

3 Affected Environment, Environmental Consequences, and Mitigation Measures

3.2 Transportation

3.2.1 Introduction

Section 3.2, Transportation, of this *Merced to Fresno Section: Central Valley Wye Draft Supplemental Environmental Impact Report (EIR)/Environmental Impact Statement (EIS)* (Draft Supplemental EIR/EIS) updates the *Merced to Fresno Section California High-Speed Train Final Project EIR/EIS* (Merced to Fresno Final EIR/EIS) (California High-Speed Rail Authority [Authority] and Federal Railroad Administration [FRA] 2012) with new and revised information relevant to transportation, analyzes the potential impacts of the Central Valley Wye alternatives (and the No Project Alternative), and describes impact avoidance and minimization features (IAMF) that would avoid, minimize, or reduce these impacts. Where applicable, mitigation measures are proposed to further reduce, compensate for, or offset impacts of the Central Valley Wye alternatives. Section 3.2 also defines the transportation resources within the region and describes the affected environment in the resource study area (RSA).

The analysis herein is consistent with the analysis conducted in the Merced to Fresno Final EIR/EIS. Both analyses examine similar RSAs for direct and indirect impacts on transportation. Because the Central Valley Wye alternatives do not include stations, no analysis of impacts on transportation from operations of stations was conducted. Where information has changed or new information has become available since the Merced to Fresno Final EIR/EIS was prepared in 2012, the analysis for the Central Valley Wye alternatives uses the updated versions of these sources or datasets. Relevant portions of the Merced to Fresno Final EIR/EIS that remain unchanged are summarized and referenced in this section, and are not repeated in their entirety.

The *Merced to Fresno Section: Central Valley Wye Transportation Technical Report* (Transportation Technical Report) (Authority and FRA 2016) provides additional technical details on transportation.¹ This technical report is available on the California High-Speed Rail Authority's (Authority) website:

http://hsr.ca.gov/Programs/Environmental_Planning/supplemental_merced_fresno.html Additional details on transportation are provided in the following appendices in Volume II of this Draft Supplemental EIR/EIS:

- Appendix 2-C, Applicable Design Standards, provides the list of relevant design standards for the Central Valley Wye alternatives
- Appendix 3.2-A, High-Speed Rail Grade Separations and Road Closures for Central Valley Wye Alternatives

Transportation facilities, including major roadways, pedestrian and bicycle access, airports, emergency and property access, and transit conditions near the Central Valley Wye alternatives and surrounding San Joaquin Valley are important factors because the Central Valley Wye alternatives would cross roads, railroads, and other transport facilities using overheads or underpasses with at-grade, below-grade, and above-grade (elevated) segments. Four other resource sections in this Draft Supplemental EIR/EIS provide additional information related to transportation:

¹ The Transportation Technical Report was finalized in 2016; however, the content of this Draft Supplemental EIR/EIS has continued to evolve to incorporate the most current data and other sources of information relevant to the environmental analyses, some of which were not available at the time that the technical report was prepared. As a result, some of the information presented in the Draft Supplemental EIR/EIS is more current than the information presented in the technical report. To provide clarity on any information and data differences between the Draft Supplemental EIR/EIS and the technical report and the location of the most current information, a Central Valley Wye Technical Report Memorandum of Updates has been produced and included in Appendix 3.1-D, Central Valley Wye Technical Report Memorandum of Updates.

- **Section 3.11, Safety and Security**—Impacts of constructing the Central Valley Wye alternatives associated with traffic safety, airport safety zones, and increases in emergency response times
- **Section 3.13, Land Use and Development**—Impacts of constructing the Central Valley Wye alternatives associated with traffic and circulation
- **Section 3.18, Regional Growth**—Growth-inducing impacts of constructing the Central Valley Wye alternatives associated with transportation
- **Section 3.19, Cumulative Impacts**—Cumulative impacts of constructing the Central Valley Wye alternatives associated with transportation.

Definition of Resources

The following are definitions for the transportation resources analyzed in this Draft Supplemental EIR/EIS. These definitions are the same as those used in the Merced to Fresno Final EIR/EIS (Authority and FRA 2012).

- **Major Roadways**—Major roadways and corridor traffic volumes refer to the network of roads, roadway intersections, and corridor traffic in the transportation RSA.
 - All roadways are classified according to their primary functions:
 - **Freeway**—A major roadway with controlled access, devoted exclusively to traffic movement, mainly of a through or regional nature.
 - **Expressway**—A major roadway with a mix of controlled and uncontrolled access, linking freeways with arterials and providing access to major destinations.
 - **Arterial**—A major roadway mainly taking traffic to and from expressways and freeways and providing access to major destinations as well as adjacent properties.
 - **Collector**—A roadway that collects and distributes traffic to and from arterials and provides access primarily to and from adjacent properties.
 - **Local**—The lowest category of roadway, providing access to and from individual properties and distributing local traffic to and from the higher roadway classifications, particularly collector streets.
- **Pedestrian and Bicycle Access**—Pedestrian and bicycle access refers to pedestrian access routes and bicycle access routes within the transportation RSA.
- **Aviation**—Aviation refers to the air transportation network in California.
- **Emergency Access and Property Access**—Emergency access and property access refers to emergency facilities and properties and their associated road networks in the transportation RSA.

In addition to those definitions described in the Merced to Fresno Final EIR/EIS, this Draft Supplemental EIR/EIS includes the following definitions.

- **Transit Conditions**—Transit conditions refer to the regional network of passenger rail and bus transportation.
- **Freight Rail Conditions**—Freight rail conditions refer to the regional network of freight railways.

3.2.2 Laws, Regulations, and Orders

The California Environmental Quality Act (CEQA) and Council on Environmental Quality regulations require a discussion of inconsistencies or conflicts between a proposed undertaking and federal, state, regional or local plans and laws. This section identifies laws, regulations, plans, policies, and orders that are relevant to the analysis of transportation in this Draft

Supplemental EIR/EIS. Also provided are summaries of new or updated laws, regulations, and orders that have occurred since publication of the Merced to Fresno Final EIR/EIS.

3.2.2.1 Federal

The FRA's Procedures for Considering Environmental Impacts (64 Federal Register 28545) is the same as described in Section 3.2.2, Laws, Regulations, and Orders, of the Merced to Fresno Final EIR/EIS (Authority and FRA 2012: page 3.2-1). There are no new, additional, or updated federal laws, regulations, or orders.

3.2.2.2 State

The following state laws, regulations, orders, and plans are the same as those described in Section 3.2.2 of the Merced to Fresno Final EIR/EIS (Authority and FRA 2012: page 3.2-1):

- California Government Code Section 65080
- California Streets and Highways Code Section 1 et seq.

New, additional, or updated state laws, regulations, and orders follow.

California Government Code Section 14036

This law requires the California Department of Transportation (Caltrans) to produce a state rail plan that includes a passenger and freight rail component. The 2013 *California State Rail Plan* 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.²

3.2.2.3 Regional and Local

The *Madera County 1995 General Plan Document* is the same as described in Section 3.2.2 of the Merced to Fresno Final EIR/EIS (Authority and FRA 2012: page 3.2-2). New, additional, or updated regional and local laws, regulations, and orders follow.

Airport Master Plans

The *Draft Madera Countywide Airport Land Use Compatibility Plan* was updated in July 2015 and contains the individual Compatibility Plan for the Chowchilla Municipal Airport. As a public-service airport owned and operated by the City of Chowchilla, the Chowchilla Municipal Airport is subject to an airport master plan and land use compatibility plan prepared by the Madera County Airport Land Use Commission, for regulating land use within airport safety zones to minimize airport hazards and risk of accidents. See Section 3.2.4.1, Regional Transportation System, of the Merced to Fresno Final EIR/EIS (Authority and FRA 2012: page 3.2-10) for more information.

The *Stanislaus County Airport Land Use Compatibility Plan* was updated in 2014 and contains the individual Compatibility Plan for the Oakdale Municipal Airport. The basic function of the plan is to promote compatibility between the airport and the surrounding land uses to the extent that the surrounding area has not already been developed in incompatible uses. The plan accomplishes this function through establishment of compatibility criteria applicable to new development within certain boundaries of the airport.

Public Transportation Plans

Public transportation agencies must adopt plans that guide future service and facilities development. The *Final Short Range Transit Plan 2012–2017* (Transit Joint Powers Authority for Merced County 2012) reviews the public transit services within Merced County, lays out a 10-year

² The 2018 *California State Rail Plan: Connecting California (Draft)* was released for public comment in October 2017. Following the public comment period, the rail plan is scheduled to be revised and finalized in early 2018. For more information on the rail plan, please see Section 1.2.4.1, Travel Demand and Capacity Constraints.

vision for an enhanced transit network, and proposes a stepwise approach to pursuing that vision over the next 5 years, under two potential scenarios.

The Madera County *Final 2014 Regional Transportation Plan and Sustainable Communities Strategy* includes information about public transportation. The county's public transportation is provided by fixed-route and demand-response transit systems including city providers, county-related providers, private providers, and passenger rail service.

Transportation Plans, Policies, and Programs for Non-Motorized Transportation

Both regional and local governments must adopt plans for non-motorized transportation to guide public investment in capital infrastructure and operational programs. The *Merced County Regional Bicycle Transportation Plan* (MCAG 2008) provides a comprehensive long-range view for the development of an extensive regional bikeway network that connects cities and unincorporated areas countywide.

The *City of Merced 2013 Bicycle Transportation Plan* (City of Merced 2013) is a comprehensive planning document that describes Merced's existing bikeway system, a vision for its future, and a prioritized list of projects to be constructed. The Merced Bicycle Transportation Plan also enables the City of Merced to compete for state funds for bike-related improvements.

The *Madera County 2004 Regional Bicycle Transportation Plan* (Madera County Transportation Commission [MCTC] 2004) addresses the needs of commuting and recreational cyclists throughout the county, and suggests needed improvements and additions to the bikeway routes and facilities. The plan also serves as a basis for future investment in bicycle and pedestrian infrastructure and identifies development priorities, funding sources, and grant opportunities.

General Plan Policies and Ordinances

Table 3.2-1 lists regional, county, and local general plans, policies, and objectives relevant to the Central Valley Wye alternatives. Refer to Section 3.2.2.3, Regional and Local, of the Merced to Fresno Final EIR/EIS for more information.

Table 3.2-1 Regional and Local Plans and Policies

Policy Title	Summary
Regional Plans	
<i>2014-2040 Regional Transportation Plan/Sustainable Communities Strategy for Merced County</i> (2014)	<p>The Merced County Association of Governments (MCAG) adopted the regional transportation plan on September 25, 2014, and adopted amendment 1 on May 19, 2016, updating the previous version of the transportation plan that was included in Section 3.2.2.3 (page 3.2-2) of the Merced to Fresno Final EIR/EIS. The regional transportation plan includes the following goals, policies, and objectives:</p> <ul style="list-style-type: none"> ▪ Provide a good system of roads that are well maintained, safe, and efficient and meet the transportation demands of people and freight. ▪ Establishes an LOS standard of "D" for the entire regional road network.⁽¹⁾ Any segment of roadway that is operating at worse than LOS D is considered to be a deficiency in the transportation system. ▪ Provide an efficient, effective, coordinated regional transit system that increases mobility for urban and rural populations, including transportation-disadvantaged persons. ▪ A passenger rail system that provides safe and reliable service for passengers. ▪ Establish a High-Speed Rail system connecting Merced and Los Banos to Sacramento and the Bay Area. ▪ Support the High-Speed Rail planning process and actively provide comments and input.

Policy Title	Summary
	<ul style="list-style-type: none"> Provide a transportation system that enables safe movement of goods in and through Merced County. A fully functional and integrated air service and airport system complementary to the countywide transportation system. A regional transportation system for bicyclists and pedestrians.
Final 2014 Regional Transportation Plan and Sustainable Communities Strategy (2014)	<p>Madera County adopted the regional transportation plan in 2014, updating the previous version of the transportation plan that was included in Section 3.2.2.3 (page 3.2-2) of the Merced to Fresno Final EIR/EIS. The regional transportation plan includes the following goals, policies, and objectives:</p> <ul style="list-style-type: none"> To promote Intermodal Transportation Systems that are fully accessible, encourage quality growth and development, support the region's environmental resource management strategies, and are responsive to the needs of current and future travelers. To promote and develop transportation systems that stimulate, support, and enhance the movement of people and goods to foster economic competitiveness of the Madera Region. To enhance transportation system coordination, efficiency, and intermodal connectivity to keep people and goods moving and meet regional transportation goals. To maintain the efficiency, safety, and security of the region's transportation system. To improve the quality of the natural and human-built environment through regional cooperation of transportation systems planning activities. To maximize funding to maintain and improve the transportation network. To identify reliable transportation choices that support a diverse population. To protect the environment and health of residents by improving air quality and encouraging active transportation (non-motorized transportation, such as bicycling and walking). Establishes minimum standards of LOS D for analysis of the county's transportation system (local streets and roads) and LOS C for state routes (Madera County 2014).
Merced County	
2030 Merced County General Plan (2013)	<p>Merced County adopted the <i>2030 Merced County General Plan</i> on December 10, 2013, updating the previous version of the general plan that was included in Section 3.2.2.3, (page 3.2-1) of the Merced to Fresno Final EIR/EIS. The general plan includes the following transportation and circulation (CIR) and Agriculture (AG) goals and policies:</p> <ul style="list-style-type: none"> Goal CIR-1: Maintain an efficient roadway system for the movement of people and goods that enhances the physical, economic, and social environment while being safe, efficient, and cost-effective. Table CIR-1: Describes the desired roadway characteristics for each roadway classification type within the county. Policy CIR-1.5: Implement a countywide roadway system that achieves the following LOS standards during peak traffic periods: (A) For roadways located within rural areas – LOS C or better; (B) For roadways located outside Urban Communities that serve as connectors between Urban Communities – LOS D or better; (C) For roadways located within Urban Communities – LOS D or better.

Policy Title	Summary
	<ul style="list-style-type: none"> Policy AG-2.16: Coordinate with the California High Speed Rail Authority to locate the high-speed rail lines along existing major transportation corridors, such as State Routes 99 or 152, to minimize the conversion of productive agricultural land to nonagricultural uses. Policy CIR-5.5: Work with other agencies to plan railroad corridors that facilitate the preservation of important rail line right-of-way for further rail expansion or other appropriate transportation facilities.
City of Chowchilla	
<i>City of Chowchilla 2040 General Plan (2011)</i>	<p>The City of Chowchilla adopted the <i>City of Chowchilla 2040 General Plan</i> on May 2, 2011, updating the previous version of the draft general plan that was included in Section 3.2.2.3 (page 3.2-2) of the Merced to Fresno Final EIR/EIS. The general plan includes the following Circulation (CI) objectives and policies:</p> <ul style="list-style-type: none"> Objective CI-2: Provide timely and effective means of programming and constructing street and highway improvements to maintain an overall LOS standard of LOS C, with peak hour LOS D acceptable in some instances. Identifies the importance of arterial street connectivity and the potential impacts on connectivity from the Union Pacific Railroad corridor and the SR 99 corridor. Identifies the future potential relocation of the Chowchilla Municipal Airport and calls for a review of alternative locations over the next 10 years.

Sources: Merced County, 2013; MCAG, 2014; Madera County, 2014; City of Chowchilla, 2011

LOS = level-of-service

(1) Level of service (LOS) is used to measure the efficiency of traffic operations at a location, whether roadway, highway or intersection. LOS for these facilities is defined in detail in Section 3.2.4.3, Methods for NEPA and CEQA Impact Analysis.

3.2.3 Compatibility with Plans and Laws

As indicated in Section 3.1.3.3, Compatibility with Plans and Laws, the California Environmental Quality Act (CEQA) and NEPA regulations³ require a discussion of inconsistencies or conflicts between a proposed undertaking and federal, state, regional, or local plans and laws. As such, this Draft Supplemental EIR/EIS describes the inconsistency of the Central Valley Wye alternatives with federal, state, regional, and local plans and laws to provide planning context.

Several federal and state laws and implementing regulations, listed in Section 3.2.2.1, Federal, and Section 3.2.2.2, State, pertain to transportation. A summary of the federal and state requirements considered in this analysis follows:

- FRA guidelines for environmental impact analysis.
- State of California requirements for preparation of transportation plans by regional agencies, and for design of transportation facilities.
- State of California comprehensive requirements for transportation planning by city and county government under the state's General Plan Guidelines (Circulation Element).
- Federal and state permit processes that require an applicant to demonstrate compliance with these acts, laws, and plans prior to, during, and post construction.

The Authority, as the lead state 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. Similarly, FRA, as federal lead agency, is required to comply with all federal laws and regulations. Therefore, there would be no inconsistencies between the Central Valley Wye alternatives and these federal and state laws and regulations.

³ NEPA regulations refer to the regulations issued by the Council for Environmental Quality located at 40 CFR Part 1500.

The Authority is a state agency and therefore is not required to comply with local land use and zoning regulations; however, it has endeavored to design and construct the HSR project so that it is compatible with land use and zoning regulations. A total of 7 plans and 36 policies were reviewed. The Central Valley Wye alternatives would be consistent with 33 policies and would be inconsistent with three policies. The Central Valley Wye alternatives would be inconsistent with certain provisions of the following regional and local policies and plans:

- *2014-2040 Regional Transportation Plan/Sustainable Communities Strategy* for Merced County, Level of Service (LOS) Criteria (MCAG 2014).
- *2030 Merced County General Plan* (Merced County 2013)—Policy CIR-1.5 aims to implement a countywide roadway system that achieves the following LOS standards during peak traffic periods: (A) for roadways located within rural areas—LOS C or better; (B) for roadways located outside Urban Communities that serve as connectors between Urban Communities—LOS D or better; and (C) for roadways located within Urban Communities—LOS D or better.
- *City of Chowchilla 2040 General Plan* (City of Chowchilla 2011)—Objective CI-2 aims to maintain an overall LOS standard of LOS C, with peak-hour LOS D acceptable in some instances.

In general, policies related to LOS aim to develop and maintain efficient transportation systems for the movement of people and goods. These LOS standards cannot always be maintained during construction, as some roads may require partial or full closures, or temporary flagging and stopping of traffic stops. However, the Central Valley Wye alternatives would incorporate temporary signage, advanced detour notification, and provisions for safe pedestrian and bicycle passage or detours to maintain traffic flow on major roadways during peak travel periods. Additionally, the Central Valley Wye alternatives would require the contractor to work in consultation with local jurisdictions and prepare a construction transportation plan (see discussion of IAMFs in Section 3.2.4.2, Impact Avoidance and Minimization Features), which would include measures to minimize the impact of construction and construction traffic on adjoining and nearby roadways. Taken together, these requirements would meet the overall objectives of these local and regional policies.

3.2.4 Methods for Evaluating Impacts

The evaluation of impacts on transportation is a requirement of the National Environmental Policy Act (NEPA) and CEQA. The following sections summarize the RSAs and the methods used to analyze impacts on transportation resources. As summarized in Section 3.2.1, Introduction, four other sections also provide additional information related to transportation.

3.2.4.1 Definition of Resource Study Area

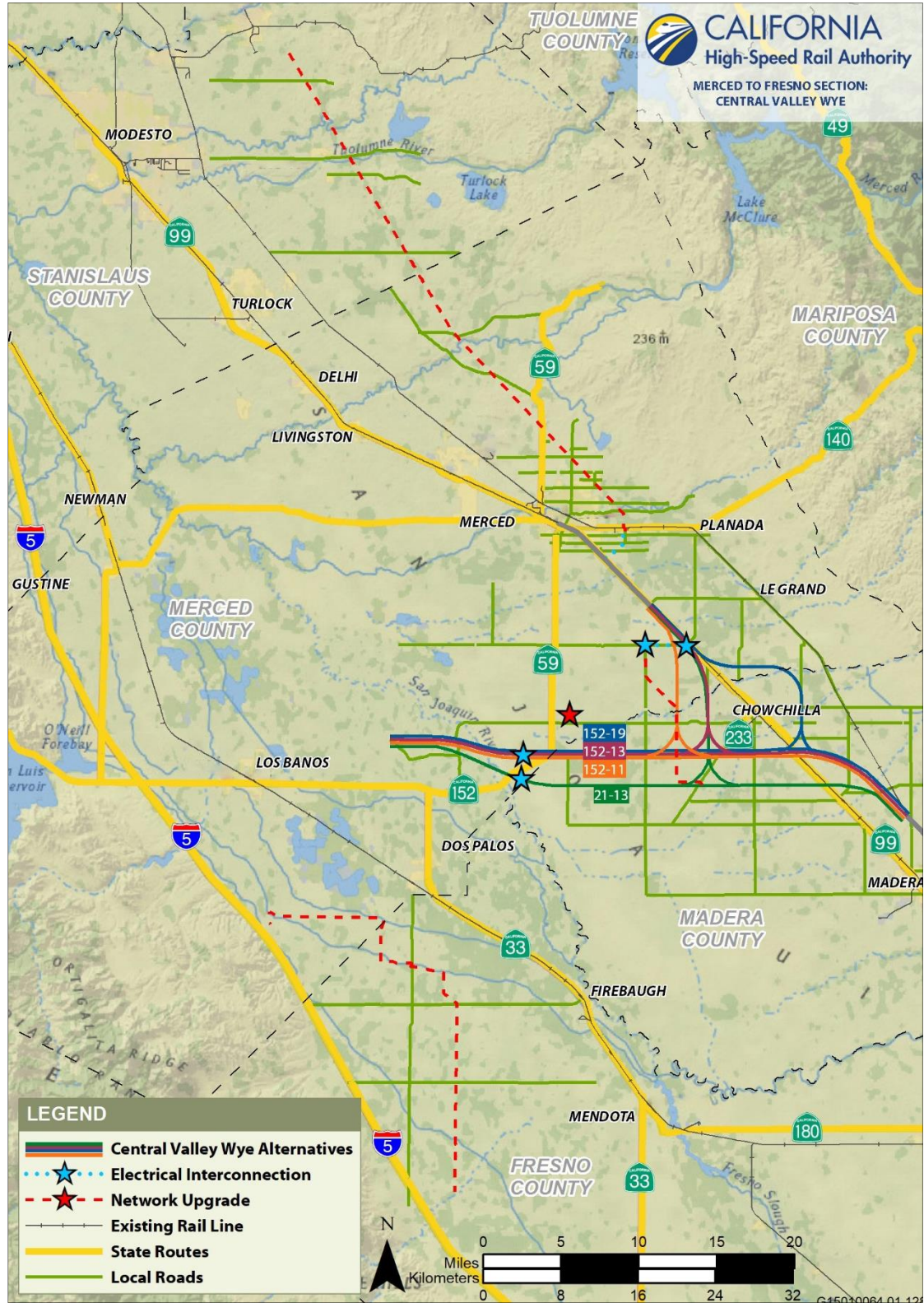
As defined in Section 3.1, Introduction, RSAs are the geographic boundaries within which the environmental investigations specific to each resource topic were conducted. The transportation RSA is comprised of multiple, specific transportation-related RSAs. These include major roadways, transit, aviation, emergency and property access, and pedestrian and bicycle access. The RSAs for impacts on transportation resources include the project footprint for each of the Central Valley Wye alternatives. When discussing the transportation RSA in this chapter, the term refers to the individual RSA for each alternative unless otherwise indicated.

The transportation RSAs also include the extent of roadway networks that may experience changes in traffic volumes of more than 50 peak-hour vehicular trips as well as areas that might be indirectly affected as a result of implementation of the selected Central Valley Wye alternative. RSA boundaries vary for roadways, transit conditions and aviation, emergency and property access, and pedestrian and bicycle access. Table 3.2-2 describes the five RSAs, and includes a general definition and boundary definition for each RSA within the Central Valley Wye alternatives.

Table 3.2-2 Definition of Resource Study Areas

Source	General Definition	RSA Boundary Definition
Major Roadways		
Construction	Includes major State Routes for regional access; Regionally Significant Roadways as defined by the Merced County Association of Governments, the Madera County Transportation Commission, and relevant general plans; and Regional Truck Routes that could be affected by construction of the Central Valley Wye alternatives.	Major roadways within 0.25 mile of the project footprint of each alternative (Figure 3.2-1).
Transit Conditions		
Construction	Includes regional and local bus transit service, passenger rail service, and freight rail service that could be affected by construction of the Central Valley Wye alternatives.	Ground transit facilities within 0.25 mile of the project footprint of each alternative (Figure 3.2-2).
Aviation		
Construction	Includes public and private airports and airstrips that could be affected by construction of the Central Valley Wye alternatives.	Airports within 1 mile of the project footprint of each alternative (Figure 3.2-2).
Emergency Access / Property Access		
Construction	Includes emergency vehicle access and property access on major roadways that could be affected by construction of the Central Valley Wye alternatives. Includes emergency facilities (e.g., hospitals, fire stations, police stations).	Major and minor roadways, emergency facilities, and other properties where road closures and detours could affect access within 0.25 mile of the project footprint of each alternative.
Pedestrian and Bicycle Access		
Construction	Includes infrastructure for pedestrian and bicycle transportation that could be affected by construction of the Central Valley Wye alternatives	Pedestrian and bicycle facilities within 500 feet of the project footprint of each alternative.

Source: Authority and FRA compilation, 2017



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Figure 3.2-1 Regional Road Network

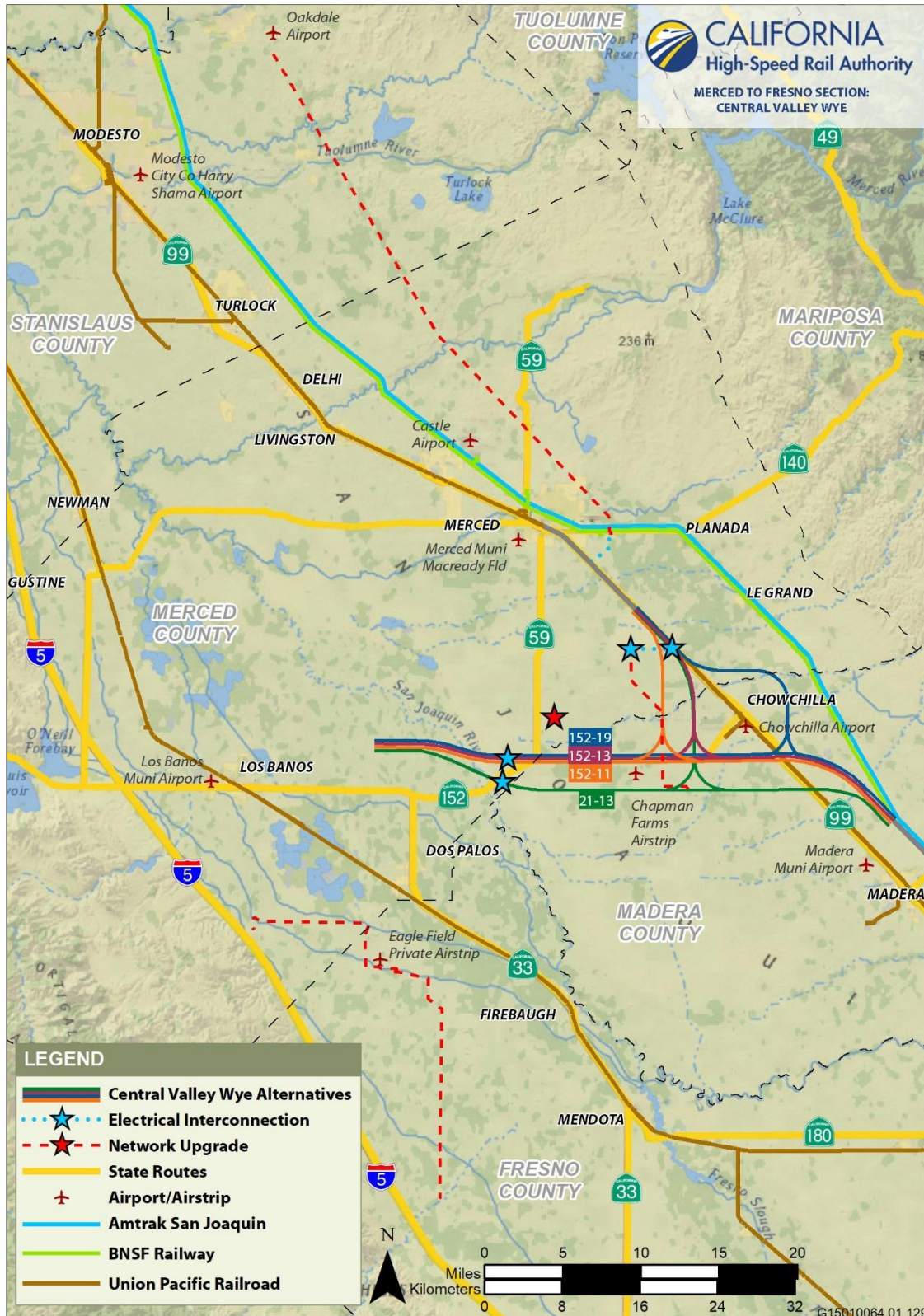


Figure 3.2-2 Existing Airports and Rail Networks in the Resource Study Area

3.2.4.2 Impact Avoidance and Minimization Features

As noted in Section 2.2.3.7, Impact Avoidance and Minimization Features, the Central Valley Wye alternatives incorporate standard IAMFs to avoid or minimize impacts. The Authority would incorporate IAMFs during project design and construction and, as such, the analysis of impacts of the Central Valley Wye alternatives in this section factors in all applicable IAMFs. Appendix 2-B, California High-Speed Rail: Impact Avoidance and Minimization Features, provides a detailed description of IAMFs that are included as part of the design for the Central Valley Wye alternatives. IAMFs applicable to transportation resources include:

- 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, Maintenance of Transit Access

3.2.4.3 Methods for NEPA and CEQA Impact Analysis

This section describes the sources and methods the Authority and FRA used to analyze potential impacts from implementing the Central Valley Wye alternatives on transportation resources. These methods apply to both NEPA and CEQA unless otherwise indicated. Refer to Section 3.1.3.4, Methods for Evaluating Impacts, for a description of the general framework for evaluating impacts under NEPA and CEQA. As described in Section 3.2.1 and in the following discussions, the Authority and FRA have applied the same methods and many of the same data sources from the Merced to Fresno Final EIR/EIS to this Draft Supplemental EIR/EIS. Refer to the Transportation Technical Report (Authority and FRA 2016) for more information regarding the methods and data sources used in this analysis. Laws, regulations, and orders (see Section 3.2.2) that regulate transportation resources were also considered in the evaluation of impacts on transportation resources.

The transportation impact analysis considered both direct and indirect impacts on transportation resources, including:

- Direct impacts of implementing the Central Valley Wye alternatives on transportation resources, including temporary road closures and modifications, permanent road closures and modifications, and the resulting impacts on roadway levels of service.
- Indirect impacts of implementing the Central Valley Wye alternatives on transportation resources, including impacts such as emergency access, property access, trip generation, transit services, or non-motorized modes of travel on the regional transportation system.

The analysis of impacts on transportation resources is based on the data sources described in the Merced to Fresno Final EIR/EIS Section 3.2.4, Methods for Evaluating Impacts (Authority and FRA 2012). In addition to the data sources described in the Merced to Fresno Final EIR/EIS, analysts used updated information from other sources to evaluate potential impacts on transportation in this Draft Supplemental EIR/EIS. The additional sources include the Transportation Technical Report (Authority and FRA 2016)

Because the Central Valley Wye alternatives do not include stations, no impact analysis was required to evaluate the impacts of station operations on transportation resources.

Baseline for Transportation Impact Analyses

CEQA requires that an EIR include a description of the existing physical environmental conditions near the project. These existing 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]). This project baseline differs from the No Project Alternative in that the No Project Alternative describes future conditions in the absence of the Central Valley Wye alternatives, whereas the project baseline describes existing conditions prior to implementation of the Central Valley Wye alternatives. For this project, the baseline for assessing potential transportation impacts is the traffic conditions that existed in the project area in 2015 and 2016.

Traffic Analysis Sources

Analysts evaluated potential impacts on transportation resources using documents available from the California Department of Finance, and the Madera County Travel Demand Model. Because of the absence of traffic-generating uses (i.e., stations) associated with implementing the Central Valley Wye alternatives, no new traffic modeling was conducted as part of the analysis. Instead, all roadway traffic volumes were counted in 2012 and 2013, and were then extrapolated to 2015 and 2040 forecasts using a worst-case scenario for an annual traffic increase of 2.5 percent. This 2.5 percent figure is the result of the California Department of Finance's assessment that the population in Merced and Madera Counties is expected to grow at an average of 2.5 percent per year between 2010 to 2040 (CDOF 2013).

Appendix B, Madera Traffic Model Statistics, of the Transportation Technical Report (Authority and FRA 2016) presents traffic volume and traffic growth rate increases in the transportation RSA from 2010 to 2020, 2010 to 2035, and 2010 to 2040. This information is organized by facility type available in the Madera County Traffic Demand model. According to the Madera Traffic Demand Model, traffic on all roadways in the region is anticipated to grow at or below 1 percent annually. According to the California Department of Finance, the population in Merced and Madera Counties is expected to grow an average of 2.5 percent per year between 2010 and 2040. The traffic volume data presented in the Madera Model Statistics is in vehicle miles traveled (VMT) format, which presents an overview of a geographic region during a certain period—typically 1 year.

As stated previously, analysts used the conservative (in the sense of less likely to underestimate traffic impacts) California Department of Finance estimate of 2.5 percent annual growth rather than the Madera Traffic Demand Model estimate of 1 percent annual growth for estimating traffic volumes in the transportation RSA.

Roadway Analysis for Operations Impacts

Because the Central Valley Wye alternatives do not include stations or other traffic-generating sources such as maintenance facilities, operations of the Central Valley Wye alternatives are not anticipated to generate any additional traffic beyond what would exist in the roadway system because of build-out under the county and city general plans. A simplified traffic analysis was performed that was suitable for the low traffic volumes on roads in the transportation RSA, rather than the more elaborate methodologies used in urban settings.

Road Closures and Modifications Route Analysis for Construction Impacts

Route analysis is used to determine how road closures and modifications would affect the routes selected by motorists to travel from their origins to their destinations. To evaluate the effect of roadway modifications (closures and grade separations) on traffic volumes and diversion, analysts reviewed the proposed roadway modifications that would result from each of the Central Valley Wye alternatives to determine possible traffic rerouting. Traffic volumes on many of the roadways in the surrounding street network were collected in 2012, 2013, and 2016. Depending on the Central Valley Wye alternative, 11 representative roadway segments that would serve as the shortest alternative routes for the rerouted traffic were selected for traffic analysis. Hourly traffic counts at these locations were collected. Additional detail regarding the analysis is provided in the Transportation Technical Report (Authority and FRA 2016).

Because of existing low traffic volumes in the local roadway network in the transportation RSA (i.e., in 2012 and 2013 and escalated to 2015, most roadways had average daily traffic volumes of less than 500 vehicles, with many having average daily traffic volumes of fewer than 50 vehicles), intersection analyses were not conducted; almost all of the existing intersections in the area operate at LOS A or B because of these low traffic volumes (this is discussed in detail in

Section 3.2.5.4, Roadway Segments). Because no stations are proposed along the Central Valley Wye alternatives, no vehicle trips would be added as a result of the Central Valley Wye alternatives for the future traffic scenario. Thus, the LOS is not expected to change substantially.

The transportation impact analysis reviewed both temporary and permanent proposed roadway closures and modifications (including grade separations) that would be caused by the Central Valley Wye alternatives in detail to determine possible traffic rerouting. Proposed road closures and modifications can be found in Appendix 3.2-A. Both temporary and permanent routes likely to be used by diverted traffic during and after construction were also reviewed. These routes were chosen by identifying the most direct route for traffic and based on current design.

Road Closures and Modifications Traffic Analysis

The traffic analysis evaluates the efficiency of traffic operations at selected intersections or on selected road segments. Traffic volumes on many of the roadways in the surrounding street network were collected in 2012, 2013, and 2016 for analysis. Hourly counts were also collected for 11 representative roadway segments that would likely serve as new routes for temporarily or permanently rerouted traffic. Data collected from these 11 roadways were then used to perform a traffic roadway analysis, based on roadway volumes and their relationship to roadway function/congestion. Baseline traffic volumes on the 11 representative roadway segments were then compared to projected traffic volumes associated with road closures and traffic diversion resulting from implementing the Central Valley Wye alternatives.

Permanent Highway Interchange Modifications

Some highway interchanges are proposed to be modified as part of the Central Valley Wye alternatives. While this analysis is informed by preliminary design, final design of these interchanges would occur at a later stage in the design process. Throughout the design of the Central Valley Wye alternatives, the Authority has coordinated and will continue to coordinate with Caltrans and local jurisdictions regarding potential impacts on their facilities. (See *California High-Speed Rail Project, Merced to Fresno Section: Wye Alternatives Roadway Design SR 152 Intersection Control Evaluation* (Parsons 2013).

Traffic Operational Standards

The efficiency of traffic operations at a specific location is measured in terms of LOS. LOS is the primary unit of measure for the operating quality of a highway, roadway, or intersection.

LOS measures the efficiency of traffic operations at a traffic facility.

- At intersections, LOS is determined based on the delay experienced per vehicle. The LOS methods for assessing signalized intersections evaluate the effects of signal type, timing, phasing, and progression on average delay.
- At roadway segments, the LOS indicators are based on the following factors: (1) the volume of traffic for designated sections of roadway (segment) during a typical day and (2) the practical vehicular capacity of that segment. These two measures are used to determine the volume-to-capacity (V/C) ratio for that segment. The V/C ratio is then converted to an alpha descriptor identifying operating conditions and expressed as an LOS (LOS A through LOS F).

The *Highway Capacity Manual* (Transportation Research Board 2010) is a widely referenced source, providing techniques to measure transportation facility performance. Using procedures from the manual, the quality of traffic operations is graded using one of six LOS designations: A, B, C, D, E, or F. A designation of LOS A represents excellent (free-flow) conditions, while a designation of LOS F represents oversaturated (congested) conditions.

LOS, as described previously, was used to analyze impacts on roadway segments. The Florida Department of Transportation *2013 Quality/Level of Service Handbook* (FDOT 2013) was used to determine the vehicular capacity of roadways for the *2030 Merced County General Plan Background Report* (Mintier Harnish 2013). These planning-level guidelines are quoted extensively in transportation planning and traffic engineering sectors and are shown in Table 3.2-3.

Table 3.2-3 Level-of-Service Thresholds (LOS)

Area	Facility	Interchanges	Intersections	Flow	Lanes	Median	Level-of-Service					Qty
							A	B	C	D	E	
Urban	Freeway	<2 miles apart	N/A	N/A	4	N/A	22,000	36,000	52,000	67,200	76,500	1
Urban	Expressway	N/A	N/A	N/A	4	Divided	**	**	21,400	31,100	32,900	1
Urban	Highway	N/A	N/A	Uninterrupted	2	Undivided	2,000	7,000	13,800	19,600	27,000	1
Urban	Highway	N/A	<2/mile		2	Undivided	**	4,200	13,800	16,400	16,900	1
Urban	Highway	N/A	<4.5/mile		2	Undivided	**	1,900	11,200	15,400	16,300	1
Urban	Collector	N/A	N/A	N/A	2	Undivided	**	**	4,800	10,000	12,600	1
Urban	Highway	N/A	<4.5/mile	N/A	4	Undivided	**	3,500	23,200	29,100	30,600	1
Urban	Arterial	N/A	N/A	N/A	4	Undivided	**	**	15,600	27,800	29,400	1
Urban	Highway	N/A	<2/mile	N/A	4	Undivided	3,500	20,900	24,600	25,700	**	1
Urban	Collector	N/A	N/A	N/A	4	Undivided	**	**	9,800	19,200	22,800	1
Urban	Highway	N/A	<2/mile	N/A	2	Undivided	**	4,000	13,100	15,500	16,300	1
Urban	Arterial	N/A	N/A	N/A	2	Undivided	**	**	7,000	13,600	14,600	2
Transitioning/Urban	Freeway	N/A	N/A	N/A	4	N/A	23,500	38,700	52,500	62,200	69,100	5
Transitioning/Urban	Collector	N/A	N/A	N/A	2	Undivided	**	**	4,400	9,400	12,000	31
Rural	Freeway	N/A	N/A	N/A	6	N/A	33,100	54,300	73,900	87,400	97,200	1
Rural	Freeway	N/A	N/A	N/A	4	N/A	21,300	35,300	47,900	56,600	63,000	4
Rural	Non-Fwy	N/A	N/A	Uninterrupted	4	Divided	17,500	28,600	40,800	52,400	58,300	4
Rural	Non-Fwy	N/A	N/A	Isolated Stops	4	N/A	**	2,900	17,400	23,000	25,200	2
Rural	Non-Fwy	N/A	N/A	Uninterrupted	2	Undivided	2,600	5,300	8,600	13,800	22,300	70
Rural	Non-Fwy	N/A	N/A	Isolated Stops	2	Undivided	**	1,900	8,000	10,700	12,100	30

Area	Facility	Interchanges	Intersections	Flow	Lanes	Median	Level-of-Service					Qty
							A	B	C	D	E	
Suburban	Non-Fwy	N/A	N/A	Interrupted	4	Divided	**	5,300	25,500	29,400	31,200	2
Suburban	Highway	N/A	N/A	Uninterrupted	2	Undivided	2,500	7,200	12,700	17,300	23,500	1
Suburban	Arterial	N/A	N/A	Interrupted	2	Undivided	**	2,200	11,000	13,900	14,900	5
Suburban	Collector	N/A	N/A	N/A	2	Undivided	**	**	1,900	7,600	10,100	17

Source: FDOT, 2013

N/A = not applicable

< = less than

Fwy = freeway

Qty = quantity

LOS A identifies the best operating conditions along a section of roadway and is characterized by free-flow traffic, low volumes, and few or no restrictions on maneuverability. LOS F characterizes forced traffic flow with high traffic densities, slow travel speeds, and often stop-and-go conditions. Table 3.2-4 defines and describes the LOS criteria for the roadway segment analysis.

Table 3.2-4 Roadway Segment Level-of-Service Criteria

Level-of-Service (LOS)	Volume-to-Capacity Ratio	Definition
A	0.00–0.60	Primarily free-flow operation. Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Control delay at the boundary intersection is minimal. The travel speed exceeds 85% of the base free-flow speed, and the volume-to-capacity ratio is no greater than 1.0.
B	0.61–0.70	Reasonably unimpeded operation. The ability to maneuver within the traffic stream is only slightly restricted, and control delay at the boundary intersection is not significant. The travel speed is between 67% and 85% of the base free-flow speed, and the volume-to-capacity ratio is no greater than 1.0.
C	0.71–0.80	Stable operation. The ability to maneuver and change lanes at midsegment locations may be more restricted than at LOS B. Longer queues at the boundary intersection may contribute to lower travel speeds. The travel speed is between 50% and 67% of the base free-flow speed, and the volume-to-capacity ratio is no greater than 1.0.
D	0.81–0.90	A less stable condition in which small increases in flow may cause substantial increases in delay and decreases in travel speed. This operation may be due to adverse signal progression, high volume, or inappropriate signal timing at the boundary intersection. The travel speed is between 40% and 50% of the base free-flow speed, and the volume-to-capacity ratio is no greater than 1.0.
E	0.91–1.00	Characterized by unstable operation and significant delay. Such operations may be due to some combination of adverse progression, high volume, and inappropriate signal timing at the boundary intersection. The travel speed is between 30% and 40% of the base free-flow speed, and the volume-to-capacity ratio is no greater than 1.0.
F	>1.00	Characterized by flow at extremely low speed. Congestion is likely occurring at the boundary intersection, as indicated by high delay and extensive queuing. The travel speed is 30% or less of the base free-flow speed or the volume-to-capacity ratio is greater than 1.0.

Source: Transportation Research Board, 2010

3.2.4.4 Determining Significance under CEQA

CEQA requires that an EIR identify the significant environmental impacts of a project (CEQA Guidelines 15126). One of the primary differences between NEPA and CEQA is that CEQA requires a significance determination for each impact using a threshold-based analysis (see 3.1.4.3, Methods for NEPA and CEQA Impact Analysis, for further information). By contrast, under NEPA, the term “significant” is used only to determine whether an EIS will be required; NEPA requires that an EIS be prepared when the proposed federal action (project) as a whole has the potential to “significantly affect the quality of the human environment.” Accordingly, Section 3.2.9, CEQA Significance Conclusions, summarizes the significance of the environmental impacts on transportation resources for each Central Valley Wye alternative. The Authority is using the

following thresholds to determine if a significant impact on transportation would occur as a result of the Central Valley Wye alternatives. A significant impact is one which would result in:

- Inadequate emergency access.
- Substantially increased hazards because of a design feature (such as sharp curves or dangerous intersections) or incompatible uses (such as farm equipment).
- Conflicts with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

For roadway segments, the recommended thresholds of significance are based on an increase in volume-to-capacity ratio, as follows:

- An impact should be considered to be significant if the addition of project-related traffic results in a reduction in LOS below LOS D.
- For segments that are projected to operate at LOS E or F under the No Project Alternative conditions, an impact is considered to be significant if the addition of project-related traffic results in an increase of volume-to-capacity ratio by 0.04 or more.

3.2.5 Affected Environment

This section describes the affected environment for transportation within the RSA for the Central Valley Wye alternatives, including existing major roadways, traffic volumes, truck routes and volumes, transit service and facilities, rail service and facilities, and aviation services and facilities, pedestrian and bicycle access, and emergency access and property access. It also discusses changes to transportation in the San Joaquin Valley since publication of the Merced to Fresno Final EIR/EIS in 2012 and updates the information on existing transportation conditions with available data to a representative 2015 baseline. This information provides the context for the environmental analysis and evaluation of impacts.

3.2.5.1 State Routes

Regional access in the transportation RSA is provided by SR 59, SR 99, SR 132, SR 140, SR 152, and SR 233. Traffic volumes on the state routes are collected and compiled by Caltrans, and presented as annual average daily traffic (AADT). AADT is the 24-hour traffic volume at a given location averaged over a 365-day year (the total year volume is often reported as VMT and is used in various transportation planning and traffic engineering methodologies). These roadways are shown on Figure 3.2-1 and described in this section.

- **SR 59** is a north-south route beginning at SR 152 at the Merced County–Madera County line and extending north through Merced and beyond. The AADT ranged between 5,700 and 11,500 vehicles in the transportation RSA in 2013 (Caltrans 2013a).
- **SR 99** is a major north-south highway connecting Central Valley cities, including Merced and Fresno, and serves as a major truck route for the transportation of agricultural products. It is also a major commuter route and connects recreational sites such as Yosemite National Park, the Sierra Nevada forest, Kings Canyon National Park, and Sequoia National Park. SR 99 is currently a four-lane freeway between SR 152 and the Merced County line. SR 99 is a four-lane expressway between Avenue 21 and SR 152. On SR 99 in 2013, AADT was about 38,000 vehicles near SR 152, and about 37,500 vehicles near SR 233 (Caltrans 2013a).
- **SR 132** is one of the major east-west routes of travel from Interstates 5/580 that passes through the cities of Modesto and Waterford and the town of La Grange. This route is important to recreational travelers en route to Modesto Reservoir, Turlock Reservoir, Lake Don Pedro, and the Sierra Nevada. SR 132 is currently a two-lane regional expressway within the transportation RSA.
- **SR 140** is a generally east-west roadway originating in El Portal, at the western entrance to Yosemite Valley. It crosses SR 99, transects the city of Merced, and terminates at I-5 just

west of Gustine. AADT on this route in 2014 was 850 vehicles at its junction with I-5, 14,700 at its junction with SR 99, and 1,400 vehicles at the entrance to Yosemite (Caltrans 2014a).

- **SR 152** is generally an east-west roadway, and operates as a four-lane divided expressway within the transportation RSA. Based on Caltrans 2016 data, the AADT was approximately 17,000 in the transportation RSA (Caltrans 2016). SR 152 is a designated truck route throughout the transportation RSA (Caltrans 2013a).
- **SR 233** is generally a northeast-southwest arterial extending between SR 99 and SR 152 near Chowchilla in Madera County. SR 233 is also known as Robertson Boulevard. It is owned and maintained by Madera County. SR 233 is a two- to four-lane facility with no high-occupancy vehicle lanes. The AADT ranged from 3,300 to 12,600 (Caltrans 2013a).

3.2.5.2 Regionally Significant Roadways

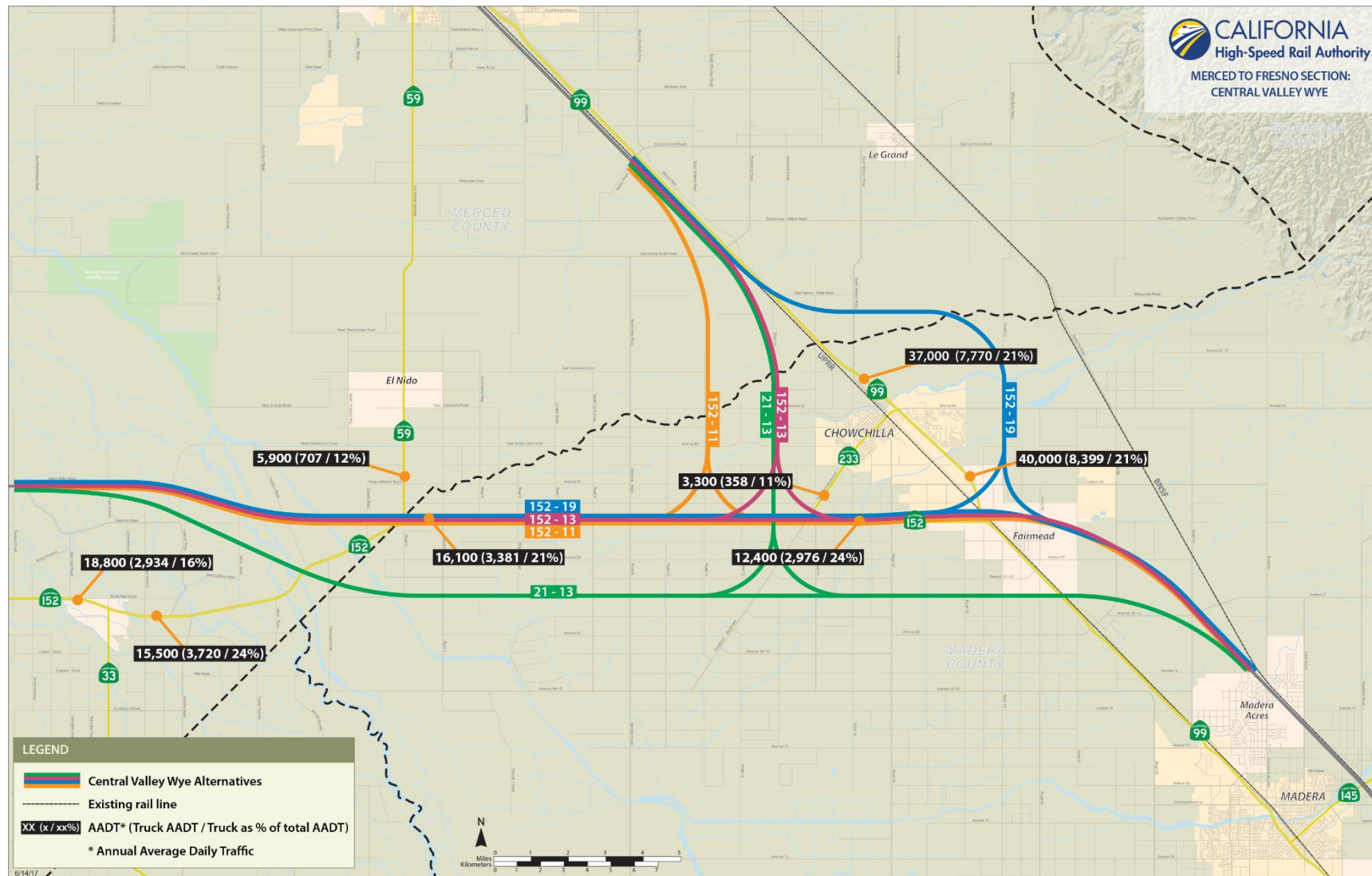
Merced County Association of Governments and the Madera County Transportation Commission have developed a Regionally Significant Road System based on the Federal Highway Administration's functional classification system of streets and highways. City and county general plans also designate important regional roadways. The region contains state routes as well as other important regional roadways that serve as connections to population centers outside of the transportation RSA. Regionally important roads within the transportation RSA are presented on Figure 3.2-1.

3.2.5.3 Regional Truck Routes

The Federal Surface Transportation Assistance Act of 1982 defined a system to describe truck routes. The truck routes within the transportation RSA include both national network and terminal access routes, as follows:

- **National Network (Federal)**—National network truck routes are federal highways. SR 99 is the only national network truck route within the transportation RSA.
- **Terminal Access (State, Local)**—Terminal access routes are portions of state routes or local roads that can accommodate trucks. Within the transportation RSA, the only terminal access routes are SR 59, SR 140, SR 152, and SR 233.

Figure 3.2-3 presents the total vehicular and truck volumes on designated truck routes in the transportation RSA, expressed as a percentage of the total AADT volumes. The total truck volume includes the number of trucks with two or more axles. The most recent truck volumes available from Caltrans were from 2014.



Source: Authority and FRA, 2016; Caltrans, 2013a, 2015

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Figure 3.2-3 Existing Vehicular and Truck Volumes in the Resource Study Area

3.2.5.4 Roadway Segments

Figure 3.2-4 shows the locations of the selected roadway segments with respect to the proposed Central Valley Wye alternatives; the rationale for selecting these particular road segments is provided in the Roadway Analysis for Operations Impacts subsection of Section 3.2.4.3, Methods for NEPA and CEQA Impact Analysis. Traffic volumes were collected at these locations (24-hour tube counts). The Transportation Technical Report, Appendix C (Authority and FRA 2016), presents the traffic counts collected at these locations.

The following sections describe current roadway operating conditions of the study segments presented on Figure 3.2-4. All roadway traffic volumes were counted in 2012 or 2013, and were escalated to 2015.

SR 152 (North) to Road 13 Wye Alternative

Existing (2015) peak-hour conditions of selected roadway segments in the transportation RSA for the SR 152 (North) to Road 13 Wye Alternative are presented in Table 3.2-5. When traffic counts are conducted for a transportation analysis, local entities typically prefer peak-hour counts for measures of effectiveness and when analyzing potential impacts. As shown in the table, these roads experience low traffic volumes and all roadway segments operate at LOS A. The highest traffic volume in the transportation RSA occurs along Los Banos Highway, which at its peak experiences traffic volumes of less than half its capacity.

Table 3.2-5 Existing (2015) Roadway Operations along SR 152 (North) to Road 13 Wye Alternative

Count #	Roadway	Location	Lanes	Existing (2015) No Project					
				AM Peak			PM Peak		
				Volume	V/C	LOS	Volume	V/C	LOS
1	Henry Miller Road	Near Hutchins Road	2	35	0.03	A	20	0.02	A
3	Los Banos Highway	North of Avenue 23 1/2	2	463	0.39	A	533	0.45	A
5	Hemlock Road	North of SR 152	2	52	0.04	A	28	0.02	A
6	Hemlock Road	South of SR 152	2	29	0.02	A	22	0.02	A
8	E. Sandy Mush Road	West of SR 99	2	20	0.02	A	26	0.02	A
9	Avenue 25	East of Road 14	2	49	0.04	A	88	0.07	A
10	Avenue 25	West of Road 13	2	126	0.11	A	101	0.08	A
17	Avenue 23	East of Fairmead Boulevard	2	5	0.00	A	11	0.01	A
19	Road 16	at SR 152	2	125	0.10	A	142	0.12	A
20	Road 22	North Avenue 22	2	352	0.29	A	209	0.17	A
21	Avenue 20	West of Road 25	2	6	0.01	A	9	0.01	A
22	Road 12	at SR 152	2	11	0.01	A	18	0.02	A

Source: Traffic counts conducted by Parsons Transportation Group in 2012, 2013, and 2016

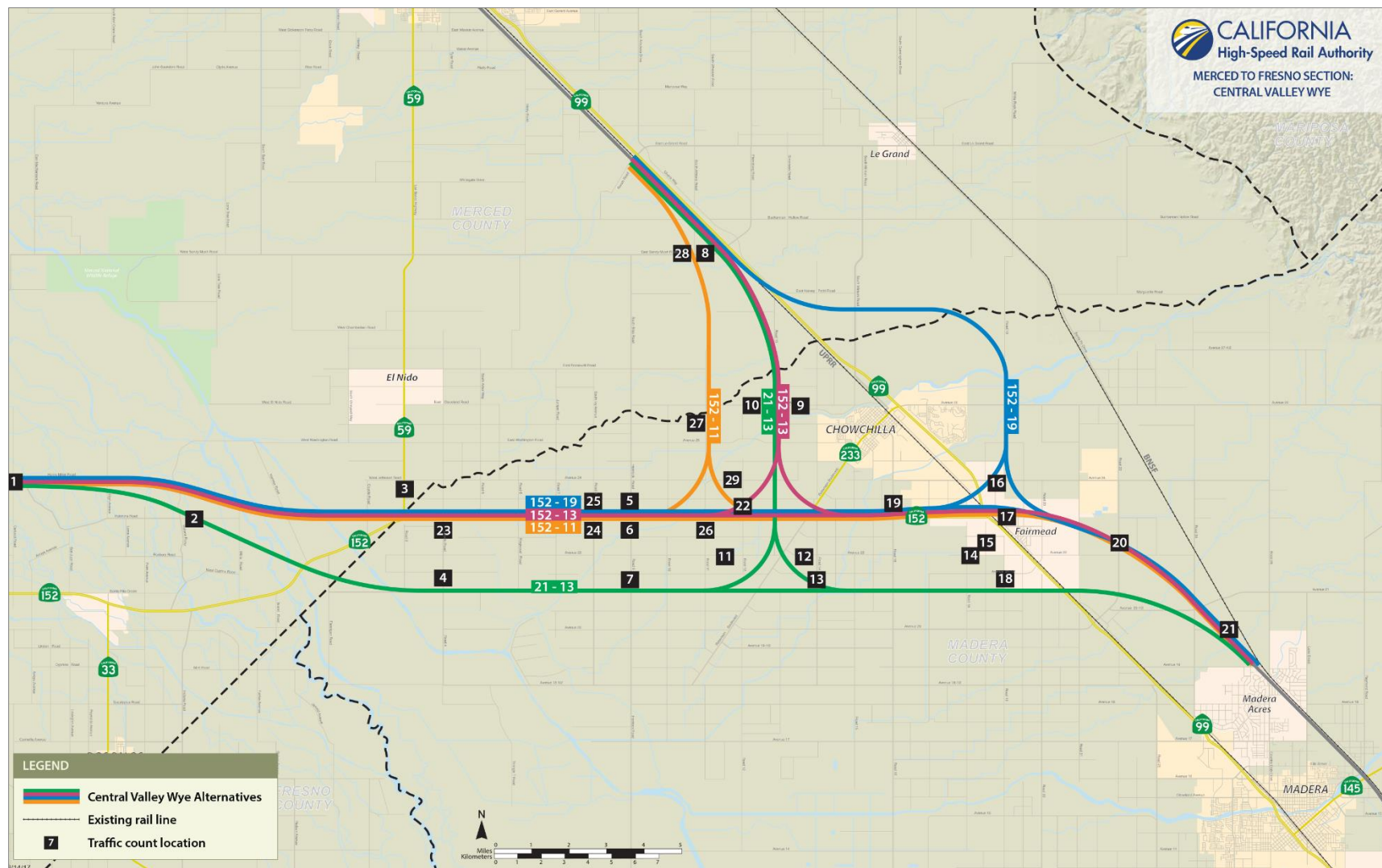
LOS standard pursuant to Merced County guidelines (LOS D for rural highway, LOS C for all other rural roads) and Madera County guidelines (LOS D).

Volume = two-way peak-hour volume

V/C = volume-to-capacity ratio

LOS = level-of-service

SR = State Route



Source: Parsons, 2011, 2013; Authority and FRA, 2005, 2008.

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Figure 3.2-4 Roadway Segments Selected for Traffic Analysis

SR 152 (North) to Road 19 Wye Alternative

Existing (2015) peak-hour conditions of selected roadway segments in the transportation RSA for the SR 152 (North) to Road 19 Wye Alternative are presented in Table 3.2-6. As shown in the table, these roads experience low traffic volumes and all roadway segments operate at LOS A.

Table 3.2-6 Existing (2015) Roadway Operations along SR 152 (North) to Road 19 Wye Alternative

Count #	Roadway	Location	Lanes	Existing (2015) No Project					
				AM Peak			PM Peak		
				Volume	V/C	LOS	Volume	V/C	LOS
1	Henry Miller Road	Near Hutchins Road	2	35	0.03	A	20	0.02	A
3	Los Banos Highway	North of Avenue 23 1/2	2	463	0.39	A	533	0.45	A
5	Hemlock Road	North of SR 152	2	52	0.04	A	28	0.02	A
6	Hemlock Road	South of SR 152	2	29	0.02	A	22	0.02	A
8	E Sandy Mush Road	West of SR 99	2	20	0.02	A	26	0.02	A
16	Avenue 24	East of Avenue 18 3/4	2	96	0.08	A	62	0.05	A
17	Avenue 23	East of Fairmead Boulevard	2	5	0.00	A	11	0.01	A
19	Road 16	at SR 152	2	125	0.10	A	142	0.12	A
20	Road 22	North Avenue 22	2	352	0.29	A	209	0.17	A
21	Avenue 20	West of Road 25	2	6	0.01	A	9	0.01	A
22	Road 12	at SR 152	2	11	0.01	A	18	0.02	A

Source: Traffic counts conducted by Parsons Transportation Group in 2012, 2013, and 2016

LOS standard pursuant to Merced County guidelines (LOS D for rural highway, LOS C for all other rural roads) and Madera County guidelines (LOS D).

Volume = two-way peak-hour volume.

V/C = volume-to-capacity ratio

LOS = level-of-service

SR = State Route

Avenue 21 to Road 13 Wye Alternative

Existing (2015) peak-hour conditions of selected roadway segments in the transportation RSA for the Avenue 21 to Road 13 Wye Alternative are presented in Table 3.2-7. As shown in the table, these roads experience low traffic volumes and all roadway segments operate at LOS A.

Table 3.2-7 Existing (2015) Roadway Operations along Avenue 21 to Road 13 Wye Alternative

Count #	Roadway	Location	Lanes	Existing (2015) No Project					
				AM Peak			PM Peak		
				Volume	V/C	LOS	Volume	V/C	LOS
1	Henry Miller Road	Near Hutchins Road	2	37	0.03	A	21	0.02	A
2	Hutchins Road	North of SR 152	2	6	0.01	A	6	0.01	A

Count #	Roadway	Location	Lanes	Existing (2015) No Project					
				AM Peak			PM Peak		
				Volume	V/C	LOS	Volume	V/C	LOS
4	Road 4	North of Avenue 21	2	86	0.07	A	56	0.05	A
7	Road 9/ Hemlock Road	North of Avenue 21	2	46	0.04	A	34	0.03	A
8	E Sandy Mush Road	West of SR 99	2	21	0.02	A	27	0.02	A
9	Avenue 25	East of Road 14	2	49	0.04	A	88	0.07	A
10	Avenue 25	West of Road 13	2	126	0.11	A	101	0.08	A
11	Road 21 1/2	East of Road 12	2	4	0.00	A	6	0.01	A
12	Avenue 21 1/2	East of Robertson Boulevard	2	10	0.01	A	14	0.01	A
13	Road 14	North of Avenue 21	2	22	0.02	A	13	0.01	A
14	Avenue 22	West of Road 18 ½	2	1	0.00	A	2	0.00	A
18	Avenue 21	West of Road 19	2	0	0.00	A	5	0.00	A

Source: Traffic counts conducted by Parsons Transportation Group in 2012, 2013, and 2016

LOS standard pursuant to Merced County guidelines (LOS D for rural highway, LOS C for all other rural roads) and Madera County guidelines (LOS D).

Volume = Two-way peak-hour volume

V/C = volume-to-capacity ratio

LOS = level-of-service

SR = State Route

SR 152 (North) to Road 11 Wye Alternative

Existing (2015) peak-hour conditions of selected roadway segments in the transportation RSA for the SR 152 (North) to Road 11 Wye Alternative are presented in Table 3.2-8. As shown in the table, these roads experience low traffic volumes, and all roadway segments operate at LOS A.

Table 3.2-8 Existing (2015) Roadway Operations along SR 152 (North) to Road 11 Wye Alternative

Count #	Roadway	Location	Lanes	Existing (2015) No Project					
				AM Peak			PM Peak		
				Volume	V/C	LOS	Volume	V/C	LOS
1	Henry Miller Road	Near Hutchins Road	2	35	0.03	A	20	0.02	A
3	Los Banos Highway	North of Avenue 23 1/2	2	463	0.39	A	533	0.45	A
5	Hemlock Road	North of SR 152	2	52	0.04	A	28	0.02	A
6	Hemlock Road	South of SR 152	2	29	0.02	A	22	0.02	A
8	E. Sandy Mush Road	West of SR 99	2	20	0.02	A	26	0.02	A
23	Road 4	South of SR 152	2	40	0.03	A	75	0.06	A
24	Road 8	South of SR 152	2	30	0.03	A	32	0.03	A

Count #	Roadway	Location	Lanes	Existing (2015) No Project					
				AM Peak			PM Peak		
				Volume	V/C	LOS	Volume	V/C	LOS
Drag25	Road 8	North of SR 152	2	10	0.01	A	20	0.02	A
26	Road 11	South of SR 152	2	8	0.01	A	8	0.01	A
27	Avenue 25 1/2	West of Road 11	2	11	0.01	A	5	0.00	A
28	E. Sandy Mush Road	East of S. Athlone Road	2	32	0.03	A	50	0.04	A
29	Avenue 24	West of Road 12	2	4	0.00	A	7	0.01	A

Source: Traffic counts conducted by Parsons Transportation Group in 2012, 2013, and 2016

LOS standard pursuant to Merced County guidelines (LOS D for rural highway, LOS C for all other rural roads) and Madera County guidelines (LOS D).

Volume = Two-way peak-hour volume

V/C = volume-to-capacity ratio

LOS = level-of-service

3.2.5.5 Transit Conditions

Existing transit services that serve the populations within the transportation RSA are described in this section. These transit services include aviation, passenger rail, and bus services. Rail networks and airports in the transportation RSA are presented on Figure 3.2-2, and the bus networks are presented on Figure 3.2-5.

Regional Transit Service

Regional bus service in the transportation RSA is provided by Greyhound and Amtrak. Greyhound-Trailways bus lines provide scheduled bus service; a bus terminal is located in the city of Merced. Greyhound-Trailways also provides charter service to Yosemite Valley. Amtrak augments the San Joaquin trains with an extensive system of thruway buses, with connections at the train stations. From Merced, Amtrak buses provide connections to Yosemite and Monterey.

Local Transit

Merced County Transit

Merced County operates an urban bus transit service, known as *The Bus*, which operates on 20 regularly scheduled fixed-route lines. In addition, a demand-response (Dial-A-Ride) service is available. The Dial-A-Ride service is limited to seniors and disabled customers in Merced County who are unable to navigate the fixed-route services without special assistance. Existing bus networks in the alignment RSA for the Central Valley Wye alternatives are shown in Figure 3.2-5. The existing Site 7—Le Grand Junction/Sandy Mush Road, Warnerville – Wilson 230 kV Transmission Line spans East Yosemite Avenue near Lake Road, a leg of the UC Route. Generally, *The Bus* fixed-route services operate from 5:15 a.m. to 11:00 p.m. Monday through Friday, from 7:00 a.m. to 7:00 p.m. on Saturdays, and from 7:30 a.m. to 7:00 p.m. on Sundays. The Dial-A-Ride service is generally available during the same operating hours as the fixed-route service.

Madera County

Public transit in Madera County is provided by Madera County Connection, Madera Area Express, Dial-A-Ride, and Chowchilla Area Transit Express. The County of Madera operates the Madera County Connection, an intercity fixed-route system. The Chowchilla/Fairmead–Madera Route of the Madera County Connection serves the city of Chowchilla. It operates from 7:30 a.m. to 6:22 p.m. on weekdays.

The City of Madera operates Madera Area Express, a fixed-route system that provides service within the city limits. Madera Area Express operates from 7:00 a.m. to 6:30 p.m. on weekdays and from 9:00 a.m. to 4:00 p.m. on Saturdays, with no service on Sundays. The City of Madera

also operates Dial-A-Ride, a demand-response paratransit system that serves the city, as well as some parts of the county. The service operates from 7:00 a.m. to 6:30 p.m. on weekdays, from 9:00 a.m. to 4:00 p.m. on Saturdays, and on Sundays from 8:30 a.m. to 2:30 p.m.

The City of Chowchilla operates Chowchilla Area Transit Express, a demand-response service. Chowchilla Area Transit Express operates from 7:30 a.m. to 3:30 p.m. on weekdays only. Existing bus networks in the RSA are shown in Figure 3.2-5.

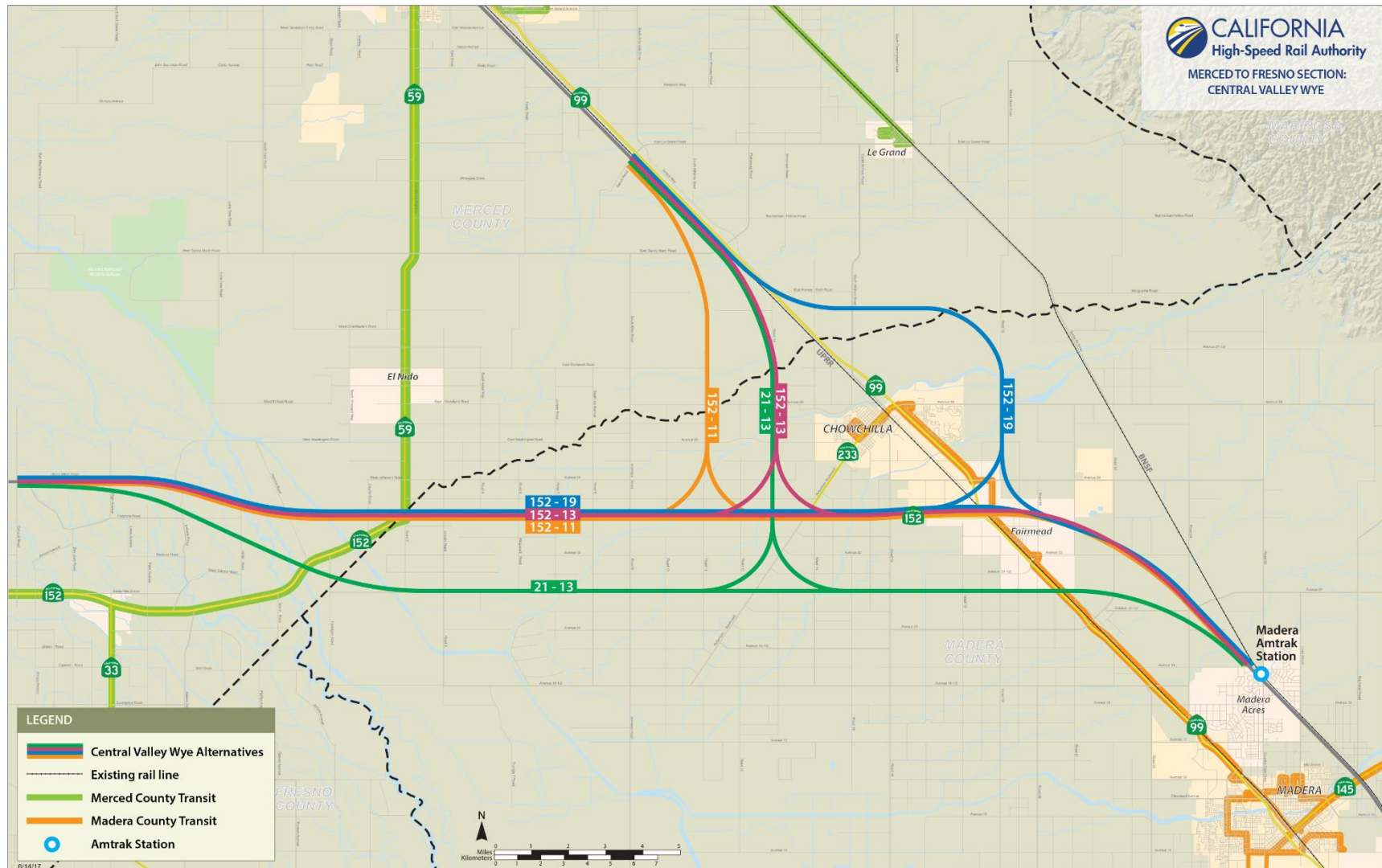


Figure 3.2-5 Existing Bus Networks in the Resource Study Area

School Bus Routes

As described in Section 3.12.6, Environmental Consequences, the Central Valley Wye alternatives would involve construction that could affect school bus transportation routes for several schools. As shown in Table 3.2-9, Fairmead Elementary School, Alview Elementary School, Chowchilla Seventh-Day Adventist School, Washington Elementary School, and El Capitan High School are all within the RSA of at least one of the Central Valley Wye alternatives. Fairmead Head Start Childcare Center is a daycare facility located in the RSA and does not have school bus transportation. Washington Elementary School and El Capitan High School are located within the RSA of the Site 7—Le Grand Junction/Sandy Mush Road, Warnerville—Wilson 230 kilovolt Transmission Line. In addition, the University of California Merced, while located outside of the socioeconomics and communities RSA, does operate the University of California Merced CatTracks bus routes, which would also transect the Site 7—Le Grand Junction/Sandy Mush Road, Warnerville—Wilson 230 kV Transmission Line at East Yosemite Avenue and East Bellevue Road (UC Merced 2016).

Table 3.2-9 Educational Facilities with School Bus Transportation within RSA

Facility	Approx. Distance from Centerline to Edge of Property (miles)	Direction from Alternative
Fairmead Elementary School	0.2	South of SR 152 (North) to Road 13 Wye
	0.2	South of SR 152 (North) to Road 19 Wye
	0.2	South of SR 152 (North) to Road 11 Wye
Alview Elementary School ¹	0.4	South of Avenue 21 to Road 13 Wye, but within project footprint of this alternative
Chowchilla Seventh-Day Adventist School	<0.1	East of Avenue 21 to Road 13 Wye, but within project footprint of this alternative
Washington Elementary School	<0.1	West of the Site 7—Le Grand Junction/Sandy Mush Road, Warnerville – Wilson 230 kV Transmission Line (SR 152 (North) to Road 19 Wye)
El Capitan High School	<0.1	East of the Site 7—Le Grand Junction/Sandy Mush Road, Warnerville – Wilson 230 kV Transmission Line (SR 152 (North) to Road 19 Wye)
University of California Merced	2.4	East of the Site 7—Le Grand Junction/Sandy Mush Road, Warnerville – Wilson 230 kV Transmission Line (SR 152 (North) to Road 19 Wye)

Source: CDE, 2016; UC Merced, 2016

¹ Alview Elementary School is located within a utility easement of the Avenue 21 to Road 13 Wye Alternative.
SR = State Route

Aviation

Two public airports and five private airstrips are located within 2 miles of the Central Valley Wye alternatives: Chowchilla Municipal Airport, Oakdale Municipal Airport, Emmett Field, Chapman Farms Airport, Johnson Ranch Airport, Eagle Field Airport, and Sallaberry Ranch Strip (Airport-Data.com 2013).

Chowchilla Municipal Airport

Chowchilla Municipal Airport is adjacent to the developed areas of Chowchilla. It is a general-aviation facility situated on approximately 32 acres on the southeast edge of the city of Chowchilla, just west of SR 99. The airport is owned and operated by the City of Chowchilla. The Central Valley Wye alternatives would not pass through any zone containing height restrictions associated with Chowchilla Municipal Airport; therefore, Chowchilla Municipal Airport would not prohibit construction of the selected Central Valley Wye alternative (Madera County 2015).

Oakdale Municipal Airport

The Oakdale Municipal Airport is located within an unincorporated agricultural area approximately 3 miles southeast of the central business district of the city of Oakdale. It is approximately 1 mile north of the existing Site 7—Le Grand Junction/Sandy Mush Road, Warnerville – Wilson 230 kV Transmission Line proposed for reconductoring under the SR 152 (North) to Road 19 Wye Alternative. The transmission line is located within the Referral Area 2 of the Influence Area Policy Map of the Stanislaus County Airport Land Use Compatibility Plan. However, the final height of self-supporting lattice steel towers would be, at most, 111 feet, well below the 200-foot height threshold for alteration of facilities within the influence area (Stanislaus County Airport Land Use Commission 2015).

Emmett Field

Emmett Field is a small, privately owned airstrip located in an agricultural area of Merced County. The airstrip is approximately 0.3 to 1.5 miles from the Central Valley Wye alternatives. However, there are no air restriction zones in these areas; therefore, the alternatives would not pass through any air restriction zone that prohibits construction of the selected Central Valley Wye alternative.

Chapman Farms

Chapman Farms is a private airstrip located in an agricultural area of Madera County, southwest of Chowchilla. The Chapman Farms airstrip is located within 0.4 to 0.8 mile of each of the four Central Valley Wye alternatives. However, there are no air restriction zones in these areas; therefore, the alternatives would not pass through any air restriction zone that prohibits construction of the selected Central Valley Wye alternative.

Johnson Ranch Airport

Johnson Ranch Airport is a privately owned airport in Merced County located within 0.3 mile of the SR 152 (North) to Road 19 Wye Alternative. There are no air restriction zones in the area; therefore, the alternative would not pass through any air restriction zone that prohibits construction of the selected Central Valley Wye alternative.

Eagle Field Airport

Within Fresno County, one private airstrip, Eagle Field Airport, is located in an unincorporated, agricultural area approximately 5.5 miles southwest of the central business district of Dos Palos. Eagle Field Airport is located within 0.25 mile of the existing Site 6—El Nido, Los Banos – Oro Loma – Canal 70 kV Power Line proposed for reconductoring.

Sallaberry Ranch Strip

Sallaberry Ranch Strip is a private airstrip located in an agricultural area of Madera County, southeast of Chowchilla. The Sallaberry Ranch Strip is within 0.1–0.7 mile of the Central Valley Wye alternatives. However, there are no air restriction zones in the area. As a result, the alternatives would not pass through any zone that prohibits construction of the selected Central Valley Wye alternative.

Passenger Rail Service

Existing intercity passenger rail service in California is provided by Amtrak on four principal corridors that cover more than 1,300 linear miles and span almost the entire state. The existing

passenger rail network in the Central Valley Wye region is provided by the Amtrak San Joaquin Route, which follows the BNSF Railway (BNSF) corridor through the transportation RSA. There are existing Amtrak stations in Merced and Madera Acres. The transportation RSA also includes freight train operations along the Union Pacific Railroad (UPRR) and BNSF tracks. The Amtrak, UPRR, and BNSF rail lines in the transportation RSA are presented on Figure 3.2-2.

There are six daily round trips on the Amtrak San Joaquin Route between Stockton and Bakersfield, four daily round trips on the Stockton–Oakland segment, and two daily round trips on the Stockton–Sacramento segment. All trains run on the same tracks and serve the city of Merced. The intercity route carried 1,219,818 riders in Fiscal Year 2013 with an on-time performance of 72.9 percent between December 2013 and December 2014. The scheduled running time between Bakersfield and Oakland averages 6 hours 9 minutes, at an average speed of 51.2 miles per hour. The maximum speed on the route is 79 miles per hour. The *2013 California State Rail Plan* (Caltrans 2013b) envisions an increase in service to 8 or 11 daily round trips by 2020, operating at speeds up to 90 miles per hour on the Bakersfield–Stockton segment of the line.

3.2.5.6 Freight Rail Service

Freight movement is an integral part of the economy and transportation system of the transportation RSA. BNSF and UPRR provide freight movement in and through Merced and Madera Counties on a daily basis. The service totals approximately 20–25 trains per day. Several industrial/manufacturing and agricultural companies within the two counties use rail freight service. The largest of these rail freight service users are located in the cities of Merced, Atwater, and Los Banos.

BNSF is also the primary owner of the railroad right-of-way used by the Amtrak San Joaquin Route. The railroad owns a 276-mile section of the San Joaquin Corridor from Bakersfield to Port Chicago.

3.2.5.7 Pedestrian and Bicycle Facilities

Pedestrian and bicycle access in the transportation RSA are mostly located in the urbanized areas within the RSA, including the cities of Chowchilla, Waterford, and Merced and the community of Fairmead.

Within Fairmead, the existing street system consists of a combination of rural local roads and unpaved roads, along with some abandoned right-of-way. Portions of the existing system contain relic curbs, gutters, and sidewalks that date back to the 1930s. While there are no designated bike routes within the Fairmead area, the existing low traffic volumes are conducive to bicycling, and many residents have been observed cycling within the community.

Within the city of Chowchilla, pedestrian facilities include sidewalks, crosswalks, and pedestrian signals. Bicycle facilities include Class II bike lanes and Class III bike routes, but no Class I bike paths (MCTC 2004). The City's 2040 General Plan proposes a comprehensive trails system linking residential areas, schools, parks, and commercial development centers so that residents can travel within the community without driving (City of Chowchilla 2011).

In the City of Merced, most existing pedestrian facilities, bike lanes, paths, and bicycle routes are in central Merced. Within the RSA near Merced, the southern portion of Campus Parkway is a designated Class I bike path, and Class II bike lanes are proposed along Childs Avenue and SR 140. The existing Site 7—Le Grand Junction/Sandy Mush Road, Warnerville – Wilson 230 kV Transmission Line spans a portion of Yosemite Avenue, Gardner Avenue, and G Street, all of which have existing or planned bike lanes (City of Merced 2015). There are no designated bike routes within the RSA within the city of Waterford (City of Waterford n.d.).

3.2.6 Environmental Consequences

3.2.6.1 Overview

This section evaluates how the No Project Alternative and the Central Valley Wye alternatives could affect transportation. The impacts of the Central Valley Wye alternatives are described and organized as follows:

Construction Impacts

Road Closures and Relocations

- Impact TR#1: Temporary Impacts on Major Roadways from Temporary Road Closures and Relocations
- Impact TR#2: Permanent Impacts on Major Roadways from Permanent Road Closures and Relocations

Construction Material Hauling Impacts on Regional Transportation

- Impact TR#3: Temporary Impacts on Major Roadways and Truck Routes from Construction Vehicle Operations

Impacts on Circulation and Emergency Access

- Impact TR#4: Temporary Impacts on Circulation and Emergency Access
- Impact TR#5: Permanent Impacts on Circulation and Emergency Access
- Impact TR#6: Temporary Impacts on Major Highway Operations
- Impact TR#7: Permanent Impacts on Major Highway Operations
- Impact TR#8: Temporary Construction Impacts on Rural Roadway Operations
- Impact TR#9: Permanent Impacts on Rural Roadway Operations
- Impact TR#10: Temporary Loss of Property Access
- Impact TR#11: Permanent Loss of Property Access

Transit Conditions

- Impact TR#12: Temporary Impacts on Bus Transit Operations
- Impact TR#13: Permanent Impacts on Bus Transit Operations
- Impact TR#14: Temporary Impacts on Passenger Rail Operations
- Impact TR#15: Permanent Impacts on Passenger Rail Operations
- Impact TR#16: Temporary Impacts on School Bus Routes
- Impact TR#17: Permanent Impacts on School Bus Routes
- Impact TR#18: Temporary Impacts on Pedestrian and Bicycle Access
- Impact TR#19: Permanent Impacts on Pedestrian and Bicycle Access

Roadway Operations

- Impact TR#20: Temporary Impacts on Major Roadway Operations
- Impact TR#21: Permanent Impacts on Major Roadway Operations

Operations Impacts

None

3.2.6.2 No Project Alternative

The population in the San Joaquin Valley is expected to grow through 2040 (see Section 2.2.2.2 Planned Land Use). Development in the 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 projects that are anticipated to be constructed by 2040 include residential, commercial, industrial, recreational, transportation, and agricultural projects. It is expected that development activities and ongoing infrastructure operations would continue to occur and could affect transportation resources. For example, traffic volumes on

regional roadways would continue to increase as a result of development activity, thereby affecting existing roadways, highways, utilities, airports, and railways.

As discussed in Section 1.2, Purpose of and Need for the HSR System and the Merced to Fresno HSR Section, and Section 3.18, Regional Growth, the San Joaquin Valley's population has consistently increased in the recent past, and this trend is expected to continue. To accommodate this growth, transportation improvements would be completed to maintain or expand existing capacity. A full list of anticipated future development projects is provided in Appendix 3.19-A, Cumulative Plans and Non-Transportation Projects List, and Appendix 3.19-B, Cumulative Transportation Projects Lists. The impact would be beneficial in the short term. However, over the long term, the programmed transportation network capacity improvements would not be enough to meet future demand and population growth. Planned and programmed transportation improvements that are to be constructed and become operational by 2040 (see Section 2.2.2.2) under the No Project Alternative would add to the impacts occurring under existing conditions.

Under the No Project Alternative, traffic volumes on regional roadways would continue to increase through 2040 because of anticipated growth. Furthermore, the No Project Alternative represents the state's transportation system (highway, transit, air, and conventional rail) as it would be after implementation of programs or projects that are currently identified in regional transportation plans, have identified funds for implementation, and are expected to be in place by 2040, the HSR system's planning horizon year. As growth continues in the future, these infrastructure improvements may not be able to accommodate the growth without increased congestion. The Merced to Fresno Project Section of the HSR system would be included in the No Project Alternative. Future developments planned under the No Project Alternative could require separate environmental review, and they would need to comply with other regulatory requirements.

Impacts under the No Project Alternative on transportation resources in the transportation RSA are described in the following sections.

Major Roadways

Highway Element: The highway element of the No Project Alternative includes the existing highway system as well as funded and programmed improvements. The identification of improvements on the major roadways network is based on financially constrained regional transportation plans, developed by regional transportation planning agencies. Intercity highway improvements included as part of the No Project Alternative include infrastructure projects and other potential system improvements programmed to be in operation by 2040. The improvements consist primarily of individual interchange improvements and roadway widening projects on segments of the existing highway network (e.g., 12 SR 99 widening and improvement projects listed in Appendix 3.19-B).

Major highway improvements under the No Project Alternative would provide benefits to the existing highway network by widening existing highways, improving safety, and reducing traffic volumes. These benefits to the highway system would be temporary, as population growth in the region would continue to increase the number of highway users.

Transit Conditions

Aviation Element: Statewide, the airport development process is distinct from the highway and rail development processes, and is not documented in local plans, regional transportation plans, or the State Transportation Implementation Program. For this analysis, proposed airport improvements were evaluated based on a review of available documented plans. An airport improvement is deemed likely to be implemented and operational by 2040 if the improvement has been identified in an approved or under-development airport master planning program, an environmental document, a regional aviation system planning document, or a capital improvement program. The 2007 Merced Municipal Master Plan documents improvement plans for Merced Regional Airport/Macready Field, including the relocation of taxiway A, the demolition of a building, and the construction of four nested t-hangar type buildings.

Freight Rail Element: The freight rail system in the region is operated by the UPRR and BNSF, which provide Class I rail service to the San Joaquin Valley. According to the *Merced Vision 2030 General Plan (City of Merced 2015)*, these two railroad companies provide use of the rail for industrial, manufacturing, and agricultural companies by means of flat beds, fuel tankers, refrigerated produce, regular stock box, and piggy-back cars. The service totals approximately 20–25 trains per day. UPRR does not forecast Central Valley Wye rail traffic growth beyond a 5-year horizon. Over the next 5 years, UPRR does not anticipate a notable change in freight rail traffic.

In Merced and Madera Counties, both BNSF and UPRR currently operate near capacity; according to the 2009 *Goods Movement Study* (MCAG 2009), without major improvements (such as double tracking more sections), freight demand may exceed capacity by 2040, with minimal additional train movements. UPRR and BNSF have historically added capacity when needed to meet market demands in other regions, and UPRR has conveyed a desire to do so in areas of California. These future improvements are expected to continue to provide sufficient capacity for interstate needs. Expansion of freight rail capacity is assumed permanent.

Conventional Passenger Rail Element: The 2013 *California State Rail Plan*⁴ (Caltrans 2013b) envisions an increase in service to 8 to 11 daily round trips by 2020, depending on the line, operating at speeds of up to 90 mph on the Bakersfield–Stockton segment of the line. This plan also seeks to reduce the travel time (Bakersfield to Oakland) to less than 6 hours, a reduction of about 10 to 15 minutes from current train travel times (Caltrans 2013b). The plan would only slightly reduce Merced to Fresno travel time (less than 5 minutes). Improvement of conventional passenger rail capacity is assumed permanent.

Intercity Passenger Bus Service: Existing regional bus service includes Greyhound and Amtrak. US Asia, Transportes Intercalifornias, and Americanos USA also provide regional bus service in portions of the RSA. While intercity bus service is likely to increase in the future, as of December 2017 there are no documented plans for regional service expansion for the future. Continued service is an element of the No Project Alternative, although these bus lines serve only a very small portion of the intercity travel market (based on information obtained from Amtrak and Greyhound websites). Without changes, it is expected that demand would remain mostly steady, with only small incremental growth of ridership.

3.2.6.3 Central Valley Wye Alternatives

Construction and operations of the Central Valley Wye alternatives would result in temporary, permanent, direct, and indirect impacts on transportation resources. Impacts would include road closures affecting both major and rural roadways, temporary and permanent roadway relocations, increased traffic from construction, property access, bus transit operations, rail operations, and pedestrian and bicycle access.

Neither construction nor operation of the Central Valley Wye alternatives would affect regional aviation facilities because none of the proposed alternative alignments encroaches upon or is located near these facilities. Accordingly, no specific analysis of project impacts on aviation resources is required.

Construction Impacts

Construction of any of the Central Valley Wye alternatives would involve demolition of existing structures; clearing and grubbing; handling, storing, hauling, excavating, and placing fill; possible pile driving; and construction of aerial structures, bridges, road modifications, utility upgrades and relocations, HSR electrical systems, and railbeds. Construction activities are further described in Chapter 2, Alternatives.

⁴ The 2018 *California State Rail Plan: Connecting California (Draft)* was released for public comment in October 2017. Following the public comment period, the rail plan is scheduled to be revised and finalized in early 2018. For more information on the rail plan, please see Chapter 1, Section 1.2.4.1.

Road Closures and Relocations

Construction of any of the Central Valley Wye alternatives would affect major roadways through temporary and permanent road closures and relocations that would result in temporary or permanent diversion of traffic onto other roadways. Specific impacts are discussed as follows.

Impact TR#1: Temporary Impacts on Major Roadways from Temporary Road Closures and Relocations

Construction activities would require temporary lane or road closures. Construction of the HSR track alignment would require temporary construction easements (TCEs), which may require the temporary closure of roadway travel lanes. Any road closure or removal as a result of TCEs during construction would be temporary and would be minimized to the greatest extent possible. Temporary road closures would only persist for the duration during which such closures are needed to accommodate construction. Following completion of that activity, all temporarily closed roadway lanes would be reopened and facilities that were temporarily removed would be restored.

Table 3.2-10 summarizes the number of temporary road closures and total length of temporary detours resulting from the road closures for each of the project alternatives. The SR 152 (North) to Road 13 Wye Alternative would have the most temporary road closures, at 17, while the SR 152 (North) to Road 19 Wye and SR 152 (North) to Road 11 Wye, at 13, would have the fewest road closures. The Avenue 21 to Road 13 Wye Alternative would result in the greatest total length of detours, at 36 miles, while the SR 152 (North) to Road 19 Wye Alternative would result in the least total length of detours, at 25 miles. These closures and restrictions would increase average vehicle delay times on affected roads, increase average trip durations in the project area, and prompt some motorists to avoid traveling through the project area to the extent alternate routes are available. Appendix E, Construction Staging Plans and Possible Detour Routes by Alternative, of the Transportation Technical Report (Authority and FRA 2016) presents possible temporary closures and detours during construction of each of the Central Valley Wye alternatives.

Table 3.2-10 Central Valley Wye Alternatives Temporary Road Closures and Detours

Resource Category	Central Valley Wye Alternatives			
	SR 152 (North) to Road 13 Wye	SR 152 (North) to Road 19 Wye	Avenue 21 to Road 13 Wye	SR 152 (North) to Road 11 Wye
Temporary Road Closures (number of closures)	17	13	15	13
Total Length of Detours (miles)	30	25	36	26

Source: Authority and FRA, 2016

Construction adjacent to highways (e.g., SR 99 and SR 152) would result in temporary closure of traffic lanes, reduction of lane widths, reduced speed limits, temporary on- and off-ramp closures, detours, and temporary closure of the freeway for placement of structural elements of installation or removal of falsework. The duration of these construction activities could range from several hours in the case of a freeway closure to months in the case of lane width reductions. These closures and restrictions would increase average vehicle delay times on affected roads, increase average trip durations in the project area, and prompt some motorists to avoid traveling through the project area to the extent alternate routes are available. Temporary road closures would predominately affect local roads.

Temporary roadway closures for construction would not substantially increase traffic safety hazards because of minimization practices included in the construction transportation plan (CTP) (TR-IAMF#2). The IAMF would also minimize impacts associated with temporary road closures for construction on nearby sensitive uses (e.g., schools, day care centers, residences). For

example, the CTP would include requirements like temporary signage, advanced detour notification, and provisions for safe pedestrian and bicycle passage or detours. The main goal of the CTP is to maintain traffic flow on major roadways during peak travel periods. Implementation of the CTP would occur in close consultation between the contractor and the affected city or county public works department, with the Authority providing review and approval of the CTP before commencing any construction activities. The CTP would address in detail, activities to be carried out in each construction phase and identify affected roadways. All construction personnel would receive training on the various CTP elements prior to working on a site where traffic control measures have been incorporated.

In rural areas of the transportation RSA, the primary traffic impacts during construction would occur at locations where overcrossings are needed to carry minor roadways over the tracks. At these 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 (e.g., more than 10 miles in rural areas). Traffic volumes on local roads in the transportation RSA are generally fewer than 500 vehicles per day. Detours would be limited in rural areas and would affect few travelers due to the low traffic volume on the local roads. The duration of the temporary construction impacts could range from a few weeks with the construction impacts of a grade separation over the highway, to several months for the interchange construction. The preliminary list of detour routes and road closures provided in Appendix E of the Transportation Technical Report would be refined by the construction contractor during final project design (TR-IAMF#2). The social and economic impacts of closures and detours are considered in the socioeconomic analysis (Section 3.12, Socioeconomics and Communities). For example, the impacts of permanent road closures on the agricultural economy are addressed in Impact SO#14: Permanent Impacts on Agricultural Economy.

CEQA Conclusion

There would be no impact under CEQA for any of the Central Valley Wye alternatives because the temporary road closures and relocations during construction would not result in a permanent substantial increase in hazards or incompatible uses. The design characteristics of the Central Valley Wye alternatives include effective measures to limit temporary traffic interruptions from road closures by providing temporary signage, advanced detour notification, provisions for safe pedestrian and bicycle passage, and other standard measures to minimize temporary traffic increases in traffic volumes. Impacts on major roadway operations would be temporary and all closures and detours would be restored following construction. Therefore, CEQA does not require any mitigation.

Impact TR#2: Permanent Impacts on Major Roadways from Permanent Road Closures and Relocations

Construction of any of the Central Valley Wye alternatives would result in permanent road closures from grade separations, which would result in permanent changes to vehicle movements in those areas affected by the closures. Construction of any of the Central Valley Wye alternatives would also result in the permanent closure or modification of some existing roadways. Traffic from permanently closed or modified roads would be diverted to other nearby streets, increasing traffic volumes and lowering the LOS on those streets still in service. Permanent road closures would predominately affect local roads (see Impact TR#20).

SR 152 (North) to Road 13 Wye Alternative

The SR 152 (North) to Road 13 Wye Alternative would require the permanent closure of 38 public roadways at selected locations and the construction of 24 overcrossings or undercrossings in lieu of closure. Table 2-7, Figure 2-8, and Appendix 3.2-A show the anticipated state highway and local roadway closures and modifications. Fourteen of these permanent road closures would be located at SR 152 where roads currently cross at grade but would be closed to convert SR 152 to a fully access-controlled corridor. The 14 proposed closures are Road 5, Road 6, Road 7, Road 8, Road 10, Road 11, Road 13, Road 14, Road 14 1/2, Road 15, Road 15 1/2, Road 15 3/4, Road 17, and Road 18. Planned new grade separations along SR 152 at the SR 59/SR 152

Interchange, Road 4/Lincoln Road, Road 12, Road 16, and Road 17 1/2 would maintain access to and across SR 152. These roadways would be reconfigured to two 12-foot lanes with two 8-foot shoulders. Each of the new interchanges would require realigning SR 152. Three new interchanges are proposed between SR 59 and SR 99 to provide access to SR 152: at Road 9/Hemlock Road, SR 233/Robertson Boulevard, and Road 16. State route reconfigurations are further described in Section 2.2.3.1, SR 152 (North) to Road 13 Wye Alternative.

The distance between overcrossings or undercrossings would vary from less than 2 miles to approximately 5 miles where other roads are perpendicular to the proposed HSR alignment. Between these overcrossings or undercrossings, 24 additional roads would be closed, as shown on Figure 2-8 and listed in Appendix 3.2-A. Local roads paralleling the proposed HSR alignment and used by small communities and farm operations may be shifted and reconstructed to maintain their function. Access easements would be provided to maintain access to properties severed by the HSR alignment.

SR 152 (North) to Road 19 Wye Alternative

The SR 152 (North) to Road 19 Wye Alternative would require the permanent closure of 36 public roadways at selected locations and the construction of 29 overcrossings or undercrossings. Table 2-78, Figure 2-10, and Appendix 3.2-A show the anticipated state highway and local roadway closures and modifications. Fourteen of these permanent road closures would be located at SR 152 where roads currently cross at grade but must be closed to convert SR 152 to a fully access-controlled corridor. The proposed 14 closures are Road 5, Road 6, Road 7, Road 8, Road 10, Road 11, Road 13, Road 14, Road 14 1/2, Road 15, Road 15 1/2, Road 15 3/4, Road 17, and Road 18. New grade separations are planned along SR 152 at the SR 59/SR 152 interchange, Road 4/Lincoln Road, Road 12, SR and Road 17 1/2. These roadways would be reconfigured to two 12-foot lanes with two 8-foot shoulders, and several of these interchanges would require realigning SR 152. Interchanges between SR 59 and SR 99 that would provide access to SR 152 are Road 9/Hemlock Road, SR 233/Robertson Boulevard, and Road 16.

The distance between overcrossings or undercrossings would vary from less than 2 miles to approximately 5 miles where roads would be perpendicular to the proposed HSR alignment. Between these overcrossings or undercrossings, 22 additional roads would be closed (Figure 2-10 and Appendix 3.2-A). Local roads paralleling the proposed HSR alignment and used by small communities and farm operations may be shifted and reconstructed to maintain their function. Access easements would be provided to maintain access to properties severed by the HSR alignment.

The SR 152 (North) to Road 19 Wye Alternative would cross over SR 99 at three locations. South of Chowchilla, both the San Jose to Merced and the San Jose to Fresno legs would rise on aerial structures to cross SR 99. Another crossing of SR 99 would be at the northern end of the alternative, where it descends below grade into an undercrossing tunnel segment. SR 99 would be temporarily realigned during construction, and would be reconstructed on the roof of the undercrossing tunnel to be provided to maintain access to properties severed by the HSR alignment.

Avenue 21 to Road 13 Wye Alternative

The Avenue 21 to Road 13 Wye Alternative would require the permanent closure of 30 public roadways at selected locations and the construction of 28 overcrossings or undercrossings. Table 2-97, Figure 2-122, and Appendix 3.2-A show the anticipated state highway and local roadway closures. This alternative would require the fewest roadway and state highway modifications. The Avenue 21 to Road 13 Wye Alternative would rise on aerial structures and cross over state highway facilities in three locations: SR 59 at Harmon Road, SR 152 at Road 13, and SR 99 at Avenue 21. State route reconfigurations are further described in the State Route Reconfigurations section of Section 2.2.3.6, Features Common to All Central Valley Wye Alternatives.

The Avenue 21 to Road 13 Wye Alternative would rise on aerial structures and cross over state highway facilities in three locations: SR 59 at Harmon Road, SR 152 at Road 13, and SR 99 at Avenue 21. Where other roads would be perpendicular to the proposed HSR, over- or undercrossings are planned at distances from less than 2 miles to 5 miles. Between these over-

and undercrossings, some roads may be closed. Local roads paralleling the HSR alignment and used by small communities and farm operations may be shifted and reconstructed to maintain their function. Access easements would be provided to maintain access to properties severed by the HSR alignment.

SR 152 (North) to Road 11 Wye Alternative

The SR 152 (North) to Road 11 Wye Alternative would require the permanent closure of 33 public roadways at selected locations and the construction of 24 overcrossings or undercrossings in lieu of closure. Table 2-107, Figure 2-14, and Appendix 3.2-A show the anticipated state highway and local roadway closures and modifications. Fourteen of these permanent road closures would be located at SR 152 where roads currently cross at grade but need to be closed in order to convert SR 152 to a fully access-controlled corridor. The 14 proposed closures are Road 5, Road 6, Road 7, Road 8, Road 10, Road 11, Road 13, Road 14, Road 14 1/2, Road 15, Road 15 1/2, Road 15 3/4, Road 17, and Road 18. Planned new grade separations along SR 152 at the SR 59/SR 152 Interchange, Road 4/Lincoln Road, Road 12, and Road 17 1/2 would maintain access to SR 152. These roadways would be reconfigured to two 12-foot lanes with two 8-foot shoulders. Several of these new interchanges would require realigning SR 152. Three new interchanges are proposed between SR 59 and SR 99 to provide access to SR 152: at Road 9/Hemlock Road, SR 233/Robertson Boulevard, and Road 16.

The distance between overcrossings or undercrossings would vary from less than 2 miles to approximately 5 miles where other roads are perpendicular to the proposed HSR. Between these over- or undercrossings, 19 additional roads would be closed. Local roads paralleling the proposed HSR alignment and used by rural communities and farm operations may be shifted and reconstructed to maintain their function. Access easements would be provided to maintain access to properties severed by the HSR alignment.

Summary

Permanent road closures would total 38 for the SR 152 (North) to Road 13 Wye Alternative, 36 for the SR 152 (North) to Road 19 Wye Alternative, 30 for the Avenue 21 to Road 13 Wye Alternative, and 33 for the SR 152 (North) to Road 11 Wye Alternative. Thus, the SR 152 (North) to Road 13 Wye Alternative would have the most substantial impacts on the existing traffic circulation patterns while the Avenue 21 to Road 13 Wye Alternative would have the least impact; the SR 152 (North) to Road 19 Wye and SR 152 (North) to Road 11 Wye Alternatives would be intermediate in their impacts.

Additionally, depending on the alternative selected, portions of SR 152 may be rerouted and grade-separated interchanges may be introduced. Grade-separated interchanges proposed as part of the Central Valley Wye alternatives would provide a benefit by reducing traffic delay at current at-grade intersections and improving the safety of the intersections for motorists, bicyclists, and pedestrians. New, permanent road crossings would total 24 for the SR 152 (North) to Road 13 Wye Alternative, 29 for the SR 152 (North) to Road 19 Wye Alternative, 28 for the Avenue 21 to Road 13 Wye Alternative, and 24 for the SR 152 to Road 11 Wye Alternative. Thus, the SR 152 (North) to Road 19 Wye and Avenue 21 to Road 13 Wye Alternatives would have the greatest reduction in traffic delays, and the SR 152 (North) to Road 13 Wye and SR 152 (North) to Road 11 Wye Alternatives would have the smallest reduction in traffic delays.

Considering both the changes in the traffic circulation patterns due to road closures and the beneficial impacts on traffic delays of constructing new grade-separated interchanges, the Avenue 21 to Road 13 Wye Alternative would have the least impact on traffic congestion on major roadways, and the SR 152 (North) to Road 13 Wye Alternative would have the most impact.

CEQA Conclusion

The impact under CEQA would be less than significant under any of the Central Valley Wye alternatives. Construction of any of the Central Valley Wye alternatives would result in permanent road closures and grade separations, which would result in permanent changes to vehicle movements. These changes in vehicle movements, however, would not substantially increase hazards or incompatible uses. The design of the Central Valley Wye alternatives includes new

grade-separated interchanges, which would reduce traffic delay and improve the safety of the intersections for motorists, bicyclists, and pedestrians. Therefore, CEQA does not require any mitigation.

Construction Material Hauling Impacts on Regional Transportation

During construction of any of the Central Valley Wye alternatives, both on-road and off-road construction equipment would be required for various phases of the project construction and could affect regional transportation in the transportation RSA. In addition, construction workers driving to and from the work sites would add traffic to the road system. Specific impacts related to construction traffic are discussed as follows.

Impact TR#3: Temporary Impacts on Major Roadways and Truck Routes from Construction Vehicle Operations

Construction activities could lead to both temporary disruption of transportation system operations and possible damage to elements of the roadway system, such as pavement, resulting in the need to temporarily close roads for repair work. All construction-vehicle truck traffic, either for excavation or for transporting construction materials to the site, would use the designated truck routes within each city and county (TR-IAMF#7). SR 59, SR 99, SR 140, SR 152, and SR 233 are the major truck routes within the transportation RSA.

Construction workers would generate daily vehicle trips as they arrive and leave from the work site for the Central Valley Wye alternatives. Trips for construction workers would generally occur outside of the peak hours for freeway and street traffic. The Central Valley Wye alternatives may involve building remote parking areas for these workers, with shuttles to transport them to and from the construction area if the remote parking areas are distant from the project site (TR-IAMF#3). Early construction of the remote parking lots as the first phase of construction would make them available for use by construction workers for the remainder of the construction period.

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. The Surface Transportation Assistance Act truck routes within the transportation RSA include national network and terminal access routes, as follows:

- **National Network (Federal)**—The national network truck routes are federal highways. SR 99 is the only national network truck route within the transportation RSA.
- **Terminal Access (State, Local)**—The terminal access routes are portions of state routes or local roads that can accommodate trucks. Within the transportation RSA, terminal access routes include SR 59, SR 140, SR 152, and SR 233.

Once on-site, heavy construction equipment would remain there until its use for that job was completed; such equipment would not be moved repeatedly to and from the construction site over public streets (TR-IAMF#7).

The alternative alignments are similar in their locations and extents, and sources of construction materials, equipment, and personnel would be the same under any alternative. Regional construction traffic would use the same routes to reach the RSA and travel approximately the same distances under any of the Central Valley Wye alternatives. Thus, temporary impacts on major roadways and truck routes from construction vehicle operations would be the same, overall, under any of the Central Valley Wye alternatives.

A detailed CTP (TR-IAMF#2), as described in Impact TR#1, would be developed prior to beginning any construction activities. This plan would be reviewed by cities located within the transportation RSA.

CEQA Conclusion

The impact under CEQA would be less than significant under any of the Central Valley Wye alternatives because the temporary use and disruption of local roadways would not substantially increase hazards or create incompatible uses. The design characteristics of the Central Valley

Wye alternatives include measures to limit use of roads by construction workers and movement of heavy equipment, preventing major delays on truck routes. In addition, remote parking areas may be built for these workers, with shuttles to bring them to and from the construction area if the remote parking areas are distant from the project site, minimizing additional construction vehicles on public roadways. Therefore, CEQA does not require any mitigation.

Impacts on Circulation and Emergency Access

Project-related construction traffic could affect vehicle circulation and access by emergency vehicles in areas where construction activities are occurring, either through the temporary closure of traffic lanes or through heavy truck traffic, as materials are brought to the project site and as demolished or excavated materials are hauled away. Impacts on emergency access are indirect impacts. Specific impacts related to circulation and emergency access are discussed as follows.

Impact TR#4: Temporary Impacts on Circulation and Emergency Access

Three of the four Central Valley Wye alternatives could affect traffic operations on SR 152. Due to their proximity to SR 152, construction of the SR 152 (North) to Road 13 Wye Alternative, SR 152 (North) to Road 19 Wye Alternative, or SR 152 (North) to Road 11 Wye Alternative could result in temporary closure of traffic lanes, reduction of lane widths, reduced speed limits, temporary on- and off-ramp closures, detours, and temporary closure of the freeway for placement of structural elements of installation or removal of falsework. The duration of these impacts could range from several hours in the case of a freeway closure to months in the case of lane width reductions. The impacts on traffic operations on SR 152 would be about the same for any of the three SR 152 alternatives. Construction of the Avenue 21 to Road 13 Wye Alternative would have the least impact on traffic operations on SR 152.

As shown in Table 3.2-10, the SR 152 (North) to Road 13 Wye Alternative would have the most temporary road closures and thus would be expected to have the greatest impacts on circulation and emergency access. The SR 152 (North) to Road 19 Wye and SR 152 (North) to Road 11 Wye Alternatives would have the fewest temporary road closures and thus would be expected to have the smallest impacts on circulation and emergency access. The impacts of the Avenue 21 to Road 13 Wye Alternative would be intermediate relative to the other alternatives.

During reconductoring activities associated with the network upgrades, a road closure or a rolling stop would be arranged for any locations where lines cross over roads before conductor installation begins. Such closures or stops would temporarily impede circulation and emergency access. Any road closures that must occur on private and county roads typically would not exceed a few minutes in duration, and would be coordinated with the county or landowner.

A detailed traffic control plan would be developed for each affected location prior to beginning any construction activities as outlined in the CTP (TR-IAMF#2). A construction safety transportation management plan (Section 3.11) would address concerns about emergency vehicle access and emergency vehicle response times. These plans would identify when and where temporary closures and detours would occur, with the goal of maintaining traffic flow, especially during peak travel periods. A more detailed discussion of potential temporary impacts to the response time of emergency service providers is provided in in Section 3.11, Impact SS#1, Temporary Interference with Emergency Response Times.

Impacts caused by temporary roadway closures associated with construction would not substantially increase traffic safety hazards. A CTP would address routing of construction truck traffic near sensitive uses (e.g., schools, day care centers, residences) to minimize impacts (TR-IAMF#2).

- Temporary signage to alert drivers and pedestrians to the construction zone.
- Flag persons or other methods of traffic control.
- Traffic speed limitations in the construction zone.
- Temporary road closures and provisions for alternative access during the closure.

- Detour provisions for temporary road closures. Alternating one-way traffic would be considered as an alternative to temporary closures where practicable and where it would result in better traffic flow than would a detour.
- Identified routes for construction traffic.
- Provisions for safe pedestrian and bicycle passage, or convenient detour.

Temporary roadway closures associated with construction would not result in inadequate emergency access because the CTP would provide for 24-hour access by emergency vehicles during construction. This emergency access provision would be required by the contract between the Authority and the contractor, and would be required for all construction areas within the RSA. Specific emergency access routes would be finalized during preparation of the CTP in coordination with the Authority and local municipalities. The plan also would provide traffic controls pursuant to the *California Manual on Uniform Traffic Control Devices* sections on temporary traffic controls (Caltrans 2014b) and would include elements for reducing impacts on emergency access, mainly through establishing detour provisions for temporary road closures and identified routes for construction traffic.

CEQA Conclusion

The impact under CEQA would be less than significant under any of the Central Valley Wye alternatives because the temporary impacts on circulation and access by emergency vehicles would not result in inadequate emergency access. The design characteristics of the Central Valley Wye alternatives include effective measures to maintain circulation and adequate emergency access during construction by providing detours that would allow for 24-hour access by emergency vehicles. Therefore, CEQA does not require any mitigation.

Impact TR#5: Permanent Impacts on Circulation and Emergency Access

Construction of any of the Central Valley Wye alternatives would require permanent road closures that could affect circulation and emergency vehicle access in the transportation RSA. The SR 152 (North) to Road 13 Wye Alternative would require the most permanent road closures (38), and would therefore have the greatest potential for impacts on emergency response times, compared to the other alternatives. Construction of the SR 152 (North) to Road 19 Wye Alternative would require 36 road closures, while the SR 152 (North) to Road 11 Wye Alternative and Avenue 21 to Road 13 Wye Alternative would require closures of 33 and 30 roads, respectively. Grade-separated interchanges proposed as part of the Central Valley Wye alternatives would provide a benefit by reducing traffic delay at current at-grade intersections and would provide direct access for emergency responders across the HSR right-of-way. New, permanent road crossings would total 24 for the SR 152 (North) to Road 13 Wye Alternative, 29 for the SR 152 (North) to Road 19 Wye Alternative, 28 for the Avenue 21 to Road 13 Wye Alternative, and 24 for the SR 152 (North) to Road 11 Wye Alternative. The locations and details of all permanent roadway closures and other modifications, such as grade separations, crossing configuration (e.g., underpass, overpass), are presented in Appendix 3.2-A.

Fewer grade-separated crossings would be constructed under the Central Valley Wye alternatives in rural areas in Merced and Madera Counties⁵ than in urban areas, and therefore longer reroutes could be necessary for emergency response providers traveling across the Central Valley Wye alternatives. Even in rural areas, however, the distances between overcrossings or undercrossings would vary from less than 2 miles to approximately 5 miles.

Considering both the changes in the traffic circulation patterns due to road closures and the construction of new grade-separated interchanges, the Avenue 21 to Road 13 Wye Alternative would have the least potential for changes to the ability of emergency service providers to access residences, businesses and industrial facilities, and the SR 152 (North) to Road 13 Wye

⁵ There would be no permanent road closures associated with new/modified Central Valley Wye alternatives-related electrical infrastructure in Merced, Madera, Fresno, or Stanislaus Counties. Therefore, impacts from permanent road closures are appropriately confined to Merced and Madera Counties.

Alternative would have the greatest potential for changes. Nevertheless, the modifications to the roadway network proposed under any of the Central Valley Wye alternatives would still allow for sufficient access to residences, businesses and industrial facilities in the RSA. A more detailed discussion of potential permanent impacts to the response time of emergency service providers is provided in in Section 3.11, Impact SS#2, Permanent Interference with Emergency Response Times.

CEQA Conclusion

The impact under CEQA would be less than significant under any of the Central Valley Wye alternatives because sufficient access would be provided in the RSA and none of the alternatives would be expected to affect the ability of local jurisdictions to maintain adequate emergency access. Therefore, CEQA does not require any mitigation.

Impact TR#6: Temporary Impacts on Major Highway Operations

Impacts on existing highways adjacent to the HSR mainline would be temporary, and would typically affect roadway operations. Due to their proximity to SR 152, construction of the SR 152 (North) to Road 13 Wye Alternative, SR 152 (North) to Road 19 Wye Alternative, or SR 152 (North) to Road 11 Wye Alternative could result in temporary closure of traffic lanes, reduction of lane widths, reduced speed limits, temporary on- and off-ramp closures, detours, and temporary closure of the freeway for placement of structural elements of installation or removal of falsework. The duration of these impacts could range from several hours in the case of a freeway closure to months in the case of lane-width reductions.

Construction of any of the three SR 152 (North) Wye alternatives (their impacts on SR 152 would be similar) would also lead to greater temporary impacts than the Avenue 21 to Road 13 Wye Alternative, because the Avenue 21 to Road 13 Wye Alternative would be located farther south in a more rural area, thereby affecting roads with lower volumes of traffic and thus fewer vehicles. The duration of construction impacts could range from a few weeks, with the construction impacts of a grade separation over the highway, to several weeks for the interchange construction.

Construction of the network upgrades under SR 152 (North) to Road 19 Wye Alternative would also lead to greater temporary impacts as reconductoring would occur across SR 59, SR 132, SR 140, and SR 233. Construction of the Site 7 Wilson electrical interconnection under the SR 152 (North) to Road 13 Wye Alternative, Avenue 21 to Road 13 Wye Alternative, or SR 152 (North) to Road 11 Wye Alternative would occur adjacent to or across SR 140 and SR 99. As previously discussed, a road closure or a rolling stop would be arranged for any locations where lines cross over roads before conductor installation begins, temporarily impeding circulation and emergency access. Any temporary lane or road closures that must occur on private and county roads typically would not exceed a few minutes in duration, and would be coordinated with the county or landowner.

The Authority would incorporate protection of public roadways during construction (TR-IAMF#1), which would include providing a photographic survey documenting the condition of the public roadways along truck routes prior to the start of construction. The Authority and its contractors would be responsible for the repair of any structural damage to public roadways caused by HSR construction or construction access, returning any damaged sections to their original pre-HSR construction structural condition. In developing the CTP (TR-IAMF#2), standard construction procedures related to traffic management would be used, including development of a detailed traffic control plan for each affected location prior to beginning any construction activities. These plans would identify when and where temporary closures and detours would occur, with the goal of maintaining traffic flow on major highway operations, especially during peak travel periods. Appendix E of the Transportation Technical Report (Authority and FRA 2016) lists the location of temporary traffic detours and road closures, based on preliminary design.

Impacts caused by temporary roadway closures associated with construction would not substantially increase hazards or incompatible uses because the following minimization practices would be incorporated as part of the CTP:

- Temporary signage to alert drivers and pedestrians to the construction zone.

- Flag persons or other methods of traffic control.
- Traffic speed limitations in the construction zone.
- Temporary road closures and provisions for alternative access during the closure.
- Detour provisions for temporary road closures. Alternating one-way traffic would be considered as an alternative to temporary closures where practicable and where it would result in better traffic flow than would a detour.
- Identified routes for construction traffic.
- Provisions for safe pedestrian and bicycle passage, or convenient detour.

CEQA Conclusion

The impact under CEQA would be less than significant under any of the Central Valley Wye alternatives because the temporary impacts on highway operations would not be permanent or substantially increase hazards or incompatible uses. The design characteristics of the Central Valley Wye alternatives include effective measures to restore the temporary closures following construction, and features to avoid disruption of highway operations and maintain traffic flow by providing temporary signage, advanced detour notification, and other standard measures to minimize temporary traffic increases in traffic volumes. Therefore, CEQA does not require any mitigation.

Impact TR#7: Permanent Impacts on Major Highway Operations

Depending on the alternative selected, the Central Valley Wye alternatives would affect SR 59, SR 99, SR 152, and SR 233. The Avenue 21 to Road 13 Wye Alternative is the only alternative that would include an HSR bridge over SR 152.

The introduction of grade-separated interchanges along SR 152, where adjacent to the HSR, would improve the safety of motorists using SR 152 due to a reduction in conflicts with local intersecting roadways. As discussed under Impact TR#2, new permanent road crossings would total 24 for the SR 152 (North) to Road 13 Wye Alternative, 29 for the SR 152 (North) to Road 19 Wye Alternative, 28 for the Avenue 21 to Road 13 Wye Alternative, and 24 for the SR 152 to Road 11 Wye Alternative. Thus, the SR 152 (North) to Road 19 Wye and Avenue 21 to Road 13 Wye Alternatives would have the greatest reductions in traffic delay, and the SR 152 (North) to Road 13 Wye and SR 152 (North) to Road 11 Wye Alternatives would have the smallest reductions in traffic delay. Furthermore, following construction of the selected Central Valley Wye alternative, major highways in the RSA would continue to operate at LOS A.

CEQA Conclusion

The impact under CEQA would be less than significant under any of the Central Valley Wye alternatives because the safety of motorists using SR 152 would be improved as a result of reduced vehicle conflicts with local roadways. Furthermore, major highways would continue to operate at LOS A. Therefore, CEQA does not require any mitigation.

Impact TR#8: Temporary Construction Impacts on Rural Roadway Operations

All four Central Valley Wye alternatives would traverse rural areas. The primary temporary traffic impacts during construction in these rural areas would occur where new roadway overcrossings would be constructed over the proposed HSR tracks. At these locations, the affected roadway would either be temporarily rerouted or temporarily closed until the overcrossing work is completed. As noted in Impact TR#1, the SR 152 (North) to Road 13 Wye Alternative would have the most temporary road closures, at 17, while the SR 152 (North) to Road 19 Wye and SR 152 (North) to Road 11 Wye, at 13, would have the fewest road closures.

Temporary closures would be considered acceptable if traffic volumes on the affected roadway were very low and a detour route was available that did not require a significant amount of additional travel, generally less than 10 miles. Further, road closures in agricultural areas would need to be coordinated with local and state agriculture and trucking agencies to avoid impacts, particularly during June through September (peak harvest season in the transportation RSA) to the extent practicable.

Traffic volumes on local roads in the transportation RSA are generally fewer than 500 vehicles per day. Detours resulting from road closures would be designed to avoid out-of-direction travel more than 10 miles in rural areas. Detours would be limited in rural areas and would have minimal impacts on travelers because of the existing low traffic volume on the local roads. However, detours would increase the length of the trip. For example, during construction of the Road 12 grade separation at SR 152, the northbound traffic on Road 12 would be detoured to eastbound Avenue 22 1/2, then to northbound Road 13 and then to westbound Avenue 24, from which the traffic would reconnect to Road 12. This detour would add 2 miles to the original trip (i.e., the route length would increase from 1.5 miles to 3.5 miles). Affected roadways for each alternative are included in Appendix 3.2-A, and the number and length of detours for each alternative are listed in Table 3.2-10.

The Authority and the contractor would minimize the impacts associated with detours. Any temporary road closure in agricultural areas would be coordinated with local and state agriculture and trucking agencies to avoid impacts during peak harvest seasons to the extent practicable (TR-IAMF#2). The CTP would minimize the impact of construction and construction traffic on adjoining and nearby roadways (TR-IAMF#2). The CTP would be prepared in close consultation with the pertinent city or county, and would be reviewed and approved by the Authority before any construction activities commence. This plan would address, in detail, the activities to be carried out in each construction phase, with the requirement of maintaining traffic flow during peak travel periods. Provisions for farm equipment access would be included in the CTP. Wherever practicable, provision of one-way traffic with flaggers instead of detours, and advance notice of detours through signs, construction notices, and community outreach, would be used to limit the inconvenience of the construction activity (TR-IAMF#2).

During construction, impacts on rural roadway operations from increased traffic from construction workers would be minimized by identifying adequate off-street parking for construction-related vehicles or designating a remote parking area, and using a shuttle bus to transfer construction workers to the job site (TR-IAMF#3). Furthermore, construction material deliveries would be prohibited between 7 a.m. and 9 a.m. and between 4 p.m. and 6 p.m. on weekdays (TR-IAMF#6) and appropriate truck routes (i.e., routes that avoid schools, daycare centers, residences, and other sensitive land uses to the extent practicable) would be used (TR-IAMF#7) to protect rural roadway operations.

The Authority would incorporate protection of public roadways during construction (TR-IAMF#1), which would include providing a photographic survey documenting the condition of the public roadways along truck routes prior to the start of construction. The Authority and its contractors would be responsible for the repair of any structural damage to public roadways caused by HSR construction or construction access, returning any damaged sections to their original pre-HSR construction structural condition. In addition, roadway construction activities would not reduce roadway capacity during major athletic events or other special events that attract a substantial number of visitors due to the provision police officers directing traffic, special-event parking, use of within-the-curb parking, or shoulder lanes for through-traffic and traffic cones (TR-IAMF#8). In addition, the CTP (TR-IAMF#2) would provide advance coordination to minimize impacts on rural roads during construction including detour provisions for temporary road closures, pre-identified routes for construction traffic to minimize traffic on rural roadways, and minimize access disruption to residents and businesses where road closures are required during construction.

CEQA Conclusion

The impact under CEQA would be less than significant under any of the Central Valley Wye alternatives because the temporary traffic impacts on rural roads during construction would not substantially increase hazards or incompatible uses. The design characteristics of the Central Valley Wye alternatives include effective measures to limit temporary traffic impacts by coordinating closures, by avoiding impacts during peak harvest seasons, and by maintaining traffic flow during peak travel periods. Impacts on rural roadway operations would be temporary, and all closures and detours would be restored following construction. Therefore, CEQA does not require any mitigation.

Impact TR#9: Permanent Impacts on Rural Roadway Operations

The Central Valley Wye alternatives would have permanent impacts on rural roadway operations from road closures associated with the introduction of HSR tracks that either transect an existing road or where roads are near the track alignment. Permanent road closures would total 38 for the SR 152 (North) to Road 13 Wye Alternative, 36 for the SR 152 (North) to Road 19 Wye Alternative, 30 for the Avenue 21 to Road 13 Wye Alternative, and 33 for the SR 152 (North) to Road 11 Wye Alternative. Thus, the SR 152 (North) to Road 13 Alternative would have the most substantial impacts on rural roadway operations and traffic rerouting, while the Avenue 21 to Road 13 Alternative would have the least impact; the SR 152 (North) to Road 19 Wye and SR 152 (North) to Road 11 Wye Alternatives would be intermediate in their impacts. Specific permanent road closures and rerouting for all Central Valley Wye alternatives would depend on the alternative selected and would be identified during the final design process. Affected roadways for each alternative are included in Appendix 3.2-A. Permanent road closures would predominately affect local roads.

CEQA Conclusion

The impact under CEQA would be less than significant under any of the Central Valley Wye alternatives because, even though rural roadway operations would be permanently altered from road closures, rural roadways would continue to operate at acceptable conditions following construction of the selected Central Valley Wye alternative. Therefore, CEQA does not require any mitigation.

Impact TR#10: Temporary Loss of Property Access

Construction of the Central Valley Wye alternatives would result in the temporary closure or modification of some local roadways, which could affect existing property access and require provisions for alternative access. Temporary loss of property access would affect an estimated 50 to 75 properties under any of the Central Valley Wye alternatives. Impacts on property access would be indirect impacts of the Central Valley Wye alternatives.

Traffic from the temporarily closed roads would be diverted to other nearby streets. Detour routes would be finalized during preparation of the CTP and any closures would be coordinated between the Authority and landowners (TR-IAMF#2). Preparation of the CTP would occur in close consultation with the pertinent city or county and would be reviewed and approved by the Authority before construction activities begin. The plan would include temporary road closures and provisions for alternative access during closures, identify routes for construction traffic, and minimize access disruption to residents and businesses. Road closures required during construction would be limited to the hours that are least disruptive to access for the adjacent land uses.

CEQA Conclusion

The impact under CEQA would be less than significant under any of the Central Valley Wye alternatives because the temporary closures or modifications of some local roadways that may affect property access would not substantially increase hazards. The design characteristics of the Central Valley Wye alternatives include effective measures to minimize access disruptions by providing alternative access during closures, identifying routes for construction traffic, and limiting the hours for road closures. Therefore, CEQA does not require any mitigation.

Impact TR#11: Permanent Loss of Property Access

In general, permanent impacts on property access would result from permanent road closures, particularly when the road closure restricts or eliminates current access to a property resulting in the property being landlocked. Impacts on property access would be indirect impacts of the Central Valley Wye alternatives.

Under the SR 152 (North) to Road 11 Wye Alternative, only one permanent loss of property access would occur. Under any of the other three Central Valley Wye alternatives, an estimated three permanent losses of property access would occur. Thus, the SR 152 (North) to Road 11 Wye Alternative would have the least impact on property access, while the impacts of the other three Central Valley Wye alternatives would be the same.

The list of permanent road closures to be required for track alignment and grade separations would be finalized during the final design process by the design/build contractor. During final design, the Authority or its contractor would identify where property access could be eliminated and would determine whether replacement or alternative access to the property could be provided. If a property's access is permanently eliminated and no alternative access is available, the Authority would purchase the entire parcel and convert it to transportation uses. The owners of the parcels being acquired would be provided relocation assistance through the Uniform Relocation Assistance and Real Property Acquisition Policies Act (SO-IAMF#2, Compliance with Uniform Relocation Assistance and Real Property Acquisition Policies Act). They would also be provided notification and relocation assistance.

The track alignment and grade separations could potentially restrict access to property at certain locations. Access easements would be provided to many of the severed access properties. At certain locations, however, access would continue to be restricted. A list of the proposed railroad crossings, grade separations, and road closures is provided in Appendix 3.2-A.

As part of the preliminary design process, road closures were identified for the various alternatives. These closures are included in Appendix 3.2-A. Based on these road closures and the subsequent rerouting required, a list of the parcels expected to be acquired due to lack of future access was developed. The results are as follows:

- SR 152 (North) to Road 13 Wye Alternative—3 parcels
- SR 152 (North) to Road 19 Wye Alternative—3 parcels
- Avenue 21 to Road 13 Wye Alternative—3 parcels
- SR 152 (North) to Road 11 Wye Alternative—1 parcel

CEQA Conclusion

The impact under CEQA would be less than significant under any of the Central Valley Wye alternatives because the design of the selected Central Valley Wye alternative includes provisions to provide access to all properties affected by the selected Central Valley Wye alternative, or to acquire such properties for which no access can be safely provided. Therefore, these modifications to property access would not result in inadequate emergency access or substantially increase hazards. Therefore, CEQA does not require any mitigation.

Transit Conditions

Impact TR#12: Temporary Impacts on Bus Transit Operations

In more developed areas, including Merced and Fairmead, construction-related traffic could interfere with transit operations from temporary road closures and detours under all of the Central Valley Wye alternatives. The SR 152 (North) to Road 13 Wye Alternative would have the most temporary road closures, at 17, while the SR 152 (North) to Road 19 Wye and SR 152 (North) to Road 11 Wye Alternatives, at 13, would have the fewest road closures. Thus, the SR 152 (North) to Road 13 Wye Alternative would have the greatest potential to interfere with transit operations, while the SR 152 (North) to Road 19 Wye and SR 152 (North) to Road 11 Wye Alternatives would have the least potential to interfere with transit operations.

The contractor would work with transportation agencies during development of the CTP to minimize or avoid delays to bus operations in the transportation RSA (TR-IAMF#2). In addition, the contractor would prepare specific construction management plans to address maintenance of transit access during construction (TR-IAMF#10). The CTP would include provisions to minimize access disruption to residents, businesses, customers, delivery vehicles, and buses to the extent practicable, and provide for scheduled transit access where construction would otherwise impede such access. Where an existing bus stop is within the work zone, the design-builder would provide a temporary bus stop at a convenient location away from where construction is occurring. Impacts of the Central Valley Wye alternatives on transit would be indirect impacts.

CEQA Conclusion

The impact under CEQA would be less than significant under any of the Central Valley Wye alternatives because the temporary road closures and detour routes that could interfere with

transit operations would not conflict with adopted programs regarding public transit or otherwise decrease the performance or safety of these facilities. The design characteristics of the Central Valley Wye alternatives include effective measures to minimize access disruptions and impacts on bus transit by providing temporary bus stops, advanced notification of construction activities, and maintaining traffic control at all school bus loading zones. Therefore, CEQA does not require any mitigation.

Impact TR#13: Permanent Impacts on Bus Transit Operations

Bus services within the transportation RSA may change as a result of the introduction of a statewide HSR system. None of the Central Valley Wye alternatives would directly affect ridership on the statewide HSR system; this would be an indirect impact of the Central Valley Wye alternatives. Ridership on the statewide HSR system would be the same under any of the Central Valley Wye alternatives.

Riders could gradually switch to the HSR system if they were interested in traveling beyond their home county where direct bus service is provided (to Fresno, for example). However, any changes in bus transit ridership would occur gradually as the various HSR segments began operation and work toward full ridership and would occur mostly for broader intercity bus service as opposed to the existing city and county services provided in the transportation RSA. These gradual changes (increase or decrease in route ridership) would enable intercity bus operators to revise their schedules in a timely fashion as a result of HSR operations and future population growth expected to occur in the region. Because no HSR stations are planned near the communities in or adjacent to the transportation RSA, HSR is not expected to adversely affect overall ridership levels for the local and county transit services, beyond what would occur with organic population growth in the area. Bus service providers would modify routes as needed based on the road closures resulting from the Central Valley Wye alternatives. However, the modifications that may occur are not known at this time.

CEQA Conclusion

The impact under CEQA would be less than significant under any of the Central Valley Wye alternatives because permanent impacts on bus operations would not conflict with adopted programs regarding public transit or otherwise decrease the performance or safety of the facilities. The Central Valley Wye alternatives do not include stations near communities in or adjacent to the transportation RSA that could affect bus ridership. Any changes in bus transit ridership would occur gradually, allowing bus schedules to be revised. Therefore, CEQA does not require any mitigation.

Impact TR#14: Temporary Impacts on Passenger Rail Operations

Permission for temporary access on railroad property would be necessary during construction. In order to avoid affecting railroad operations during construction, an agreement on the timing and duration of activities would be required prior to implementing a TCE on railroad property. Under all Central Valley Wye alternatives, specific TCEs would be finalized during final project design in coordination with the affected railroads in areas where access is required. In areas where TCEs would cross railroad property, the Authority would avoid affecting railroad operations, including Amtrak San Joaquin rail service operating on host railroads within the RSA, to the extent possible. Temporary impacts on Amtrak rail operations would be an indirect impact of the Central Valley Wye alternatives.

Since construction conditions may vary, there is a possibility for disruption to or temporary delay of Amtrak railroad operations. However, the Authority, railroads, and Amtrak would work together to construct the selected Central Valley Wye alternative in a manner consistent with the agreements, which would be negotiated by the Authority's contractor during the final design process. This would enable each entity to conduct its relevant activities to minimize any detrimental impacts on railroad and Amtrak operations. The Authority would coordinate with the railroads and Amtrak to prevent delays in rail operations or safety risks to railroad employees or passengers during construction of the HSR.

The design of the selected Central Valley Wye alternative would make certain that deliveries of all construction-related equipment and materials would occur on predetermined truck routes and would prohibit heavy construction vehicles from accessing sites via other routes (TR-IAMF#7). Additionally, the contractor would repair any structural damage to public railways that may occur during the construction period, and would return any damaged sections to their original structural condition (TR-IAMF#9). If necessary, during construction, a “shoofly” track would be constructed to allow train lines to bypass any areas closed for construction activities, thereby maintaining existing rail operations and Amtrak passenger rail service.

CEQA Conclusion

The impact under CEQA would be less than significant under any of the Central Valley Wye alternatives because temporary disruptions or delays to rail operations and Amtrak passenger rail service would be minimized, and because construction would not decrease the performance or safety of public transit facilities. The Central Valley Wye alternatives would be constructed in a manner intended to minimize impacts on railroad operations by allowing trains to bypass areas closed for construction. Therefore, CEQA does not require any mitigation.

Impact TR#15: Permanent Impacts on Passenger Rail Operations

With the introduction of an HSR system in the transportation RSA, it is expected that Amtrak San Joaquin rail service would likely adjust its operations to serve as a feeder network to the HSR system, particularly for riders traveling from the Sacramento and Stockton areas. None of the Central Valley Wye alternatives would directly affect ridership on the statewide HSR system; this would be an indirect impact of the Central Valley Wye alternatives. Ridership on the statewide HSR system would be the same under any of the Central Valley Wye alternatives.

As the HSR system becomes more widely available, many San Joaquin riders probably would shift to the HSR system (for example, from the San Joaquin Valley to Bay Area). As HSR ridership increases, Amtrak San Joaquin rail service likely would improve because the San Joaquin line would connect and provide direct service to existing markets between HSR stations and/or markets not served by the HSR system, such as Chowchilla. The HSR project would thus complement existing transit systems and plans in the RSA.

CEQA Conclusion

There would be no impact under CEQA for any of the Central Valley Wye alternatives because the project would provide services and facilities that complement existing passenger rail services and therefore would not conflict with adopted programs regarding public transit or otherwise decrease the performance or safety of public transit facilities. Therefore, CEQA does not require any mitigation.

Impact TR#16: Temporary Impacts on School Bus Routes

Construction of the SR 152 (North) to Road 13 Wye Alternative and the SR 152 (North) to Road 11 Wye Alternative could affect school bus routes in the area of Fairmead Elementary School. This would be an indirect impact of the Central Valley Wye alternatives. The tracks of the SR 152 (North) to Road 13 Wye Alternative would be 0.2 mile from Fairmead Elementary School on a high embankment, elevated approximately 20 feet, and returning to grade at the SR 99 crossing. The tracks of the SR 152 (North) to Road 11 Wye Alternative would also be 0.2 mile from Fairmead Elementary School, on a high embankment, located in a transition area where the track is elevated approximately 15 to 20 feet, and returning to grade after the SR 99 crossing.

Construction of the SR 152 (North) to Road 19 Wye Alternative could affect school bus routes in the area of Fairmead Elementary School, Washington Elementary School, and El Capitan High School. The tracks of the SR 152 (North) to Road 19 Wye Alternative would be 0.2 mile from Fairmead Elementary School. Construction and operation of the SR 152 (North) to Road 19 Wye Alternative would have the same impacts as described for the SR 152 (North) to Road 13 Wye Alternative. The SR 152 to Road 19 Wye Alternative would have the most impacts on school bus routes among the four alternatives.

Construction of the Avenue 21 to Road 13 Wye Alternative would not affect Alview Elementary School bus routes; it could affect school bus routes near Chowchilla Seventh-Day Adventist School. The track of this alternative would be less than 0.1 mile from Chowchilla Seventh-Day Adventist School. The closest road crossing would be Avenue 22 1/2, approximately 0.25 mile to the north.

The Site 7—Le Grand Junction/Sandy Mush Road, Warnerville – Wilson 230 kV Transmission Line spans roads approximately 0.1 and 0.2 mile from the Washington Elementary School and El Capitan High School facilities, respectively. The line also spans East Yosemite Avenue and East Bellevue Road, in the City of Merced. These roads are part of the University of California Merced CatTracks bus routes. During reconductoring activities, a road closure or a rolling stop would be arranged for any locations where lines cross over roads before conductor installation begins. Such road closures typically would not exceed a few minutes in duration and would be coordinated with the county, city, or landowner.

Temporary lane or road closures and detours that are necessary during construction within or along the public right-of-way would result in minor delays to the motoring public, including school buses. The SR 152 (North) to Road 13 Wye Alternative would have the most temporary road closures, at 17, while the SR 152 (North) to Road 19 Wye and SR 152 (North) to Road 11 Wye Alternatives, at 13, would have the fewest road closures. Although school bus routes could be temporarily obstructed during construction activities, alternative access routes would continue to be provided as a provision of the CTP (TR-IAMF#2).

The designs of the Central Valley Wye alternatives include identifying when and where temporary closures and detours would occur, with the goal of maintaining traffic flow, especially during peak travel periods and during school hours (TR-IAMF#2). Detour routes would be finalized by the contractor during final project design. Advance notification would be provided to the local school district of construction activities and traffic control would be rigorously maintained at all school bus loading zones. In addition, any damage to public roads would be repaired by the contractor, benefiting the school buses that use them (TR-IAMF#1).

CEQA Conclusion

The impact under CEQA would be less than significant for any of the Central Valley Wye alternatives because temporary alterations to school bus routes would not substantially increase hazards or create safety risks for school bus users. The design characteristics of the Central Valley Wye alternatives include effective measures to minimize impacts by maintaining traffic flow, identifying temporary closures and detours, and repairing damage to public roads. Therefore, CEQA does not require any mitigation.

Impact TR#17: Permanent Impacts on School Bus Routes

Any permanent school bus route changes required by road closures associated with the Central Valley Wye alternatives would be identified as final design of the Central Valley Wye alternatives is completed, allowing schools sufficient time to evaluate their existing routes and make any necessary adjustments. Based on the current 15 percent level of design (Authority 2016), the greatest out-of-direction travel distance required for school buses would be 3.1 miles for each of the Central Valley Wye alternatives. This represents an approximately 10 percent increase in travel distance when compared to the total average roundtrip mileage (25–35 miles) of the bus routes. Appendix 3.12-D, Table 3, provides a list of permanent road closures by school district and indicates the out-of-direction travel that would be required as a result of the road closures. This would be an indirect impact of the Central Valley Wye alternatives. However, because no schools would be physically affected by the Central Valley Wye alternatives, buses can be rerouted to continue to provide service, and no permanent impacts on the ability of route buses to pick up children would be expected.

CEQA Conclusion

There would be no impact under CEQA for any of the Central Valley Wye alternatives because alterations to school bus routes would not increase hazards or create safety risks for school bus users. Therefore, CEQA does not require any mitigation.

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

Construction of the HSR alignment would require TCEs for construction that may require the temporary closure of pedestrian facilities, bicycle lanes, and paths. Construction would also require temporary road closures and detours, which could interfere with pedestrian and bicycle access in more developed areas such as Waterford, Merced, and Fairmead. This indirect impact of the Central Valley Wye alternatives would occur under all Central Valley Wye alternatives.

The SR 152 (North) to Road 13 Wye Alternative would have the most temporary road closures, at 17, while the SR 152 (North) to Road 19 Wye and SR 152 (North) to Road 11 Wye Alternatives, at 13, would have the fewest road closures. Thus, the SR 152 (North) to Road 13 Wye Alternative would have the greatest impact on pedestrian and bicycle access, and the SR 152 (North) to Road 19 Wye and SR 152 (North) to Road 11 Wye Alternatives would have the smallest impact on pedestrian and bicycle access.

The design of the Central Valley Wye alternatives includes preparing specific construction management plans to address maintenance of pedestrian access during the construction period, including sidewalk closures, crosswalk closures and/or pedestrian rerouting at intersections, and avoiding placement of construction-related material within pedestrian pathways or sidewalks (TR-IAMF#4). Similar plans also would be prepared to maintain bicycle access during the construction period which could be affected by bike lane closures or narrowing, closure or narrowing of streets that are designated bike routes, bridge closures, and placement of construction-related materials within designated bike lanes or along bike routes (TR-IAMF#5). Preparation of the CTP (TR-IAMF#2) would include provisions for safe pedestrian and bicycle passage or convenient detours, in part by providing advance notification to the public and provisions for safe pedestrian and bicycle passage or convenient detour. Grade-separated interchanges proposed as part of the Central Valley Wye alternatives would also provide a benefit by improving the safety of the intersections for bicyclists and pedestrians.

CEQA Conclusion

The impact under CEQA would be less than significant under any of the Central Valley Wye alternatives because temporary impacts on pedestrian and bicycle access during construction would not create safety hazards nor would they decrease the performance of the facilities. The design characteristics of the Central Valley Wye alternatives include effective measures to maintain pedestrian and bicycle access during construction by avoiding placement of construction-related material within pathways or sidewalks, and providing advance notification and provisions for safe pedestrian and bicycle passages or detours. Therefore, CEQA does not require any mitigation.

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

Pedestrian and bicycle usage within the transportation RSA is largely concentrated in the more developed areas along the corridor, including Fairmead and Madera Acres. There may be some segments where the Central Valley Wye alternatives would operate on an elevated embankment or other structures (such as culverts over irrigation canal crossings) that would not permit pedestrian and bicycle movement under the tracks. However, many other portions of the Central Valley Wye alternatives would operate on grade-separated sections of track that cross roadways throughout the corridor (including new freight rail separations). Under all Central Valley Wye alternatives, these grade-separated crossings would result in improved pedestrian and bicycle safety in those areas close to HSR operations in comparison to existing at-grade railroad crossings, because pedestrians and bicyclists would not need to cross the railroad tracks. This would be a beneficial indirect impact of the Central Valley Wye alternatives.

CEQA Conclusion

There would be a less than significant impact under CEQA for any of the Central Valley Wye alternatives because loss of pedestrian and bicycle access would be limited to a few elevated segments, and permanent changes to pedestrian and bicycle facilities would provide enhanced and safe access to pedestrians and bicyclists because of new grade-separated crossings. Therefore, CEQA does not require any mitigation.

Roadway Operations

Impact TR#20: Temporary Impacts on Major Roadway Operations

For all of the Central Valley Wye alternatives, construction staging plans include roadway detours during the construction phase. These detours and construction measures are described in the Transportation Technical Report, Appendix E (Authority and FRA 2016).

Table 3.2-10 summarizes the number of temporary road closures and total length of temporary detours resulting from the road closures for each of the Central Valley Wye alternatives. The SR 152 (North) to Road 13 Wye Alternative would have the most temporary road closures, at 17, while the SR 152 (North) to Road 19 Wye and SR 152 (North) to Road 11 Wye Alternatives, at 13, would have the fewest road closures. The Avenue 21 to Road 13 Wye Alternative would result in the greatest total length of detours, at 36 miles, while the SR 152 (North) to Road 19 Wye Alternative would result in the least total length of detours, at 25 miles. These closures and restrictions would increase average vehicle delay times on affected roads, increase average trip durations in the project area, and prompt some motorists to avoid traveling through the project area to the extent alternative routes are available.

The temporary road closures that could be required during construction for any of the Central Valley Wye alternatives (based on preliminary design) are presented in Appendix 3.2-A. These temporary detour plans may be modified during final design. The design of the Central Valley Wye alternatives includes identifying when and where temporary closures and detours would occur, with the goal of maintaining traffic flow, especially during peak travel periods and during school hours (TR-IAMF#2).

CEQA Conclusion

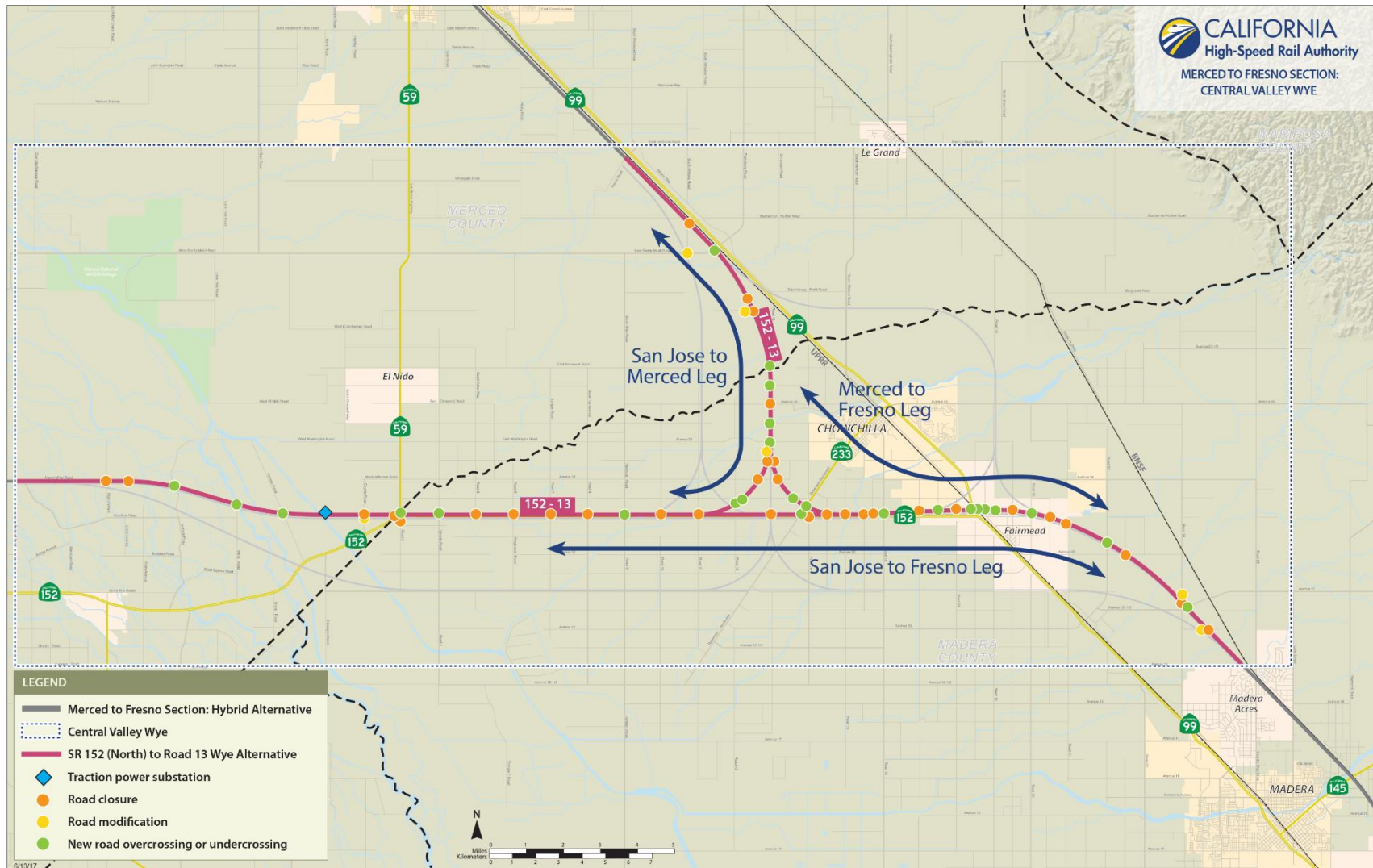
The impact under CEQA would be less than significant under any of the Central Valley Wye alternatives because the design characteristics of the Central Valley Wye alternatives include effective measures to limit temporary traffic interruptions by providing detour plans during construction, temporary signage, and advanced detour notification, reducing the potential for a temporary increase in construction-related hazards. Therefore, CEQA does not require any mitigation.

Impact TR#21: Permanent Impacts on Major Roadway Operations

SR 152 (North) to Road 13 Wye Alternative

The SR 152 (North) to Road 13 Wye Alternative would require an estimated 38 permanent road closures, 24 permanent new crossing configurations (overcrossings and undercrossings), and 62 roadway crossings. The exact locations and other details of these permanent roadway modifications, such as type of modification (road closure, grade separation, etc.), crossing configuration (underpass, overpass), are presented in Appendix 3.2-A and on Figure 3.2-6.

Traffic rerouting caused by permanent road closures and relocations, as well as grade separations, could lead to additional traffic on some roadways. The list of proposed permanent roadway closures and modifications under the SR 152 (North) to Road 13 for implementing each Central Valley Wye alternative is presented in Appendix 3.2-A. Permanent construction impacts and impacts on street-network traffic operations as a result of these roadway modifications are analyzed in this section. Existing plus project traffic conditions for this alternative are shown in Table 3.2-11.



Source: Parsons, 2013; Authority and FRA, 2008, 2016

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Figure 3.2-6 SR 152 (North) to Road 13 Wye Alternative Permanent Design Features

Table 3.2-11 Existing (2015) plus Project Peak-Hour Roadway Operations along the SR 152 (North) to Road 13 Wye Alternative

Traffic Count Location #	Roadway	Location	Existing (2015) No Project						Existing (2015) plus Project					
			AM Peak			PM Peak			AM Peak			PM Peak		
			Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS
1	Henry Miller Road	Near Hutchins Road	35	0.03	A	20	0.02	A	35	0.03	A	20	0.02	A
3	Los Banos Highway	North of Avenue 23 1/2	463	0.39	A	533	0.45	A	489	0.41	A	580	0.49	A
5	Hemlock Road	North of SR 152	52	0.04	A	28	0.02	A	61	0.05	A	40	0.03	A
6	Hemlock Road	South of SR 152	29	0.02	A	22	0.02	A	29	0.02	A	22	0.02	A
8	E Sandy Mush Road	West of SR 99	20	0.02	A	26	0.02	A	20	0.02	A	26	0.02	A
9	Avenue 25	East of Road 14	49	0.04	A	88	0.07	A	49	0.04	A	88	0.07	A
10	Avenue 25	West of Road 13	126	0.11	A	101	0.08	A	126	0.11	A	101	0.08	A
17	Avenue 23	East of Fairmead Boulevard	5	0.00	A	11	0.01	A	14	0.01	A	52	0.04	A
19	Road 16	at SR 152	125	0.10	A	142	0.12	A	148	0.12	A	169	0.14	A
20	Road 22	North Avenue 22	352	0.29	A	209	0.17	A	352	0.29	A	209	0.17	A
21	Avenue 20	West of Road 25	6	0.01	A	9	0.01	A	6	0.01	A	9	0.01	A
22	Road 12	at SR 152	11	0.01	A	18	0.02	A	11	0.01	A	18	0.02	A

Sources: LOS Standard per Merced County guidelines (LOS D for rural highway, LOS C for all other rural roads) and Madera County guidelines (LOS D)

¹ Each roadway segment has two lanes.

² The traffic operation numbers under existing (2015) plus project conditions are for general information purposes only, as this roadway segment would be modified under project conditions.

Road 26 would be modified to an overpass above the HSR and BNSF tracks and the design of the overpass has not yet been finalized.

Volume = two-way peak-hour volume

V/C = volume-to-capacity ratio

LOS = level-of-service

SR = State Route

Existing (2015) plus project conditions applies impacts from the SR 152 (North) to Road 13 Wye Alternative on a 2015 baseline (existing conditions). Even with the addition of the permanently rerouted traffic under existing (2015) plus project conditions, all selected major roadway segments in the transportation RSA would continue to operate at LOS A as shown in Table 3.2-11. In addition, the introduction of grade-separated interchanges along SR 152 and other major roadways, such as SR 59, SR 233/Robertson Boulevard, and SR 99 where adjacent to the HSR, would improve the safety of existing motorists using these roadways because of a reduction in conflicts with local intersecting roadways. See Appendix 3.2-A for a full list of grade separations.

CEQA Conclusion

The impact under CEQA would be less than significant because the safety of motorists using SR 152 would be improved as a result of reduced vehicle conflicts with local roadways. Furthermore, major highways would continue to operate at LOS A following construction of the selected Central Valley Wye alternative, despite permanently altered closures and/or rerouting. Therefore, CEQA does not require any mitigation.

SR 152 (North) to Road 19 Wye Alternative

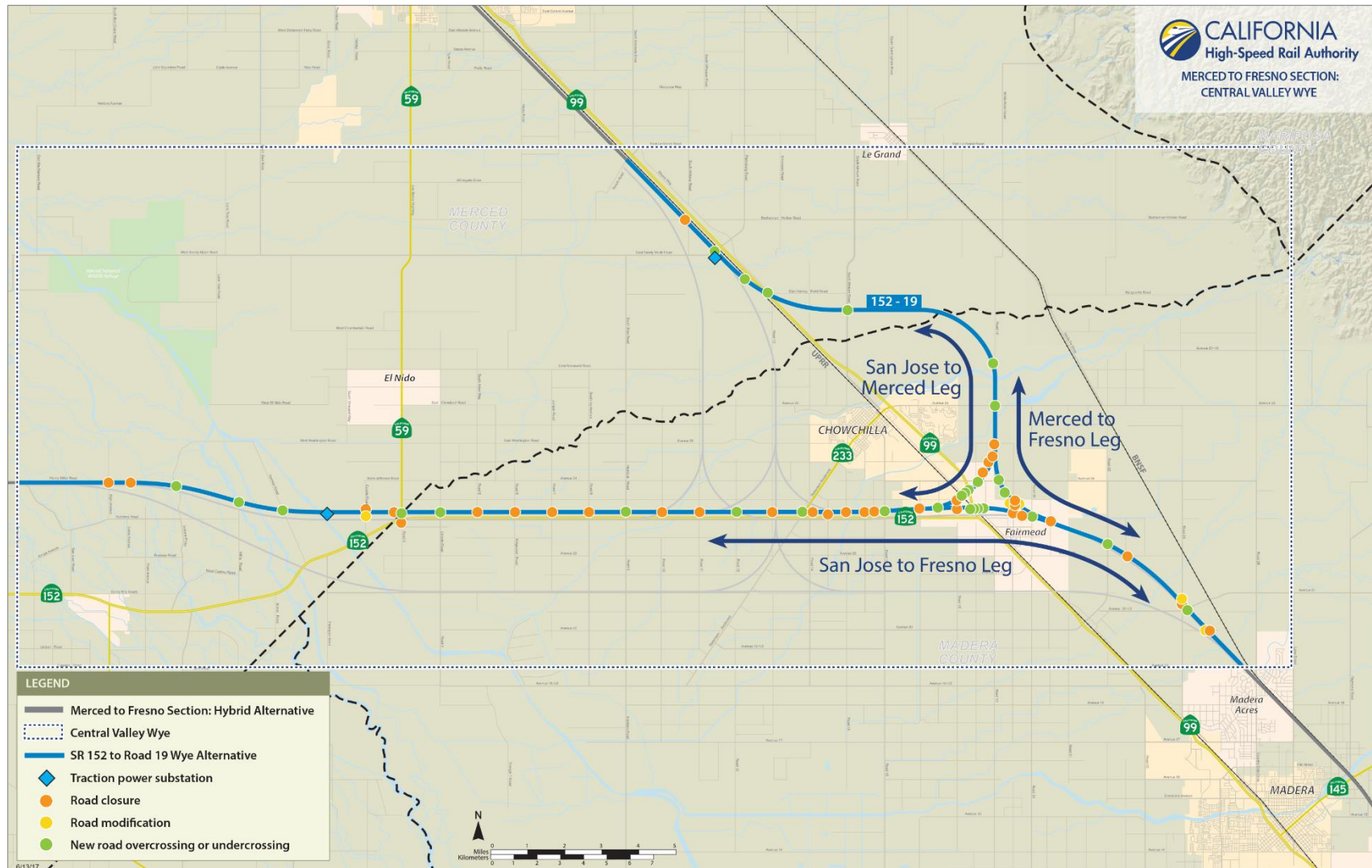
Permanent road closures would predominately affect local roads in the Central Valley Wye alternatives area. The SR 152 (North) to Road 19 Wye Alternative would require an estimated 36 permanent road closures, 29 permanent new crossing configurations (overcrossings and undercrossings, and 65 roadway crossings, based on preliminary design information provided by the Authority.

Information related to specific locations and other details of these roadway modifications, such as type of modification (road closure, grade separation, etc.) and crossing configuration (underpass, overpass), are presented in Appendix 3.2-A and on Figure 3.2-7.

Even with the addition of the permanently rerouted traffic under the existing (2015) plus project conditions, all major roadway study segments for the SR 152 (North) to Road 19 Wye Alternative would continue to operate at LOS A as shown in Table 3.2-12.

CEQA Conclusion

The impact under CEQA would be less than significant because major highways would continue to operate at LOS A following construction of the selected Central Valley Wye alternative, despite permanently altered closures and/or rerouting. Therefore, CEQA does not require any mitigation.



Source: Parsons, 2013; Authority and FRA, 2008, 2016

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Figure 3.2-7 SR 152 (North) to Road 19 Wye Alternative Permanent Design Features

Table 3.2-12 Existing (2015) plus Project Peak-Hour Roadway Operations along the SR 152 (North) to Road 19 Wye Alternative

Traffic Count Location #	Roadway	Location ¹	Existing (2015) No Project						Existing (2015) plus Project					
			AM Peak			PM Peak			AM Peak			PM Peak		
			Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS
1	Henry Miller Road	Near Hutchins Road	35	0.03	A	20	0.02	A	35	0.03	A	20	0.02	A
3	Los Banos Highway	North of Ave 23 1/2	463	0.39	A	533	0.45	A	489	0.41	A	580	0.49	A
5	Hemlock Road	North of SR 152	52	0.04	A	28	0.02	A	61	0.05	A	40	0.03	A
6	Hemlock Road	South of SR 152	29	0.02	A	22	0.02	A	29	0.02	A	22	0.02	A
8	E Sandy Mush Road	West of SR 99	20	0.02	A	26	0.02	A	20	0.02	A	26	0.02	A
16	Avenue 24	East of Avenue 18 3/4	96	0.08	A	62	0.05	A	125	0.10	A	98	0.08	A
17	Avenue 23	East of Fairmead Boulevard	5	0.00	A	11	0.01	A	14	0.01	A	52	0.04	A
19	Road 16	at SR 152	125	0.10	A	142	0.12	A	148	0.12	A	169	0.14	A
20	Road 22	North Avenue 22	352	0.29	A	209	0.17	A	352	0.29	A	209	0.17	A
21	Avenue 20	West of Road 25	6	0.01	A	9	0.01	A	6	0.01	A	9	0.01	A
22	Road 12	at SR 152	11	0.01	A	18	0.02	A	11	0.01	A	18	0.02	A

Sources: LOS Standard per Merced County guidelines (LOS D for rural highway, LOS C for all other rural roads) and Madera County guidelines (LOS D)

¹ Each roadway segment has two lanes.

² The traffic operation numbers under the existing (2015) plus project conditions are for general information purposes only, as this roadway segment would be modified under project conditions.

Road 26 would be modified to an overpass above the HSR and BNSF tracks, and the design of the overpass has not yet been finalized.

Volume = two-way peak-hour volume

V/C = volume-to-capacity ratio

LOS = level-of-service

SR = State Route

Avenue 21 to Road 13 Wye Alternative

The Avenue 21 to Road 13 Wye Alternative would require an estimated 30 permanent road closures, 28 permanent new crossing configurations, and 58 roadway crossings based on preliminary design criteria provided by the Authority. The exact locations and other details of these roadway modifications, such as type of modification (road closure, grade separation, etc.) and crossing configuration (underpass, overpass), are presented in Appendix 3.2-A and on Figure 3.2-8.

Traffic rerouting because of road closures and grade separations could lead to additional traffic on some roadways. The list of proposed roadway modifications under the Avenue 21 to Road 13 Wye Alternative is presented in Appendix 3.2-A. Construction and operations impacts on street network traffic operations as a result of these roadway modifications are analyzed in this section.

Even with the addition of the permanently rerouted traffic under existing (2015) plus project conditions, all selected roadway segments in the transportation RSA would continue to operate under uncongested conditions as shown in Table 3.2-13.

CEQA Conclusion

The impact under CEQA would be less than significant because major highways would continue to operate at LOS A following construction of the selected Central Valley Wye alternative, despite permanently altered closures and/or rerouting. Therefore, CEQA does not require any mitigation.



California High-Speed Rail Authority

Table 3.2-13 Existing (2015) plus Project Peak-Hour Roadway Operations along the Avenue 21 to Road 13 Wye Alternative

Traffic Count Location #	Roadway	Location ¹	Existing (2015) No Project						Existing (2015) plus Project					
			AM Peak			PM Peak			AM Peak			PM Peak		
			Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS
1	Henry Miller Road	Near Hutchins Road	37	0.03	A	21	0.02	A	37	0.03	A	21	0.02	A
2	Hutchins Road	North of SR 152	6	0.01	A	6	0.01	A	12	0.01	A	8	0.01	A
4	Road 4	North of Avenue 21	86	0.07	A	56	0.05	A	103	0.09	A	64	0.05	A
7	Road 9/Hemlock Road	North of Avenue 21	44	0.04	A	32	0.03	A	58	0.05	A	50	0.04	A
8	E Sandy Mush Road	West of SR 99	20	0.02	A	26	0.02	A	20	0.02	A	26	0.02	A
9	Avenue 25	East of Road 14	49	0.04	A	88	0.07	A	49	0.04	A	88	0.07	A
10	Avenue 25	West of Road 13	126	0.11	A	101	0.08	A	126	0.11	A	101	0.08	A
11	Road 21 1/2	East of Road 12	4	0.00	A	6	0.01	A	4	0.00	A	6	0.01	A
12	Avenue 21 1/2	East of Robertson Boulevard	10	0.01	A	14	0.01	A	18	0.02	A	15	0.01	A
13	Road 14	North of Avenue 21	22	0.02	A	13	0.01	A	22	0.02	A	13	0.01	A
14	Avenue 22	West of Road 18 1/2	1	0.00	A	2	0.00	A	1	0.00	A	2	0.00	A
18	Avenue 21	West of Road 19	0	0.00	A	5	0.00	A	0	0.00	A	5	0.00	A

Sources: LOS Standard per Merced County guidelines (LOS D for rural highway, LOS C for all other rural roads) and Madera County guidelines (LOS D)

¹ Each roadway segment has two lanes.

² The traffic operation numbers under the existing (2015) plus project conditions are for general information purposes only, as this roadway segment would be modified under project conditions.

Road 26 would be modified to an overpass above the HSR and BNSF tracks, and the design of the overpass has not yet been finalized.

Volume = two-way peak-hour volume

V/C = volume-to-capacity ratio

LOS = level-of-service

SR = State Route

SR 152 (North) to Road 11 Wye Alternative

The SR 152 (North) to Road 11 Wye Alternative would require an estimated 33 permanent road closures, 24 permanent new crossing configurations (overcrossings and undercrossings), and 57 roadway crossings. The exact locations and other details of these permanent roadway modifications, such as type of modification (road closure, grade separation, etc.), crossing configuration (underpass, overpass), are presented in Appendix 3.2-A and on Figure 3.2-9.

Traffic rerouting because of permanent road closures and relocations, as well as grade separations, could lead to additional traffic on some roadways. The list of proposed permanent roadway closures and modifications under the SR 152 (North) to Road 11 for implementing each Central Valley Wye alternative is presented in Appendix 3.2-A. Permanent construction impacts and impacts on street network traffic operations as a result of these roadway modifications are analyzed in this section.

Existing (2015) plus project conditions apply impacts from the SR 152 (North) to Road 11 Wye Alternative on a 2015 baseline (existing conditions). Even with the addition of the permanently rerouted traffic under existing (2015) plus project conditions, all selected major roadway segments in the transportation RSA would continue to operate at LOS A as shown in Table 3.2-14.

CEQA Conclusion

The impact under CEQA would be less than significant because major highways would continue to operate at LOS A following construction of the selected Central Valley Wye alternative, despite permanently altered closures and/or rerouting. Therefore, CEQA does not require any mitigation.



Figure 3.2-9 R 152 (North) to Road 11 Wye Alternative Permanent Design Features

Table 3.2-14 Existing (2015) plus Project Peak-Hour Roadway Operations along the SR 152 (North) to Road 11 Wye Alternative

Traffic Count Location #	Roadway	Location	Existing (2015) No Project						Existing (2015) plus Project					
			AM Peak			PM Peak			AM Peak			PM Peak		
			Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS
1	Henry Miller Road	Near Hutchins Road	35	0.03	A	20	0.02	A	35	0.03	A	20	0.02	A
3	Los Banos Highway	North of Avenue 23 1/2	463	0.39	A	533	0.45	A	489	0.41	A	580	0.49	A
5	Hemlock Road	North of SR 152	52	0.04	A	28	0.02	A	61	0.05	A	40	0.03	A
6	Hemlock Road	South of SR 152	29	0.02	A	22	0.02	A	29	0.02	A	22	0.02	A
8	E. Sandy Mush Road	West of SR 99	20	0.02	A	26	0.02	A	20	0.02	A	26	0.02	A
23	Road 4	South of SR 152	40	0.03	A	75	0.06	A	40	0.03	A	75	0.06	A
24	Road 8	South of SR 152	30	0.03	A	32	0.03	A	30	0.03	A	32	0.03	A
25	Road 8	North of SR 152	10	0.01	A	20	0.02	A	10	0.01	A	20	0.02	A
26	Road 11	South of SR 152	8	0.01	A	8	0.01	A	58	0.05	A	57	0.05	A
27	Avenue 25 1/2	West of Road 11	11	0.01	A	5	0.00	A	11	0.01	A	5	0.00	A
28	E. Sandy Mush Road	East of S. Athlone Road	32	0.03	A	50	0.04	A	32	0.03	A	50	0.04	A
29	Avenue 24	West of Road 12	4	0.00	A	7	0.01	A	4	0.00	A	7	0.01	A

Sources: LOS Standard per Merced County guidelines (LOS D for rural highway, LOS C for all other rural roads) and Madera County guidelines (LOS D)

¹ Each roadway segment has two lanes.

² The traffic operation numbers under the existing (2015) plus project conditions are for general information purposes only, as this roadway segment would be modified under project conditions.

Road 26 would be modified to an overpass above the HSR and BNSF tracks, and the design of the overpass has not yet been finalized.

Volume = two-way peak-hour volume

V/C = volume-to-capacity ratio

LOS = level-of-service

SR = State Route

Operations Impacts

Operations of the Central Valley Wye alternatives would include operation of the HSR system, inspection, and maintenance along the track and railroad right-of way, as well as on the structures, fencing, power system, train control, and communications facilities. Operations and maintenance activities are more fully described in Chapter 2.

None of the Central Valley Wye alternatives operations would affect transportation resources. Permanent road closures and permanent road relocations that would affect roadway operations would occur as a result of project construction, and are considered permanent construction impacts, not operations impacts. Train operations and track maintenance activities that would occur during operation would not affect the transportation resources discussed in this chapter.

3.2.7 Mitigation Measures

All construction and operations impacts would be minimized or avoided. No mitigation measures are required.

3.2.8 Impacts Summary for NEPA Comparison of Alternatives

This section summarizes the impacts of the Central Valley Wye alternatives and compares them to the anticipated impacts of the No Project Alternative. Table 3.2-15 provides a comparison of the potential impacts of each of the Central Valley Wye alternatives, summarizing the more detailed information provided in Section 3.2.6, Environmental Consequences.

Development in the San Joaquin Valley to accommodate expected population and economic growth would continue under the No Project Alternative. Development is anticipated to include residential, commercial, industrial, recreational, transportation, and agricultural projects, and it is expected that this development would result in associated direct and indirect impacts on transportation resources. For example, traffic volumes on regional roadways would continue to increase as a result of development activity, thereby affecting existing roadways, highways, utilities, airports, and railways. To accommodate this growth, transportation improvements would be completed to maintain or expand existing capacity. A full list of anticipated future development projects is provided in Appendix 3.19-A and Appendix 3.19-B. Planned and programmed transportation improvements under the No Project Alternative would require construction that would result in temporary impacts, including traffic rerouting, lane closures, temporary detours and impeded bus, bicycle, and pedestrian circulation. Once construction of each project is complete, the impacts on traffic circulation would largely be beneficial in the near term. However, over the long term, the programmed transportation network capacity improvements are not anticipated to be sufficient to meet future (2040) demand and population growth, and impacts on transportation resources, particularly in traffic congestion, would occur.

The Merced to Fresno Final EIR/EIS concluded that development of the HSR system would result in potential impacts on transportation. Implementing the Central Valley Wye alternatives could also result in impacts on transportation facilities from the temporary construction activities, permanent impacts on property access, and permanent road closures and relocations. The Central Valley Wye alternatives include IAMFs to reduce impacts on transportation facilities. These IAMFs include the protection of public roadways during construction; preparation of a CTP; provisions for off-street parking for construction-related vehicles and during special events; maintenance of pedestrian, bicycle, and transit access; restriction on construction hours and truck routes; and protection of freight and passenger rail.

Table 3.2-15 Comparison of Central Valley Wye Alternative Impacts

Resource or Impact Category	Impacts by Central Valley Wye Alternative			
	SR 152 (North) to Road 13 Wye	SR 152 (North) to Road 19 Wye	Avenue 21 to Road 13 Wye	SR 152 (North) to Road 11 Wye
Construction				
Road Closures and Relocations				
Impact TR#1: Temporary Impacts on Major Roadways from Temporary Road Closures and Relocations				
Number of Road Closures	17	13	15	13
Length of Detours (miles)	30	25	36	26
Impact TR#2: Permanent Impacts on Major Roadways from Permanent Road Closures and Relocations				
Permanent Road Closures	38	36	30	33
Construction Material Hauling Impacts on Regional Transportation				
Impact TR#3: Temporary Impacts on Major Roadways and Truck Routes from Construction Vehicle Operations				
Traffic Level-of-Service	Construction worker vehicle trips would increase traffic congestion. All Central Valley Wye alternatives would have a similar number of construction workers and similar lengths of construction worker vehicle trips.			
Road Condition	All Central Valley Wye alternatives would generate similar numbers of and trip lengths for heavy trucks. Road damage from truck trips would be similar among all of the alternatives.			
Impacts on Circulation and Emergency Access				
Impact TR#4: Temporary Impacts on Circulation and Emergency Access Operations Impacts				
Traffic conditions on SR 152	Closure of traffic lanes, reduction of lane widths, reduced speeds, ramp closures, detours	Closure of traffic lanes, reduction of lane widths, reduced speeds, ramp closures, detours	No impacts on SR 152	Closure of traffic lanes, reduction of lane widths, reduced speeds, ramp closures, detours
Reconductoring for network upgrades	Under any of the Central Valley Wye alternatives, this activity could require temporary road closures or rolling stops where lines cross roads.			
Emergency Access	Under any of the Central Valley Wye alternatives, construction activities could impede emergency access. These impacts would be similar among the alternatives.			
Impact TR#5: Permanent Impacts on Circulation and Emergency Access				
Emergency Access	Under any of the Central Valley Wye alternatives, circulation and emergency access would be maintained because of the addition of grade-separated interchanges at regular intervals.			
Impact TR#6: Temporary Impacts on Major Highway Operations				
Traffic conditions on SR 152	Closure of traffic lanes, reduction of lane widths, reduced speeds, ramp closures, detours	Closure of traffic lanes, reduction of lane widths, reduced speeds, ramp closures, detours	No impacts on SR 152	Closure of traffic lanes, reduction of lane widths, reduced speeds, ramp closures, detours

	Impacts by Central Valley Wye Alternative			
Resource or Impact Category	SR 152 (North) to Road 13 Wye	SR 152 (North) to Road 19 Wye	Avenue 21 to Road 13 Wye	SR 152 (North) to Road 11 Wye
Reconductoring for network upgrades	Under any of the Central Valley Wye alternatives, construction activities could impede emergency access. These impacts would be similar among the alternatives.			
Impact TR#7: Permanent Impacts on Major Highway Operations				
Traffic conditions on SR 152	New grade-separated interchanges would improve motorist safety.	New grade-separated interchanges would improve motorist safety.	HSR bridge over SR 152 would have no impact on SR152 traffic.	New grade-separated interchanges would improve motorist safety.
Impact TR#8: Temporary Construction Impacts on Rural Roadway Operations				
Harvest season activities	All Central Valley Wye alternatives could disrupt harvest season activities and impacts would be similar among all four Central Valley Wye alternatives.			
Construction Worker Parking	All Central Valley Wye alternatives would require similar numbers of construction workers, and thus similar levels of construction worker parking.			
Number of Road Closures	17	13	15	13
Length of Detours (miles)	30	25	36	26
Structural damage to roads	All Central Valley Wye alternatives would generate similar volumes of heavy truck traffic, and thus result in similar levels of road damage.			
Impact TR#9: Permanent Impacts on Rural Roadway Operations				
Permanent Road Closures	38	36	30	33
Impact TR#10: Temporary Loss of Property Access				
Temporary Impacts on Property Access (number of properties)	50-75	50-75	50-75	50-75
Impact TR#11: Permanent Loss of Property Access				
Permanent Impacts on Property Access (number of properties)	3	3	3	1
Transit Conditions				
Impact TR#12: Temporary Impacts on Bus Transit Operations				
Number of Road Closures	17	13	15	13
Length of Detours (miles)	30	25	36	26
Impact TR#13: Permanent Impacts on Bus Transit Operations				
Permanent Road Closures	38	36	30	33
Impact TR#14: Temporary Impacts on Passenger Rail Operations				
Railway Operations	All of the Central Valley Wye alternatives would have a similar potential to temporarily disrupt freight or public railway operations during construction.			
Condition of freight and public railways	All of the Central Valley Wye alternatives would have a similar potential to damage freight or public railways during construction.			

Resource or Impact Category	Impacts by Central Valley Wye Alternative			
	SR 152 (North) to Road 13 Wye	SR 152 (North) to Road 19 Wye	Avenue 21 to Road 13 Wye	SR 152 (North) to Road 11 Wye
Impact TR#15: Permanent Impacts on Passenger Rail Operations				
Ridership on existing passenger rail services	Under any of the Central Valley Wye alternatives, ridership on existing rail services would be expected to increase. The levels of increase would be similar under any of the Central Valley Wye alternatives.			
Impact TR#16: Temporary Impacts on School Bus Routes				
Number of Road Closures	17	13	15	13
Impact TR#17: Permanent Impacts on School Bus Routes				
School bus routes	Because no schools would be physically affected by the Central Valley Wye alternatives, buses can be rerouted to continue to provide service and no permanent impacts on the ability of route buses to pick up children would be expected under any of the Central Valley Wye alternatives.			
Impact TR#18: Temporary Impacts on Pedestrian and Bicycle Access				
Number of Road Closures	17	13	15	13
Length of Detours (miles)	30	25	36	26
Impact TR#19: Permanent Impacts on Pedestrian and Bicycle Access				
Permanent Road Closures	38	36	30	33
Roadway Operations				
Impact TR#20: Temporary Impacts on Major Roadway Operations				
Number of Road Closures	17	13	15	13
Length of Detours (miles)	30	25	36	26
Impact TR#21: Permanent Impacts on Major Roadway Operations				
Permanent Road Closures	38	36	30	33

Source: Authority and FRA compilation, 2017

SR = State Route

All of the Central Valley Wye alternatives would result in construction-related impacts on transportation. Construction of any of the Central Valley Wye alternatives would result in temporary and permanent road closures and relocations, which would cause temporary or permanent diversion of traffic onto other roadways. Temporary or permanent road closures and relocations and operation of construction vehicles on major roadways could affect emergency facilities and require changes to emergency access routes. Temporary or permanent road closures, relocations, detours, and new grade-separated intersections would also affect school bus routes and pedestrian and bicycle access. The degree of impact varies among the alternatives, depending on the number of road closures, with the SR 152 (North) to Road 13 Wye Alternative having the most road closures (17 temporary and 38 permanent), followed by the SR 152 (North) to Road 19 Wye Alternative (13 temporary and 36 permanent), then the SR 152 (North) to Road 11 Wye Alternative (13 temporary and 33 permanent), and finally the Avenue 21 to Road 13 Wye Alternative (15 temporary and 30 permanent). However, grade-separated interchanges proposed at regular intervals as part of the Central Valley Wye alternatives would provide a benefit by reducing traffic delay at current at-grade intersections and by providing direct access for emergency responders, school and transit buses, pedestrian and bicycles across the HSR right-of-way.

Construction of the Central Valley Wye alternatives would also result in temporary impacts on major roadways as a result of construction vehicles traveling on major roadways and accessing temporary construction areas. One impact would be to add to existing traffic volumes on local roads, possibly increasing traffic congestion. Another impact would be increased road wear and possibly damage from heavy trucks and construction equipment. Analysis indicates that these impacts would not vary substantially among the alternatives because the sources of workers, materials, and equipment would be the same for any of the alternatives, and the destinations would be similar.

Temporary and permanent impacts on property access would result from temporary and permanent road closures, particularly when a permanent road closure restricts or eliminates access to a property, resulting in the property being landlocked. Temporary impacts on property access would be the same for any of the Central Valley Wye alternatives. Permanent impacts on property access would be the same (three properties affected) for the SR 152 (North) to Road 13 Wye Alternative, SR 152 (North) to Road 19 Wye Alternative, and Avenue 21 to Road 13 Wye Alternative, with less impact (one property affected) for the SR 152 (North) to Road 11 Wye Alternative.

All of the Central Valley Wye alternatives would have temporary or permanent indirect impacts on passenger rail operations and bus transit routes in the transportation RSA. Because of the nature of these types of indirect impacts, they would be the same for any of the Central Valley Wye alternatives.

Operations for the Central Valley Wye alternatives would not result in any impacts on transportation resources. Permanent road closures, road relocations, and grade separations that would affect roadway operations and that would occur as a result of project construction are considered permanent construction impacts. New grade-separated interchanges along SR 152 and other major roadways, such as SR 59, SR 233/Robertson Boulevard, and SR 99 where adjacent to the HSR, would improve the safety of existing motorists using these roadways by reducing conflicts with local intersecting roadways. See Appendix 3.2-A for a full list of grade separations.

3.2.9 CEQA Significance Conclusions

Table 3.2-16 provides a summary of the CEQA determination of significance for all construction and operations impacts discussed in Section 3.2.6.3, Central Valley Wye alternatives. The CEQA level of significance before and after mitigation for each impact in this table is the same for all Central Valley Wye alternatives.

Table 3.2-16 CEQA Significance Conclusions for Transportation for the Central Valley Wye Alternatives

Impact	CEQA Level of Significance before Mitigation	Mitigation Measures	CEQA Level of Significance after Mitigation
Construction			
Road Closures/Relocations			
Impact TR#1: Temporary Impacts on Major Roadways from Temporary Road Closures and Relocations	No impact under any alternative	No mitigation measures are required	Not applicable
Impact TR#2: Permanent Impacts on Major Roadways from Permanent Road Closures and Relocations	Less than significant for all alternatives	No mitigation measures are required	Not applicable
Construction Material Hauling			
Impact TR#3: Temporary Impacts on Major Roadways and Truck Routes from Construction Vehicle Operations	Less than significant for all alternatives	No mitigation measures are required	Not applicable

Impact	CEQA Level of Significance before Mitigation	Mitigation Measures	CEQA Level of Significance after Mitigation
Circulation/Emergency Access			
Impact TR#4: Temporary Impacts on Circulation and Emergency Access	Less than significant for all alternatives	No mitigation measures are required	Not applicable
Impact TR#5: Permanent Impacts on Circulation and Emergency Access	Less than significant for all alternatives	No mitigation measures are required	Not applicable
Major Highway Operations			
Impact TR#6: Temporary Impacts on Major Highway Operations	Less than significant for all alternatives	No mitigation measures are required	Not applicable
Impact TR#7: Permanent Impacts on Major Highway Operations	Less than significant for all alternatives	No mitigation measures are required	Not applicable
Rural Roadway Operations			
Impact TR#8: Temporary Construction Impacts on Rural Roadway Operations	Less than significant for all alternatives	No mitigation measures are required	Not applicable
Impact TR#9: Permanent Impacts on Rural Roadway Operations	Less than significant for all alternatives	No mitigation measures are required	Not applicable
Property Access			
Impact TR#10: Temporary Loss of Property Access	Less than significant for all alternatives	No mitigation measures are required	Not applicable
Impact TR#11: Permanent Loss of Property Access	Less than significant for all alternatives	No mitigation measures are required	Not applicable
Transit Conditions			
Impact TR#12: Temporary Impacts on Bus Transit Operations	Less than significant for all alternatives	No mitigation measures are required	Not applicable
Impact TR#13: Permanent Impacts on Bus Transit Operations	Less than significant for all alternatives	No mitigation measures are required	Not applicable
Impact TR#14: Temporary Impacts on Passenger Rail Operations	Less than significant for all alternatives	No mitigation measures are required	Not applicable
Impact TR#15: Permanent Impacts on Passenger Rail Operations	No impact for all alternatives	No mitigation measures are required	Not applicable

Impact	CEQA Level of Significance before Mitigation	Mitigation Measures	CEQA Level of Significance after Mitigation
Impact TR#16: Temporary Impacts on School Bus Routes	Less than significant for all alternatives	No mitigation measures are required	Not applicable
Impact TR#17: Permanent Impacts on School Bus Routes	No Impact under any alternative	No mitigation measures are required	Not applicable
Impact TR#18: Temporary Impacts on Pedestrian and Bicycle Access	Less than significant for all alternatives	No mitigation measures are required	Not applicable
Impact TR#19: Permanent Impacts on Pedestrian and Bicycle Access	No Impact under any alternative	No mitigation measures are required	Not applicable
Roadway Operations			
Impact TR#20: Temporary Impacts on Major Roadway Operations	Less than significant for all alternatives	No mitigation measures are required	Not applicable
Impact TR#21: Permanent Impacts on Major Roadway Operations	Less than significant for all alternatives	No mitigation measures are required	Not applicable
Operations			
None	Not applicable	Not applicable	Not applicable

Source: Authority and FRA compilation, 2017