station areas, but the project would be designed to maintain or enhance pedestrian and bicycle access, providing safe and accessible facilities.	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1
Freight Rail Service				
Impact TR#20: Temporary Impacts on Freight Rail Operations	Station construction in San Jose and Gilroy and relocation of tracks in the San Jose Diridon Station Approach Subsection would result in temporary disruptions of freight rail services. Disruptions in other subsections would be limited.	Station construction in San Jose and Gilroy and relocation of tracks in the San Jose Diridon Station Approach, Monterey Corridor, and Morgan Hill and Gilroy Subsections would result in temporary disruptions of freight rail services. The construction of new grade separations in the Monterey Corridor and Morgan Hill and Gilroy Subsections would result in the disruption to existing freight rail. This alternative would have the greatest impact on freight rail of the alternatives.	Station construction in San Jose and relocation of tracks in the San Jose Diridon Station Approach Subsection would result in temporary disruptions of freight rail services. This alternative would result in the least disruption of freight rail service.	Station construction in San Jose and Gilroy and relocation of tracks in the San Jose Diridon Station Approach, Monterey Corridor, and Morgan Hill and Gilroy Subsections would result in temporary disruptions of freight rail services. The construction of relocated Caltrain stations in the Monterey Corridor and Morgan Hill and Gilroy Subsections would result in disruption to existing freight rail. This alternative would have the second-most impact on freight rail of the alternatives.
Impact TR#21: Continuous Permanent Impacts on Freight Rail Capacity	Shared track with freight between Scott Boulevard and CP Coast would result in disruptions to freight service and would result in temporal displacement but would not likely divert freight rail service to other modes.	This alternative would not include any shared track and would have no impact on freight service because of sharing of track.	Same as Alternative 2	Same as Alternative 1 for shared track with freight between Scott Blvd. and CP Coast. Freight would have separate track south of CP Coast and capacity would be maintained

Impacts	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Impact TR#22: Continuous Permanent Impacts on Freight Rail Operations	The project design and the HSR OCS installation would accommodate required freight height clearances where tracks are shared between CP Coast and Scott Boulevard	The project would not include any shared tracks with freight and thus would have no impacts related to the OCS and freight heights.	Same as Alternative 2	Same as Alternative 1

ACE = Altamont Corridor Express
CP = Control Point
CTP = construction transportation plan
HSR = high-speed rail
LOS = level of service
OCS = overhead contact system
US = U.S. Highway
VMT = vehicle miles traveled

3.2.8.1 Roadways, Freeways, and Intersections

Table 3.2-23 shows the temporary impacts on major roadways, freeways, and intersections from temporary road closures and relocations during construction. These impacts would be minimized through project features such as standard construction procedures, dedicated traffic control plans, and a CTP (TR-IAMF#2). The CTP, which would be reviewed and approved by the Authority, would provide a traffic control plan that would identify when and where temporary closures and detours would occur, with the goal of maintaining traffic flow, especially during peak travel periods. However, impacts at intersections on Monterey Road during construction cannot be avoided entirely.

Temporary impacts on parking, major roadways, freeways, and intersections from construction vehicle operations would be minimized through the implementation of a CTP (TR-IAMF#2) and providing off-street parking for construction vehicles (TR-IAMF#3). All project-related truck traffic, either for excavation or for transporting construction materials to the site, would use the designated truck routes in each city (TR-IAMF#7) to the extent feasible. Any temporary closure or removal of parking areas or roadways during construction would be restored upon completion of construction.

Project construction would result in permanent road closures and realignments that would have permanent impacts on intersection operations and freeway segments from congestion. These are delineated in Appendix 2-A, Roadway Crossings, Modifications, and Closures. Construction would require changes and closures to be made throughout the roadway network to accommodate the stations, platforms, track alignment and MOWFs. The types of roadway modifications would be similar under Alternatives 1, 2, and 3. Under Alternative 4, Monterey Road would not be narrowed. Mitigation measures are available to address permanent effects on intersection operations from permanent road closures and relocations, and other intersection delay causes, as described in TR-MM#1.

Project operations would result in permanent effects on freeway operations and intersection operations. For Alternatives 1, 2, and 3, a lane reduction along Monterey Road would affect two freeway segments in the Monterey Corridor Subsection because some traffic would divert to US 101, increasing congestion on the freeway. Mitigation measures are available to address permanent effects on freeway operations from project operations, as described in TR-MM#1. Under all project alternatives, increased traffic and changes to the roadway network would affect intersections because of congestion. Mitigation measures are available to address permanent impacts on intersection operations from project operations, as described in TR-MM#1. Project operations would change regional and statewide travel patterns and result in a reduction of VMT in the RSA, region, and state. Although there would be localized congestion resulting from the project, VMT would be reduced regionally in the project extent because of decreases in long-range vehicle trips and increases in HSR ridership, resulting in less overall congestion.

3.2.8.2 Parking

Project construction would temporarily displace parking in certain areas within the construction footprint, including at and adjacent to the San Jose Diridon Station (all alternatives) and the Downtown Gilroy Station (Alternatives 1, 2, and 4), including parking used for special events at the SAP Center. Project features would minimize temporary effects on parking through identification of employee parking locations (TR-IAMF#2), off-street parking for construction-related vehicles (TR-IAMF#3), and replacement on a 1:1 basis for temporary displacement of special event parking at the SAP Center (TR-IAMF #8).

Project operations would permanently displace parking at and adjacent to the San Jose Diridon Station (all alternatives), the SAP Center (all alternatives), and the Downtown Gilroy Station (Alternatives 1, 2, and 4), but the project includes construction of replacement parking on a 1:1 basis, so there would be no permanent reduction of available parking at these locations. Increased parking demands caused by HSR riders at the San Jose Diridon Station (all alternatives) would be accomdated through existing parking facilities, project parking facilities, and the offsetting effects of increased transit service to the station so that station user and SAP Center parking demands can be met without secondary environmental or socioeconomic effects.

Parking demands at the Downtown Gilroy Station (Alternatives 1, 2, and 4) and the East Gilroy Station (Alternative 3) would be met by proposed station parking.

3.2.8.3 Transit

Project construction would involve the temporary closure of bus stops, parking areas, transit stations, and roadway travel lanes. Project features would minimize temporary impacts on bus operations through the implementation of the CTP and CMP (TR-IAMF#11). Permanent impacts on bus operations would result from permanent road closures and roadway modifications that would reduce capacity and shift traffic. Available mitigation would include installing transit signal priority (TR-MM#2). Project construction would result in temporary impacts on passenger rail operations from temporary closure or removal of passenger rail stations, platforms, and track. To minimize conflicts and disruption, project features include implementation of CMPs, a CTP, and construction of temporary tracks (TR-IAMF#9). Available mitigation would include a railway disruption control plan (TR-MM#3).

Project operations would result in continuous permanent impacts on bus services, with delays caused by increased congestion along 11 bus routes. Available mitigation includes installing transit signal priority (TR-MM#2). Project operations would not result in continuous permanent impacts on passenger rail and bus access. Passengers would be able to access these services unimpeded because of project features such as station design that would take into account the changes in demand and would provide access for passengers using HSR as well as bus and other passenger rail services. Project operations would have continuous permanent impacts on transit ridership by increasing overall passenger rail ridership. HSR riders would create new demands for Caltrain and other transit systems because they would transfer from HSR to reach destinations served by these other systems. Additionally, HSR would compete with Caltrain for riders from Gilroy and San Jose northward. Project operations would have continuous permanent impacts on passenger rail system capacity, where the increase or decrease in average service times would vary depending on whether or not HSR has dedicated tracks or would share tracks with Caltrain.

3.2.8.4 Nonmotorized Travel

Project construction would result in temporary impacts on pedestrian and bicycle access from the temporary closure or removal of pedestrian facilities, bicycle lanes, and paths. Maintenance of pedestrian and bicycle access would minimize conflicts (TR-IAMF#4, TR-IAMF#5, and TR-IAMF#12). Project construction would result in permanent impacts on pedestrian and bicycle access from reconstruction and changes to pedestrian and bicycle facilities in HSR station areas or on roadways. Project features would provide and maintain pedestrian and bicycle accessibility across the HSR corridor, to and from stations, and on station property (TR-IAMF#12). Project operations would have continuous permanent impacts on pedestrian and bicycle access because of the potential for increased numbers of passengers at stations. Project features would maintain access across the HSR corridor (TR-IAMF#12).

3.2.8.5 Freight Rail Service

Project construction would result in temporary impacts on freight rail operations from temporary closure or relocation of tracks, which would vary by project alternative and subsection, and disruption and delay would last hours or days. Impacts would be minimized with shoofly tracks, scheduling, and the use of existing alternative tracks where available. Mitigation measures available include a railway disruption control plan (TR-MM#3). Installation of the project OCS would not affect height clearances for freight where tracks are shared with HSR. Project operations would not result in continuous permanent impacts on freight rail capacity because there would be no limiting of freight service from sharing of tracks in portions of different project alternatives. Freight operation hours would be constrained, which would cause changes in freight operations and inconvenience to operators, but freight operations overall would be maintained. Diversion of freight from rail to other modes is not likely to occur.

3.2.9 CEQA Significance Conclusions

As described in Section 3.1.5.4, analysts evaluated the impact of project actions against thresholds to determine whether a project action would result in no impact, a less-than-significant impact, or a significant impact under CEQA. Table 3.2-24 identifies the CEQA significance determinations for each impact discussed in Section 3.2.6, Environmental Consequences. A summary of the significant impacts, mitigation measures, and factors supporting the significance conclusion after mitigation follows the table.

Table 3.2-24 CEQA Significance Conclusions and Mitigation Measures for Transportation

Impacts	Impact Description and CEQA Level of Significance before Mitigation	Scenario	Mitigation Measure	CEQA Level of Significance after Mitigation
Roadways, Freeways, and Intersections				
Impact TR#1: Temporary Congestion/Delay Consequences on Major Roadways, Freeways, and Intersections from Temporary Road Closures, Relocations, and Modifications	Alternatives 1, 2, and 3: Project construction would increase traffic congestion at 23 intersections on Monterey Road during construction. Alternative 4: Monterey Road would not be narrowed, but there would be temporary closures due to construction. This is not considered a significant impact under CEQA.	During construction	No mitigation measures are required.	N/A
Impact TR#2: Temporary Congestion/Delay Consequences on Major Roadways, Freeways, and Intersections from Construction Vehicles	Project construction would control and manage construction vehicle traffic through construction plans, standard construction practices, dedicated construction truck routes and parking resources, and restrictions on construction hours to minimize interference with local vehicle circulation, delays or reductions in LOS, operations hazards, or loss of access to residences and community facilities. This is not considered a significant impact under CEQA.	During Construction	No mitigation measures are required.	N/A

Impacts	Impact Description and CEQA Level of Significance before Mitigation	Scenario	Mitigation Measure	CEQA Level of Significance after Mitigation
Impact TR#3: Permanent Delay/Congestion Consequences on Freeways and Roadways from Permanent Road Closures and Relocations	Alternatives 1, 2, and 3: Permanent road closures and relocations would substantially degrade the LOS and increase the V/C ratio of two freeway segments on US 101 from the reduced capacity on Monterey Road. This is not considered a significant impact under CEQA.	Existing Plus Project conditions	No mitigation measures are required.	N/A
Impact TR#4: Permanent Delay/Congestion Consequences on Intersections from Permanent Road Changes	Project construction would increase traffic congestion at 14, 16, 14, and 2 intersections around the stations under Alternatives 1, 2, 3, and 4, respectively. This is not considered a significant impact under CEQA.	Existing Plus Project conditions	No mitigation measures are required.	N/A
Impact TR#5: Continuous Permanent Impacts on Vehicle Miles Traveled	Less than significant for all alternatives: 2029 and 2040 Plus Project conditions would not result in a net increase of VMT over the baseline condition. The project would result in an overall decrease in VMT throughout the region and the state, resulting in a beneficial impact on VMT.	2029 and 2040 Plus Project conditions	No mitigation measures are required.	N/A

Impacts	Impact Description and CEQA Level of Significance before Mitigation	Scenario	Mitigation Measure	CEQA Level of Significance after Mitigation
Impact TR#6: Continuous Permanent Delay/Congestion Consequences on Freeway Operations	Alternatives 1, 2, and 3: The lane reduction along Monterey Road would substantially degrade the LOS and increase the V/C ratio of two freeway segments on US 101. Alternative 4: Additional delays from gate down time at the at-grade crossings would shift traffic to US 101, but would not substantially degrade the LOS on any freeway segments. This is not considered a significant impact under CEQA.	2029 and 2040 Plus Project conditions	No mitigation measures are required.	N/A
Impact TR#7: Continuous Permanent Delay/Congestion Consequences on Intersection Operations	Project operations in 2029 would increase congestion at 46, 49, 41, and 27 intersections under Alternatives 1, 2, 3, and 4, respectively, from increased traffic and changes to the roadway network. Project operations in 2040 would increase congestion at 49, 55, 43, and 31 intersections under Alternatives 1, 2, 3, and 4, respectively, from increased project traffic and changes to the roadway network. This is not considered a significant impact under CEQA.	2029 and 2040 Plus Project conditions	No mitigation measures are required.	N/A

Impacts	Impact Description and CEQA Level of Significance before Mitigation	Scenario	Mitigation Measure	CEQA Level of Significance after Mitigation
Parking				
Impact TR#8: Temporary Construction-Related Effects on Parking	Temporary effects on parking would be minimized through 1:1 replacement of SAP Center special event parking during construction.	Construction	No mitigation measures are required.	N/A
Impact TR#9: Permanent Effects Related to Parking	No permanent loss of parking would occur at or near stations. Parking demands can be met by either proposed parking facilities (Gilroy) or by combination of existing and project facilities and offsetting effect of increased transit service (San Jose Diridon/SAP Center). As a result, no secondary physical effects related to parking would occur.	Operations	No mitigation measures are required.	N/A
Transit				
Impact TR#10: Temporary Impacts on Bus Transit	Significant for all alternatives: Project construction would minimize decreases to the performance of bus transit facilities because it would control and manage construction vehicle traffic, but material decreases in performance of certain bus routes would still occur.	During Construction	No mitigation measures are available.	Significant and Unavoidable

Impacts	Impact Description and CEQA Level of Significance before Mitigation	Scenario	Mitigation Measure	CEQA Level of Significance after Mitigation
Impact TR#11: Temporary Impacts on Passenger Rail Operations	Significant for all alternatives: Project construction would temporarily disrupt passenger rail service and decrease passenger rail operation performance in the San Jose Diridon Station Approach Subsection and for Alternatives 2 and 4 in the Monterey Corridor, and Morgan Hill and Gilroy Subsections.	During Construction	TR-MM#3: Railway Disruption Control Plan	Less than Significant
Impact TR#12: Permanent Impacts on Bus Transit	Significant for all alternatives: Project construction would lead to delays along five bus routes from reduction of capacity on Monterey Road.	Existing Plus Project conditions	TR-MM#2: Install Transit Signal Priority	Less than Significant
Impact TR#13: Continuous Permanent Impacts on Bus Services	Significant for all alternatives: Project operations would lead to delays along 10 bus routes because of project-related trips and roadway network changes, resulting in the decrease of bus operation performance.	2029 and 2040 Plus Project conditions	TR-MM#2: Install Transit Signal Priority	Less than Significant
Impact TR#14: Continuous Permanent Impacts on Passenger Rail and Bus Access	Less than significant for all alternatives: Project operations would not impede passenger access to other passenger rail and bus services and would therefore not decrease the performance of these services.	2029 and 2040 Plus Project conditions	No mitigation measures are required.	N/A

Impacts	Impact Description and CEQA Level of Significance before Mitigation	Scenario	Mitigation Measure	CEQA Level of Significance after Mitigation
Impact TR#15: Continuous Permanent Impacts on Transit Ridership	Less than significant for all alternatives: Project operations would increase transit ridership, but would not result in inconsistencies with transit plans and policies and would not hinder transit operations or planned expansions.	2029 and 2040 Plus Project conditions	No mitigation measures are required.	N/A
Impact TR#16: HSR Continuous Permanent Impacts on Passenger Rail System Capacity	Less than significant for all alternatives: Project operations would not diminish transit system capacity and would not conflict with adopted policies, plans, or programs regarding public transit, or decrease the performance of transit systems.	2029 and 2040 Plus Project conditions	No mitigation measures are required.	N/A
Nonmotorized Travel				
Impact TR#17: Temporary Impacts on Pedestrian and Bicycle Access	Less than significant for all alternatives: Project construction would not decrease the performance of pedestrian and bicycle facilities, because it would maintain adequate access.	During Construction	No mitigation measures are required.	N/A
Impact TR#18: Permanent Impacts on Pedestrian and Bicycle Access	Less than significant for all alternatives: Project construction would not decrease the performance of pedestrian and bicycle facilities because it would provide accessible bicycle and pedestrian facilities.	Existing Plus Project conditions	No mitigation measures are required.	N/A

Impacts	Impact Description and CEQA Level of Significance before Mitigation	Scenario	Mitigation Measure	CEQA Level of Significance after Mitigation
Impact TR#19: Continuous Permanent Impacts on Pedestrian and Bicycle Access	Less than significant for all alternatives: Project operations would not decrease the performance of pedestrian and bicycle facilities, because it would provide accessible bicycle and pedestrian facilities.	2029 and 2040 Plus Project conditions	No mitigation measures are required.	N/A
Freight Rail Service				
Impact TR#20: Temporary Impacts on Freight Rail Operations	Significant for all alternatives: Project construction would temporarily disrupt freight rail service and decrease freight rail operation performance in the San Jose Diridon Station Approach Subsection and for Alternatives 2 and 4 in the Monterey Corridor, and Morgan Hill and Gilroy Subsections.	During Construction	TR-MM#3: Railway Disruption Control Plan	Less than Significant
Impact TR#21: Continuous Permanent Impacts on Freight Rail Capacity	No impact for Alternatives 2 and 3. Less than significant for Alternative 1: Sharing of tracks with Alternatives 1 and 4 would not divert freight rail service to other modes and would not disrupt or interfere with freight operations or create changes that would result in significant secondary impacts on air quality, noise, GHG emissions, or traffic operations.	2029 and 2040 Plus Project conditions	No mitigation measures are required.	N/A

Impacts	Impact Description and CEQA Level of Significance before Mitigation	Scenario	Mitigation Measure	CEQA Level of Significance after Mitigation
Impact TR#22: Continuous Permanent Impacts on Freight Rail Operations	No impact for Alternatives 2 and 3. Less than significant for Alternatives 1 and 4: Operation of the OCS would not decrease the effective freight vehicle height and thus would not divert freight rail service to other modes, disrupt or interfere with freight operations, or create changes that would result in significant secondary impacts on air quality, noise, GHG emissions, or traffic operations.	2029 and 2040 Plus Project conditions	No mitigation measures are required.	N/A

CEQA = California Environmental Quality Act
GHG = greenhouse gases
LOS = level of service
N/A = not applicable
OCS = overhead contact system
US = U.S. Highway
V/C = volume-to-capacity
VMT = vehicles miles traveled

Impact TR#10: Temporary Impacts on Bus Transit

There would be a significant impact under all four project alternatives on bus transit operations during construction. Project-related construction staging and traffic would contribute to material decrease in bus route performance along roadways and at the existing San Jose Diridon and Downtown Gilroy Stations. Construction of the HSR stations, platforms, and track alignment would require TCEs. The TCE may require temporary closure of parking areas, bus stops, transit stations, or roadway travel lanes. Changes to bus routes and bus stops would be managed through development and implementation of a CMP and CTP, but material decreases in certain bus routes would still occur. No mitigation measures are available, and the impact would be significant and unavoidable.

Impact TR#11: Temporary Impacts on Passenger Rail Operations

There would be a temporary significant impact under all four project alternatives on passenger rail operations. Construction of the HSR stations, platforms, and track alignment would require TCEs. The TCE may require temporary closure of transit stations, passenger rail platforms, and passenger rail track. Any closure or removal of passenger rail stations, platforms, and track during construction would be temporary. These activities would disrupt passenger rail and result in commuter inconvenience and diversion from transit to other commute modes.

The Authority would implement TR-MM#3 to reduce the impacts on passenger rail. The railway disruption control plan would minimize the duration of construction in areas that would require temporary closures, limit construction hours, and plan for coordination between the construction contractor and passenger rail service providers so that disruptions would be limited to a maximum of several hours or several days. The implementation of the mitigation would reduce disruption levels to a less-than-significant level.

Impact TR#12: Permanent Impacts on Bus Transit

There would be a significant impact under all four project alternatives on bus transit operations. Permanent road closures and reduction in roadway capacity on Monterey Road would shift vehicle trips and reduce capacity along high-frequency VTA bus routes (routes with service every 15 minutes or less), contributing to bus performance delay. The project-related roadway modifications would affect bus on-time performance and operating speeds.

The Authority would implement TR-MM#2 to reduce the impacts on bus transit operations. This mitigation measure would improve bus transit operations on Monterey Road and in the San Jose Diridon Station and the Gilroy station areas by installing transit signal priority at key intersections. This mitigation measure is described in Section 3.2.7. Because mitigation would support continued bus transit operations with improvements, the impact would be less than significant.

Impact TR#13: Continuous Permanent Impacts on Bus Services

There would be a significant impact under CEQA for all project alternatives on bus transit operations. Vehicle trips around the stations would increase because of the addition of passengers and HSR workers traveling to station areas. This added traffic would lead to increased volume, congestion, and delays around San Jose Diridon and Gilroy Stations. In addition, construction of the road diet of Monterey Road would result in reduced capacity on the Monterey Corridor and adjacent roadways, leading to congestion and delays at intersections along Monterey Road and along adjacent roadways. The increased congestion and delay because of the project would occur along high-frequency VTA bus routes (routes with service every 15 minutes or less), contributing to bus performance delay. The addition of project-related vehicle trips would affect bus on-time performance and operating speeds. All project alternatives would add project-related trips affecting 10 high-frequency bus routes near San Jose Diridon Station, Monterey Road, and Gilroy Station.

The Authority would implement TR-MM#2 to reduce the impacts on bus transit operations. This mitigation measure would improve bus transit operations on Monterey Road and in the San Jose Diridon Station and Gilroy station areas by installing transit signal priority at key intersections. This mitigation measure is described in Section 3.2.7. Because mitigation would support continued bus transit operations with improvements, the impact would be less than significant.

Impact TR#20: Temporary Impacts on Freight Rail Operations

There would be a significant impact under CEQA for all project alternatives on freight rail operations. Because freight rail operations occur in the rail rights-of-way used for portions of the construction, construction would disrupt freight rail operations. Construction would disrupt freight rail services, which would result in freight operator and customer inconvenience and potentially temporary diversion to other freight modes.

The Authority would implement TR-MM#3 to reduce the impacts on freight rail. The railway disruption control plan would minimize the duration of construction in areas that would require temporary closures, limit construction hours, and plan for coordination between the construction contractor and freight rail service providers such that disruptions would be limited to a maximum of a few hours or a few days. The implementation of the mitigation would reduce disruption to a less-than-significant level.