

3 Affected Environment, Environmental Consequences, and Mitigation Measures

3.18 Regional Growth

3.18.1 Introduction

Section 3.18, Regional Growth, of this *Merced to Fresno Section: Central Valley Wye Final Supplemental Environmental Impact Report (EIR)/Environmental Impact Statement (EIS)* (Final Supplemental EIR/EIS) updates the *Merced to Fresno Section California High-Speed Train Final Project Environmental Impact Report/Environmental Impact Statement* (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 regional growth, and analyzes the potential impacts of the No Project Alternative and the Central Valley Wye alternatives.

The analysis has similarities to and differences from the analysis in the Merced to Fresno Final EIR/EIS (Authority and FRA 2012). Both analyses assess potential regional growth impacts on the three-county resource study area (RSA) that includes Merced, Madera, and Fresno Counties. The reason the RSA includes these three counties, however, differs somewhat from the rationale provided in the previous analysis (see Section 3.18.4.1, Definition of Resource Study Area). Both analyses use quantitative and qualitative approaches for analyzing impacts, such as calculating the estimated construction-related employment. Where information has changed or new information has become available since the Merced to Fresno Final EIR/EIS (Authority and FRA 2012) was published, this Final Supplemental EIR/EIS analysis uses updated sources or datasets. The analyses differ in the following ways:

- Construction-related employment is calculated based on estimated local construction costs for each of the four Central Valley Wye alternatives. Comparison of these estimates to the escalated local construction cost estimate for the Merced to Fresno Section: Hybrid Alternative evaluated in the Merced to Fresno Final EIR/EIS (Authority and FRA 2012) is used to estimate construction employment impacts (direct, indirect, and induced construction employment) of the Central Valley Wye alternatives.
- Operations-related employment is largely tied to jobs created at high-speed rail (HSR) stations and maintenance facilities; however, no stations or maintenance facilities are proposed under any of the Central Valley Wye alternatives. Updated estimates for operations employment for Phase 1 of the HSR project would include only limited employment from the San Joaquin Valley related to maintenance and repair of the tracks and ancillary facilities associated with the Central Valley Wye alternatives.
- The analysis of employment and population growth associated with overall operations of the HSR system, including the Central Valley Wye alternatives, discusses the original analysis of induced growth from the Merced to Fresno Final EIR/EIS (Authority and FRA 2012). That analysis estimated 2035 growth resulting from direct, indirect, and induced employment, plus general economic growth in the RSA from improved transportation accessibility provided by the HSR system. The original estimate for induced growth is compared to updated 2040 forecast employment and population data to determine the potential amount of additional growth.

The following technical reports of this Final Supplemental EIR/EIS support the analysis of regional growth and provide additional information:

- Draft Relocation Impact Report—provides detailed information about the number and acreage of private residential, commercial, and agricultural land to be acquired to construct the Central Valley Wye alternatives.
- Community Impact Assessment—provides detailed information about historical and forecast population, demographics, housing, economy, and employment.

In addition to the technical reports, the following resource sections of this Final Supplemental EIR/EIS provide information related to regional growth:

- **Section 3.2, Transportation**—Describes impacts of the Central Valley Wye alternatives on the benefits of new transportation linkages provided by the HSR system to the San Francisco and Los Angeles metropolitan areas.
- **Section 3.3, Air Quality and Global Climate Change**—Describes impacts of constructing the Central Valley Wye alternatives on regional air pollutant concentrations.
- **Section 3.12, Socioeconomics and Communities**—Describes impacts of the Central Valley Wye alternatives on population, employment, displacements and relocations, effects on agricultural production, and potential changes in sales and property tax revenues.
- **Section 3.13, Land Use and Development**—Describes impacts of the Central Valley Wye alternatives on compatibility with existing and proposed land use and development.
- **Section 3.14, Agricultural Farmland**—Describes impacts of the Central Valley Wye alternatives on agricultural lands.
- **Section 3.19, Cumulative Impacts**—Describes cumulative impacts of the Central Valley Wye alternatives and overall effects on factors affecting regional growth, including potential effects.

Since publication of the Draft Supplemental EIR/EIS, there have been no substantive changes to this section beyond the global issues described in Section S.1.2, Global Changes in the Final Supplemental EIR/EIS, of the Summary.

Definition of Resources

Regional growth is measured in terms of increases in population, employment, and the related development of land providing housing, commercial, and industrial buildings and facilities, and community services supporting both residents and businesses. For the Central Valley Wye alternatives, the RSA for regional growth is defined as the three-county area defined by Merced, Madera, and Fresno Counties (Section 3.18.4.1). Population increase is based on births, in-migration, out-migration, and deaths occurring within the RSA. Employment is the number of jobs in the RSA that may be held by residents or persons who may reside inside or outside of the RSA and commute to jobs in the RSA. Individual workers may have one or more jobs, and a portion of the population may not have a job because of age, choice, or unemployment status. Increases in employment depend upon increased demand for products and services from residents and businesses that may or may not be located in the RSA. As such, potential regional growth relating to the Central Valley Wye alternatives would be caused by the increased demand for direct, indirect, and induced construction and operations jobs. Regional growth also would be stimulated by general economic expansion as a result of increased statewide transportation connectivity, increased population associated with new local jobs, and increased residential and commercial development and community services to meet the needs of new residents and businesses. These changes would result in additional land development in the RSA.

3.18.2 Laws, Regulations, and Orders

This section identifies laws, regulations, and orders relevant to the analysis of regional growth in this Final Supplemental EIR/EIS. Also provided are summaries of laws, regulations, and orders that have been issued or updated since publication of the Merced to Fresno Final EIR/EIS (Authority and FRA 2012).

3.18.2.1 Federal

The discussion of federal requirements to analyze growth under the National Environmental Policy Act (NEPA) provided in Section 3.18.2.1, NEPA Requirements to Analyze Growth, of the Merced to Fresno Final EIR/EIS (Authority and FRA 2012: page 3.18-2) has not changed since the publication of that document.

3.18.2.2 State

The state laws, regulations, and orders pertinent to analyzing regional growth are the same as those described in Section 3.18.2.2, CEQA Requirements to Analyze Growth, of the Merced to Fresno Final EIR/EIS (Authority and FRA 2012: page 3.18-2):

- California Environmental Quality Act (CEQA) and its requirement to analyze impacts on regional growth
- Senate Bill (SB) 375 Sustainable Communities Strategies¹

New state laws, regulations, and orders follow.

2015 State Environmental Goals and Policies

In November 2015, the State of California published *A Strategy for California @ 50 Million, The Governor's Environmental Goals and Policy Report* (EGPR) (California Office of Planning and Research 2015). This report updates the 1978 *Urban Strategy for California* (California Office of Planning and Research 1978), the last EGPR prepared and adopted. Assembly Bill 2070 (1970) directed the Governor's Office of Planning and Research to prepare and maintain an EGPR. The goals and objectives focus on land use, population growth and distribution, conservation of natural resources, and air and water quality. The 2015 EGPR broadens the scope of the goals and objectives for the state, not just for urban areas.

Achieving sustainable growth in California with 50 million residents requires a clear plan of action and sustained effort. The 2015 EGPR outlines five key goals:

- Increase the share of renewable energy in the state's energy mix to at least 50 percent by 2030
- Reduce petroleum use by up to 50 percent by 2030
- Increase the energy efficiency of existing buildings by 50 percent by 2030
- Reduce emissions of short-lived climate pollutants
- Steward natural resources, including forests, working lands, and wetlands, to ensure that they store carbon, are resilient, and enhance other environmental benefits

To achieve these long-term goals, California must implement effective growth management strategies that will require integrated actions that promote multiple benefits. The state planning priorities identify infill development in previously developed areas as the top priority for new development. To meet this priority, the State of California adopted additional actions needed to support infill development, including specific transportation actions, which include the following:

- Develop a priority order for state transportation investment that includes investments in public transportation and other modes that are alternatives to single-occupant vehicles.
- Enhance support for infill development and transit-oriented development in communities along the HSR project corridor. In particular, the state will prioritize investment in infill development and transit-oriented development in these communities and fund projects that promote HSR system ties to, and support for, local public transportation systems.

3.18.2.3 Regional and Local

Regional and transportation plans relevant to the analysis of regional growth have changed since publication of the Merced to Fresno Final EIR/EIS (Authority and FRA 2012). The discussion of the *San Joaquin Valley Blueprint Integration Planning Process, Summary Report* (Mintier Harnish et al. 2010) provided in Section 3.18.2.3, Regional and Transportation Plans, of the Merced to Fresno Final EIR/EIS (Authority and FRA 2012: pages 3.18-2 through 3.18-3) has not changed.

¹ The discussion of SB 375 Sustainable Communities Strategies requirements in Section 3.18.2.3, Regional and Transportation Plans, of the Merced to Fresno Final EIR/EIS (Authority and FRA 2012: pages 3.18-4 through 3.18-5) has been moved from Section 3.18.2.3 to 3.18.2.2 in this document because it is a state law.

In 2014, Merced, Madera, and Fresno Counties adopted new regional transportation plans that incorporate strategies for sustainable communities. In addition, county and city governments have adopted updated housing elements of their general plans to accommodate projected housing needs. A discussion of these new or updated regional and transportation plans follows.

Regional Transportation Plan 2014-2040 Sustainable Communities Strategy for Merced County

In September 2014, the Merced County Association of Governments adopted an update to the 2011 regional transportation plan—the *Regional Transportation Plan, 2014-2040 Sustainable Communities Strategy for Merced County* (Merced County Association of Governments 2014). This regional transportation plan incorporates the new sustainable communities strategy in compliance with the Sustainable Communities and Climate Protection Act of 2008. The county includes the city of Merced and several smaller jurisdictions, such as Atwater, Livingston, Gustine, Los Banos, and Dos Palos. The plan has the following seven overarching goals or vision themes:

- Provide a good system of roads that are well maintained, safe, and efficient and meet the transportation demands of people and freight
- Provide a transit system that is a viable choice
- Support full-time employment with livable waters
- Preserve productive agricultural land/maintain strong agricultural economy and quality of life
- Support orderly and planned growth that enhances the integration and connectivity of various modes of transportation
- Support clean air and water and avoid, minimize, or mitigate negative impacts on the environment
- Provide funds for building, operating, and maintaining the existing and future regional transportation system, and ensure funding transportation investments are cost-effective

Specifically, the plan identifies a goal and several policies for passenger rail service. The goal is that the rail system should provide safe and reliable service for passengers. This applies to passenger service on Amtrak routes in the San Joaquin Valley and includes the HSR system connecting the cities of Merced and Los Banos to Sacramento and the San Francisco Bay Area (Bay Area), as well as Fresno and destinations farther south. The plan commits Merced County to supporting the HSR planning process and actively providing comments and input.

With an HSR station planned for the city of Merced, the plan also includes statements about coordinating future land use patterns and the transportation system, including HSR, to foster economic prosperity and integrated mixed-use communities. This goal encompasses transit-oriented land uses around the planned Merced Station.

Madera County 2014 Regional Transportation Plan and Sustainable Communities Strategy

The *Madera County 2011 Regional Transportation Plan* was updated with the adoption of the *2014 Regional Transportation Plan and Sustainable Communities Strategy* (Madera County Transportation Commission 2014). It is the required 4-year update of the regional transportation plan integrating a sustainable communities strategy consistent with the Sustainable Communities and Climate Protection Act of 2008. The plan reflects the horizon year of 2040 to ensure that the transportation system and implementation policies and programs will safely and efficiently accommodate growth envisioned in the general plan land use elements adopted by the Cities of Chowchilla and Madera and Madera County. The strategy is a new element of the regional transportation plan that demonstrates the integration of land use, transportation strategies, and transportation investments with the goal of showing that Madera County can meet the California Air Resources Board regional greenhouse gas reduction target of 5 percent.

The plan identifies eight broad policy goals to guide Madera County in the pursuit of quality growth and highly integrated transportation systems. Related to the California HSR Program, these goals for Madera County include enhancing transportation system coordination, efficiency, and intermodal connectivity considering that no HSR stations would be located in the county. The plan documents the participation of the Madera County Transportation Commission, the Cities of Madera and Chowchilla, and Madera County in the Authority's program to implement service from Southern California to the Bay Area via the San Joaquin Valley. The route through Madera County follows State Route (SR) 99. The Madera County Transportation Commission has been participating in planning activities, such as the following:

- Participating in the Central Valley Wye alternatives development process
- Providing guidance on local issues, development plans, and policies
- Assisting in the development and evaluation of alternatives
- Participating in public involvement activities and events
- Serving as liaisons to local communities

Fresno County Regional Transportation Plan and Sustainable Communities Strategy

The Fresno Council of Governments (FCOG)—the regional transportation planning agency and the metropolitan planning organization for the Fresno County area—adopted an update to the *2011 Regional Transportation Plan*. The 2014 version of the document contains a sustainable communities strategy as required by SB 375 to integrate land use and the transportation plan to meet state greenhouse gas emission reduction targets. The *2014 Regional Transportation Plan and Sustainable Communities Strategy* (FCOG 2014a) addresses transportation improvement needs for existing multimodal transportation systems operating in Fresno County and its 15 cities. It also considers associated financial constraints to improve the highway, streets, non-motorized, transit, rail, and aviation systems. It will be challenging to meet the planned transportation objectives because of continued population growth, a largely rural population, higher rates of unemployment, lower levels of education attainment, low median household income, and higher poverty rates compared to statewide characteristics.

The plan focuses on preserving existing facilities and services, sound financial management that leverages existing funds, and balancing transportation needs with future land use. This includes promoting higher-density land development in and around existing urban centers and encouraging annexation prior to urban development on the unincorporated fringe. In addition, the plan calls for reducing auto use, increasing transit use (including the HSR system), interconnecting modes of transportation, and planning transportation to national parks in the county's eastern portion.

With respect to HSR planning and construction, the FCOG's plan states its support for providing a regional connection with the other major population centers in the San Joaquin Valley. In particular, the plan supports the location and development of the heavy maintenance facility in Fresno County. When the HSR system is operational, the plan proposes linking the planned regional bus rapid transit system as well as building a new streetcar line to connect with the planned HSR station. The plan integrates the HSR system into the regional transportation plan to maximize its benefits for the county.

Local Government General Plan Policies

Since publication of the Merced to Fresno Final EIR/EIS (Authority and FRA 2012), several of the local government general plans have been updated. Table 3.18-1 lists these local government planning documents and summarizes changes in these general plans, policies, and objectives that have been adopted since 2012 and are relevant to the Central Valley Wye alternatives.

Table 3.18-1 Local Plans and Policies

Plan Title	Policy Summary
Merced County	
<p>2030 Merced County General Plan (2013, 2016)</p>	<p>The 2030 Merced County General Plan (Merced County 2013) addresses the state-required seven mandatory topics—land use, circulation, housing, open space, conservation, safety, and noise—plus an additional five topics: economic development, agriculture, public facilities and services, recreation and cultural resources, and water. The General Plan also addresses sustainability, the reduction of greenhouse gas emissions, and climate change adaptation consistent with California Global Warming Solutions Act of 2006. The <i>Merced County Housing Element Update</i> was adopted July 12, 2016 (Merced County 2016).</p> <p>The Great Recession of 2007–2009, which caused very high unemployment rates and tens of thousands of home foreclosures within the county, substantially influenced the data included in this adopted document.</p> <p>Overall, the General Plan has five “guiding principles,” several of which come from topics addressed in optional elements of the General Plan. These guiding principles are as follows:</p> <ul style="list-style-type: none"> ▪ Agriculture—Recognizing the county’s economy is deeply entrenched in agriculture, policies in the General Plan both support and protect agriculture to ensure the industry’s continued vitality. ▪ Economic Development—To improve the quality of life for residents, the General Plan policies support methods to expand and diversify the local economy in order to create and sustain employment and business opportunities for existing and future residents. ▪ Environmental Quality—To ensure a high quality of life for existing and future residents, the General Plan policies protect natural resources. ▪ Public Facilities and Services—General Plan policies call for new growth and development in the county to be responsible for, having access to, and fully fund all essential public facilities and services. ▪ Transportation—The General Plan policies call for the coordination, networking, and adequate construction and maintenance of the entire transportation system to meet the needs of residents and businesses. <p>The General Plan also contains specific policies addressing the high-speed rail (HSR) program, which will travel through the county and have a planned station in the city of Merced (not part of the Central Valley Wye alternatives). These policies include the following:</p> <ul style="list-style-type: none"> ▪ Policy ED-1.5—Direct existing and planned infrastructure investment, including the HSR program, to infill areas that would provide the greatest potential economic growth opportunities in the county. ▪ Policy ED-5.5—Take steps to enhance the role of the Castle Commercial Center and Airport as a regional multi-modal transportation hub, including rail. ▪ Policy AG-2.16—Coordinate with the Authority to locate the alignment of the high-speed rail tracks along existing major transportation corridors to minimize conversion of productive agricultural lands. ▪ Policy CIR-5.3—Encourage coordination of passenger rail service with other public transportation. ▪ Policy CIR-5.7—Coordinate with the Authority, cities, and other agencies to properly locate the high-speed rail corridors through the county, including one station and a heavy maintenance facility.

Plan Title	Policy Summary
	<ul style="list-style-type: none"> Policy NR-1.12—Avoid or minimize loss of existing wetland resources by careful placement and construction of any necessary new public facilities, including high-speed rail.
<p><i>City of Merced General Plan</i> (2012)</p>	<p>There have been no substantial updates to the <i>Merced Vision 2030 General Plan</i> (City of Merced 2012) except for the 2016 amendment to the Chapter 9 Housing Element and the 2015 updates to the Land Use Plan Map. The updates do not change the applicability of the plan to the Central Valley Wye alternatives.</p>
<p>Madera County</p>	
<p><i>Madera County General Plan</i> (1995, 2015)</p>	<p>There have been no substantial updates to the <i>Madera County General Plan</i> (Madera County 1995) with the exception of the adoption of the <i>County of Madera County 2016-2024 Housing Element Update</i> in November 2015 (Madera County 2015). The update does not change the applicability of the plan to the Central Valley Wye alternatives.</p>
<p><i>City of Chowchilla 2040 General Plan</i> (2011, 2017)</p>	<p>There have been no substantial updates to the <i>2040 General Plan</i> (City of Chowchilla 2011) with the exception of the adoption of the <i>2040 General Plan, 2016-2014 Housing Element</i> in April 2017 (City of Chowchilla 2017). The update does not change the applicability of the plan to the Central Valley Wye alternatives.</p>
<p><i>City of Madera General Plan</i> (2009, 2015)</p>	<p>There have been no substantial updates to the <i>General Plan (City of Madera 2009)</i> except for the December 2, 2015 adoption of the <i>2016-2024 Housing Element Update</i> (City of Madera 2015). The update does not change the applicability of the plan to the Central Valley Wye alternatives.</p>
<p>Fresno County</p>	
<p><i>Fresno County General Plan</i> (Fresno County 2000; Fresno County Council of Governments 2016)</p>	<p>There have been several updates to the <i>Fresno County General Plan</i>, which was published in 2000 and amended in 2003 (Fresno County 2000). The fifth cycle of the housing element, <i>Fresno Multi-Jurisdictional 2015-2023 Housing Element</i>, also was adopted April 27, 2016 (FCOG 2016). The update does not change the applicability of the plan to Central Valley Wye alternatives.</p>
<p><i>City of Fresno General Plan</i> (2014, 2017)</p>	<p>In 2014, the City of Fresno adopted an updated <i>Fresno General Plan</i> and adopted an updated <i>Fresno General Plan, 2015-2023 Housing Element</i> in 2017. Fresno’s vision is for a balanced city that includes an appropriate growth and investment proportion focused downtown, in established neighborhoods, and along planned bus rapid transit corridors proposed for infill development and neighborhood rehabilitation through 2035. The Plan emphasizes increased land use intensity and mixed-use development supporting greater transit use and multimodal connectivity. It also provides future land development guidance that meets future needs and improves the quality of life for the entire community based on projected population and job growth. Lastly, the Plan calls for no Sphere of Influence city boundary expansion through 2035 to encourage infill in the Southeast Development Area and downtown, and to help preserve the surrounding agricultural lands that are the backbone of the regional economy.</p> <p>Fresno residents include many with low household incomes and high poverty rates. Overall education and workforce development are needed for quality-of-life improvement. Considering this, Policy LU-1-g makes an exception to the call for stable Sphere of Influence boundaries to allow for siting the HSR heavy maintenance facility and provide industrial and employment opportunities for residents.</p> <p>Regarding mobility and transportation, an efficient, multimodal transportation system that meets residential needs is critical to achieving the economic goals for</p>

Plan Title	Policy Summary
	<p>economic development and job creation. Although the General Plan anticipates the building of the HSR system, the policies are clear that HSR is not necessary to carry out the purposes or the intent of the <i>Fresno General Plan</i> (2014). The HSR system will provide regional connectivity linking Fresno with other cities in the San Joaquin Valley, as well as statewide economic hubs in San Francisco and Los Angeles. The City would have opportunities to redevelop the area around the planned HSR station site with offices, retail, and multifamily housing guided by the planning process for the station area master plan, as well as transit links to the FAX bus system and bus rapid transit system at the planned HSR station. More specifically, Policy MT-8-g states “if the State moves forward with HSR, ensure it is constructed through Fresno in a manner that minimizes impacts on surrounding property owners and creates the most opportunity for redevelopment around the HSR station.” Policy MT-8-h states the City of Fresno will “work with local residents, property and business owners, and other stakeholders to develop a station area plan to provide the most opportunity for growth and property in concert with development of the planned Fresno HSR station.”</p> <p>The <i>2015–2023 Housing Element</i> does not change the applicability of the plan to the Central Valley Wye alternatives.</p>

Source: Merced County, 2013 and 2016; City of Merced, 2012; Madera County, 1995 and 2015; City of Chowchilla, 2011 and 2017; City of Madera, 2009 and 2015; Fresno County, 2000; Fresno County Council of Governments, 2016; City of Fresno, 2014 and 2017

In addition to the adopted local general plans, the Authority is working with cities to help local governments prepare plans in anticipation of future construction and operation of the HSR system, particularly where new HSR stations are planned. The Authority is working with the Cities of Merced and Fresno to develop station area plans and design guidelines (Authority 2016).

3.18.3 Compatibility with Plans and Laws

As indicated in Section 3.1.5.3, Compatibility with Plans and Laws, the 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. As such, this Final 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.

There are several federal and state laws and implementing regulations, listed in Section 3.18.2.1, Federal, and Section 3.18.2.2, State, that govern compliance with required environmental assessment of the Central Valley Wye alternatives’ potential impacts on regional growth compared to planned growth. A summary of the federal and state requirements considered in this analysis follows:

- NEPA and the Council on Environmental Quality guidance on implementation of NEPA provide assessment on how human-made activities may influence population growth.
- CEQA and the California Department of Transportation (Caltrans) Standard Environmental Reference guidance call for the assessment of growth-related impacts above projected population and employment.
- SB 375 Sustainable Communities Strategies policies requiring metropolitan planning organizations to plan for future urban growth to be more compact to reduce vehicle miles traveled and greenhouse gas emissions in their regional transportation plans.
- 2015 State Environmental Goals and Policies outlines statewide growth management objectives for land use, population growth and distribution, conservation of natural resources, air and water quality, reduced petroleum consumption and increase energy efficiency, and reduced greenhouse gas emissions through prioritization of transportation investments for alternatives to single-occupant vehicles and infill development in support of public transportation systems.

The Authority, as the NEPA and CEQA lead agency proposing to construct and operate the HSR system, is required to comply with all federal and state laws and regulations and to secure all applicable federal and state permits prior to initiating construction on the selected alternative. Therefore, there would be no inconsistencies between the Central Valley Wye alternatives and these federal and state laws and regulations.

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 system so that it is compatible with land use and zoning regulations. For example, the Authority has and will continue to coordinate with counties and local municipalities during design and construction of the Central Valley Wye alternatives to minimize disruption to local communities, such as by locating the HSR system tracks along transportation corridors to minimize conversion of productive agricultural lands.

A total of 11 regional and local plans were reviewed. The Central Valley Wye alternatives are consistent with all plans reviewed except for one. The *City of Chowchilla 2040 General Plan* (City of Chowchilla 2011) includes discussion and adopted land use maps that express the City's concerns about proposed alignments for the Central Valley Wye alternatives that would conflict with the City's plans for future growth through annexation within the City's Sphere of Influence.² The following bullets discuss these concerns.

- The Land Use Element of the *City of Chowchilla 2040 General Plan* (City of Chowchilla 2011) designates types of acceptable land uses within the city limits, but also identifies desired land uses in surrounding unincorporated Madera County for which the City has no actual jurisdiction. This area in the unincorporated county is called the City's Sphere of Influence and is an area that the City coordinates with Madera County on land use and development issues. Within the Sphere of Influence, there is a smaller area that "rings" the existing city limits called the City's Planning Area. It is the Planning Area that the City anticipates to annex and provide urban services to accommodate future urban development within the coming 25 years.
- Each of the four Central Valley Wye alternatives would establish major new transportation corridors within the City's Sphere of Influence, generally outside of the City's Planning Area. The three Central Valley Wye alternatives that are aligned adjacent to SR 152 would divide portions of the Sphere of Influence along SR 152, some of which are also outside the boundary of the Planning Area. The alignment along Road 11 is almost on the western exterior boundary of the Sphere of Influence, whereas the alignments along Road 13 and Road 19 are generally on the boundary of the Planning Area. Avenue 21, however, is south of the Sphere of Influence, and as such, the Avenue 21 to Road 13 Wye Alternative would only divide the Sphere of Influence along Road 13.
- Land uses within the Sphere of Influence, but outside of the Planning Area, are designated agricultural, but lands within the Planning Area and adjacent to Road 13 (east of the road) and Road 19 (west of the road) are designated low-density residential, which would be less compatible with the project than non-residential land uses. The plan includes statements supporting the Avenue 21 to Road 13 Wye Alternative, as it would have only one leg of the wye traveling through the City's Sphere of Influence. In contrast, the other alternatives would have two or more legs of the wye traveling through the Sphere of Influence and could constrain future planned growth to a greater degree (City of Chowchilla 2011). However, per the City's *2040 General Plan*, that potential future growth would be expected sometime beyond 2040. With no final decisions on the Central Valley Wye alternatives, the plan commits the City of Chowchilla to ongoing coordination with the Authority and acknowledges

² A Sphere of Influence encompasses designated unincorporated lands beyond the city limits and outside of a city's identified Planning Area immediately outside of the city limits. The boundaries of the Sphere of Influence are designated by the Local Agency Formation Commission as the area encompassing the ultimate extent of city services and areas anticipated to be annexed. The city government can identify goals and future land uses for the Sphere of Influence in an adopted general plan; however, the city government has no actual jurisdictional control over the area.

that future planning efforts may need to include preparation of special area master plans to minimize potential impacts of the project.

Therefore, while the Authority seeks to adhere to local growth policies and has followed existing transportation corridors to reduce HSR-related impacts, there are locations where the Central Valley Wye alternatives would not be consistent with local government growth policies. As planning and design for the Central Valley Wye alternatives progresses, the Authority will continue to work with stakeholders, including the City of Chowchilla, to address local concerns.

3.18.4 Methods for Evaluating Impacts

The evaluation of growth-related impacts is a requirement of NEPA and CEQA. The following sections summarize the RSA and the methods used to analyze impacts on regional growth.

3.18.4.1 Definition of Resource Study Area

For this analysis of potential regional growth impacts, the RSA is defined as Merced, Madera, and Fresno Counties. The physical improvements of the Central Valley Wye alternatives, including rail tracks and ancillary facilities, extend through Madera and Merced Counties. (The geographic area encompassing the physical improvements was what defined the RSA for regional growth in the Merced to Fresno Final EIR/EIS (Authority and FRA 2012)). The required electrical interconnections and network upgrades (EINU) that are part of the Central Valley Wye alternatives would occur in Stanislaus and Fresno Counties. Regional growth, however, is largely stimulated by increased employment opportunities, which would not likely happen with either the construction or operations associated with the EINUs. Pacific Gas and Electric (PG&E) typically hires specialized contractors to perform construction work around the utility's service territory. As such, it is unlikely workers residing in Stanislaus County would benefit from these EINU specialized construction jobs. Moreover, the utility maintenance workers would be based at existing PG&E service centers. Construction workers in Fresno County similarly would not likely benefit from potential employment opportunities associated with the EINUs; however, the city of Fresno is located immediately south of the Madera County boundary. The city's work force could commute to the construction corridor within about 30 to 60 minutes. It is also likely some construction workers in Fresno County are currently involved in ongoing HSR system construction activities, considering the Design-Build Construction Package 1 (extending from Avenue 19 in Madera County south to East American Avenue south of Fresno) was awarded in August 2013. As such, these Fresno County workers would be well qualified to work on future HSR system construction activities. Including Fresno County also is consistent with the analysis in the Merced to Fresno Final EIR/EIS (Authority and FRA 2012), and, as such, it is appropriate to use comparative analysis of the previous U.S. Department of Commerce, Bureau of Economic Analysis's Regional Input-Output Model (RIMS II) analysis of construction employment impacts (see Section 3.18.4.3, Methods for NEPA and CEQA Impact Analysis). For these reasons, Fresno County has been included in the RSA along with Madera and Merced Counties.

3.18.4.2 Impact Avoidance and Minimization Features

As noted in Section 2.2.3.7, Impact Avoidance and Minimization Features, the Central Valley Wye alternatives would incorporate standardized impact avoidance and minimization features (IAMF) to avoid and minimize impacts. The Authority would incorporate IAMFs during design and construction, and, as such, the analysis of impacts of the Central Valley Wye alternatives factors in all applicable IAMFs. Appendix 2-B, California High-Speed Rail: Impact Avoidance and Minimization Features, provides a detailed description of IAMFs that would be included as part of the Central Valley Wye alternatives design. However, no IAMFs are specifically applicable to regional growth because any commitments to design and construction would not change potential impacts on regional growth.

3.18.4.3 Methods for NEPA and CEQA Impact Analysis

This section describes the sources and methods the Authority used to analyze potential impacts from implementing the Central Valley Wye alternatives on regional growth. These methods apply to both NEPA and CEQA unless otherwise indicated. Refer to Section 3.1.5.4, Methods for

Evaluating Impacts, for a description of the general framework for evaluating impacts under NEPA and CEQA. As described in Section 3.18.1, Introduction, and in the following discussions, the Authority applied similar methods and used many of the same data sources as were used in the Merced to Fresno Final EIR/EIS (Authority and FRA 2012) in this Final Supplemental EIR/EIS. Slight differences have been used for the analysis of construction-related and operations-related employment. Laws, regulations, and orders (see Section 3.18.2, Laws, Regulations, and Orders) that related to federal, state, and local land use and growth management were reviewed and considered in the evaluation of impacts. Historical and projected population, employment, and housing data have been updated with more recent data. Primary sources of the updated data include the California Department of Finance (CDOF), Demographic Research Unit; the California Employment Development Department, Labor Market Information Division; and the Caltrans Office of State Planning, Economic Analysis Branch.

Construction Impacts

The assessment of construction-related impacts focuses on construction employment impacts, the demand for construction workers, the forecast availability of construction workers, and the likelihood construction workers and their families would move to the RSA for employment opportunities, thus potentially resulting in regional growth impacts. This analysis is based on the RIMS II used in the analysis of regional growth presented in the Merced to Fresno Final EIR/EIS (Authority and FRA 2012). This modeling effort used the estimated local cost of construction to estimate the geographically specific economic impacts for the RSA, including the estimated direct, indirect, and induced employment. As the RSA for the analysis of the Central Valley Wye alternatives is the same as was used for the calculation of regional growth economic impacts in the Merced to Fresno Final EIR/EIS (Authority and FRA 2012), the results of that analysis are used to proportionately estimate the economic impacts of the Central Valley Wye alternatives based on the updated capital cost estimates for each alternative.

For comparison purposes, the “buying power” of the capital cost estimate for the Merced to Fresno Section: Hybrid Alternative, which was calculated in 2010 dollars (2010\$), must be escalated to 2015 dollars (2015\$), which is the basis for the estimated capital costs for the Central Valley Wye alternatives. The Merced to Fresno Section: Hybrid Alternative capital cost estimate was presented as \$3,610,000 thousand to \$4,630,000 thousand (2010\$) (Authority and FRA 2012: page 3.18-17). Assuming escalation of 3 percent per year, the escalated capital cost estimate would be \$4,183,990 thousand to \$5,366,170 thousand (2015\$). In contrast, the capital cost estimates for the Central Valley Wye alternatives range from \$3,613,068 thousand to \$4,208,116 thousand (2015\$) as presented in Chapter 6, Project Costs and Operations. As such, the capital cost range overlaps as the high value of the capital cost estimate for the Central Valley Wye alternatives (\$4,208,116 thousand) is greater than the low value of the capital cost estimate for the Merced to Fresno Section: Hybrid Alternative (\$4,183,990 thousand). This overlap establishes that the capital cost estimates are similar, and the total economic and employment impacts of the Central Valley Wye alternatives can be estimated as a proportion of the total impacts of the Merced to Fresno Section: Hybrid Alternative from the previous RIMS II analysis.

The Central Valley Wye alternatives’ capital costs, however, do not reflect the amount of money spent within the local area to hire construction workers. Rather, capital costs include the cost of purchasing land, construction equipment, engineering design services, construction management services, rail tracks and ancillary facilities, locomotives and vehicles, and cost contingencies. The construction cost estimate is part of the capital cost, and the amount of money spent locally to hire construction workers is calculated as a portion of the total construction cost. As presented in the Merced to Fresno Final EIR/EIS (Authority and FRA 2012), the method for the Central Valley Wye alternatives also assumes 83 percent of the capital cost represents total construction cost, and 35 percent of the construction cost represents local construction costs. The duration of the construction period for the Merced to Fresno Section: Hybrid Alternative was assumed to be 5 years, but the duration for the Central Valley Wye alternatives is anticipated to be 4 years. This difference requires a different spread of the total local construction cost across the several years of construction to determine the peak local construction expenditures for the Central Valley Wye

alternatives. For the analysis, the local construction cost expenditures across the 4 years of construction are assumed to be 25, 35, 25, and 15 percent.

The relationships between the estimates for the total capital cost, total construction cost, and local construction cost and associated total local construction employment impacts for the Merced to Fresno Section: Hybrid Alternative are used to estimate local construction cost estimates and total local construction employment for the Central Valley Wye alternatives. The estimated total for local construction workers represents the additional demand for direct and indirect/induced workers within the RSA that could result in stimulating regional growth. To determine the context of this additional demand, the peak year of local construction direct employment, or construction sector workers, is compared to the forecast construction sector employment that is expected to be available during the peak year of construction. Consistent with the air quality analysis, this peak year of construction is 2020. If the demand for construction workers is a small proportion of the anticipated construction sector employment, then the analysis determines the available construction work force would likely be able to meet the demand for construction workers needed to construct the Central Valley Wye alternatives.

Operations Impacts

The regional growth assessment for HSR system operations impacts considers direct, indirect, and induced employment impacts as well as overall regional growth spurred by improved transportation accessibility, particularly increased accessibility to the San Francisco metropolitan region. The analysis examines whether the estimated operations employment growth associated with the Central Valley Wye alternatives would result in employment and population growth considerably greater than the projected employment and population growth without the Central Valley Wye alternatives. The estimated employment and population growth are compared to forecasts for 2040 to determine the potential for impacts.

The next step of the analysis determined the estimated employment and population growth resulting from the improved transportation accessibility provided by the HSR system. The Authority's analysis indicates that the systemwide operation of the HSR system would result in an increase of 102,000 new jobs statewide (Authority 2017). A portion of this employment growth would occur within the RSA and the estimated employment and associated population is compared to the updated 2040 forecasts to determine potential impacts.

The estimated increase in new jobs associated with operation of the Central Valley Wye project section (the direct, indirect, and induced employment) plus the additional employment resulting from improved transportation accessibility provided by the HSR system result in an overall increase in operations-related employment and associated population growth in the RSA. The sum of the total employment and population growth are compared to forecast 2040 employment and population, respectively, to determine overall operations impacts.

Lastly, the analysis evaluates whether the overall effects on population and employment growth would result in adverse impacts on regional growth considering local government general plans and land use regulations that regulate growth in the RSA. The analysis estimates housing demand from the overall operations-related population demand for housing and compares this estimate to planned residential development over the 20-year horizon for local government general plans as well as estimated housing required for the estimated 2040 population estimate.

3.18.4.4 CEQA Requirements to Analyze Growth

CEQA Guidelines Section 15126.2(d) requires an EIR to evaluate the potential growth-inducing impacts of a proposed project. An EIR must discuss the ways in which a project could directly or indirectly foster economic or population growth, or through displacement of people or housing would necessitate the construction of additional housing in the surrounding environment. For example, a project that would construct new housing would have a direct growth-inducing effect, whereas a project that removes an obstacle to growth would have an indirect growth-inducing effect. The CEQA Guidelines emphasize that "it must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment."

The focus of analysis in this section addresses the indirect ways the Central Valley Wye alternatives could foster economic or population growth during construction and operations. CEQA, however, does not require significance determinations specifically for potential growth-inducing impacts, but the environmental effects of that growth also need to be considered. Related to this analysis, direct impacts on the displacement of housing and people are discussed in Section 3.12. That section also summarizes the indirect regional growth impacts evaluated in this section to provide a comprehensive analysis for determining significance under CEQA for potential socioeconomic and community impacts. No additional CEQA thresholds of significance exist related to the potential regional growth impacts of the Central Valley Wye alternatives.

3.18.5 Affected Environment

This section describes recent historical trends, and existing and projected employment and unemployment, population, and housing in the RSA. These are the same topics described in the Merced to Fresno Final EIR/EIS (Authority and FRA 2012) discussion of regional growth, but are presented in a slightly different order to mirror the discussion of impacts in Section 3.18.6, Environmental Consequences. More recent data have been incorporated into the discussion to better describe the effects of the Great Recession of 2007–2009 and economic recovery in the RSA. Moreover, the horizon year for this analysis is now 2040, and data have been included to update the 2035 forecasts presented in the Merced to Fresno Final EIR/EIS (Authority and FRA 2012).

3.18.5.1 Employment and Unemployment

Located in the northern portion of the San Joaquin Valley, the RSA, which encompasses Merced, Madera, and Fresno Counties, has a diverse economy. The California Employment Development Department 2015 estimate for the services sector was more than 34 percent of total employment, whereas the government sector accounted for more than 19 percent and the agriculture sector more than 14 percent (Table 3.18-2) (California Employment Development Department 2016a). Jobs in Fresno County and particularly the city of Fresno, however, total almost 75 percent of all jobs in the RSA. Moreover, despite large numbers of persons employed in services and government in Merced and Madera Counties, these other two counties are more rural in character than Fresno County and employment in the agriculture sector is higher. For comparison, in 2015 the agriculture sector in Fresno County employed about 12 percent of total employment, whereas the agriculture sector employed more than 23 percent and more than 18 percent in Madera and Merced Counties, respectively. These employment figures sharply contrast with the less than 3 percent agricultural employment for all of California and show the strong economic ties to agriculture in the RSA. Moreover, agriculture-related employment in these counties is also found in food processing, which is part of the manufacturing sector.

The California Employment Development Department estimate for total employment for the RSA showed continued increases in total employment between 2000 and 2010 and again through 2015 (California Employment Development Department 2016a). This trend, however, masks the considerable disruption to the economy resulting from the Great Recession of 2007–2009 and more recent severe drought conditions that have affected agriculture and associated economic activities. Except for the transportation sector, other sectors of the economy experienced low average annual increases if not actual decreased employment between 2000 and 2010. The result for total employment was an average annual increase of about 0.3 percent for the decade. This compares sharply with strong population average annual increases exceeding 1.8 percent for the same period.

As shown in Table 3.18-2, the RSA has been recovering from the effects of the Great Recession since 2010. Total employment exceeded 495,800 jobs in 2015 and showed a 2.1 percent average annual increase since 2010 (California Employment Development Department 2016a). In particular, the large services sector had increased at an average annual rate of 3.2 percent and the agricultural sector increased at an average annual rate of 1.6 percent. The information and financial sectors, however, did not exceed total employment in 2010. In total, the average annual unemployment rate for the RSA was 10.4 percent in 2015, still higher than in 2000. This demonstrates that the RSA may still be recovering from the effects of the Great Recession.

Table 3.18-2 Civilian Labor Force Average Annual Employment by Industry, 2000-2015

Industry	Fresno County			Madera County			Merced County			Resource Study Area Total					
	2000	2010	2015	2000	2010	2015	2000	2010	2015	2000	2010	2015	2015 Industry Percent of Total	Average Annual Change 2000-2010	Average Annual Change 2010-2015
Agriculture	55,600	46,000	47,300	11,900	10,200	10,900	11,600	10,800	14,100	79,100	67,000	72,300	14.6%	(1.5%)	1.6%
Mining, Logging, Construction	15,500	12,200	15,200	1,500	1,100	1,500	2,100	1,600	1,900	19,100	14,900	18,600	3.8%	(2.2%)	5.0%
Manufacturing	27,600	24,100	25,500	2,900	3,000	3,600	10,500	8,300	9,900	41,000	35,400	39,000	7.9%	(1.4%)	2.0%
Trade	44,000	44,300	51,300	3,600	4,100	4,500	8,400	9,200	9,700	56,000	57,600	65,500	13.2%	0.3%	2.7%
Transportation, Warehousing, Utilities	9,100	10,800	12,200	600	800	900	1,700	2,200	2,300	11,400	13,800	15,400	3.1%	2.1%	2.3%
Information	5,000	3,600	3,900	600	400	400	700	600	300	6,300	4,600	4,600	0.9%	(2.7%)	0.0%
Financial Activities	13,400	13,400	13,000	700	700	800	1,700	1,600	1,600	15,800	15,700	15,400	3.1%	(0.1%)	(0.4%)
Services	96,200	115,100	134,700	10,300	12,900	14,800	15,500	18,200	19,900	122,000	146,200	169,400	34.2%	2.0%	3.2%
Government (Federal, State, Local)	65,100	67,100	68,800	7,600	10,600	9,100	12,200	16,700	17,700	84,900	94,400	95,600	19.3%	1.1%	0.3%
Total	331,400	336,600	371,800	39,500	43,900	46,500	64,300	68,200	77,500	435,200	448,700	495,800	100.0%	0.3%	2.1%

Source: California Employment Development Department, 2016a

Subsequent publications of employment estimates by the California Employment Development Department may revise prior year estimates. Numbers may not add because of rounding.

The calculation of average annual change 2000-2010 is $x = ((2010emp - 2000emp)/2000emp)/10$.

The calculation of average annual change 2010-2015 is $x = ((2015emp - 2010emp)/2010emp)/5$.

With a large proportion of the RSA employment based in agriculture, unemployment rates have historically been high because of the seasonality of farm work. For 2000, the California Employment Development Department reported unemployment for the RSA was 10.1 percent compared to less than 5 percent for the state (Table 3.18-3) (California Employment Development Department 2017b). Despite unemployment jumping to more than 12 percent for the state in 2010, the rates were higher at almost 17 percent for the RSA. Specifically, unemployment rates for Fresno, Madera, and Merced Counties were 16.7 percent, 16.6 percent, and 18.0 percent, respectively.

Table 3.18-3 Average Annual Civilian Unemployment, 2000-2015

Jurisdiction	2000		2010		2015	
	Labor Force	Unemployment	Labor Force	Unemployment	Labor Force	Unemployment
Fresno County	388,700	10.4%	439,600	16.7%	441,300	10.2%
City of Fresno	204,700	9.8%	236,300	18.0%	235,900	11.0%
Madera County	55,000	8.7%	61,600	16.6%	60,000	10.5%
City of Chowchilla	3,500	10.1%	5,100	16.7%	4,800	10.5%
City of Madera	19,300	12.5%	26,100	14.5%	26,100	9.0%
Merced County	90,400	9.6%	113,600	18.0%	114,300	11.3%
City of Merced	26,800	9.5%	34,200	17.0%	34,400	10.7%
Resource Study Area Total	534,100	10.1%	614,800	16.9%	615,600	10.4%
State of California	16,867,800	4.9%	18,336,300	12.2%	18,893,200	6.2%

Source: California Employment Development Department, 2017b

In the near term, projected employment rates of increase are anticipated to continue at similar growth rates to those during the years immediately following the Great Recession. The California Employment Development Department has prepared employment projections for 2020 (Table 3.18-4) (California Employment Development Department 2016b, 2016c, 2017a). Total employment is anticipated to increase an average annual 2.6 percent per year between 2015 and 2020. Considering the adverse effect the recession had on the housing market, it is not surprising that the construction industry—the major share of the mining, logging, and construction sector—is expected to show an average annual increase of 2.1 percent.

Caltrans has prepared long-term employment projections through 2040 by county (Caltrans 2014). Between 2015 and 2040, total employment in the RSA is projected to increase from 495,800 to 652,500, an increase of 156,700 or an average annual increase of 1.3 percent. Forecasts for individual counties and the construction industry, however, are generally below average annual percentage changes forecast in the near-term through 2020.

Table 3.18-4 Near-term and Long-term Employment Projections, 2015-2040

Jurisdiction / Industry Sector	Near-Term			Long-Term	
	2015	2020	Average Annual Change 2015-2020	2040	Average Annual Change 2015-2040
Fresno County	371,800	413,240	2.2%	479,200	1.2%
Mining, Logging, Construction	15,200	16,440	1.6%	21,500	1.7%
Madera County	46,500	59,480	5.6%	71,200	2.1%
Mining, Logging, Construction	1,500	1,600	1.3%	2,300	2.1%
Merced County	77,500	88,520	2.8%	102,100	1.3%
Mining, Logging, Construction	1,900	2,480	6.1%	3,100	2.5%
Resource Study Area Total	495,800	561,240	2.6%	652,500	1.3%
Mining, Logging, Construction	18,600	20,520	2.1%	26,900	1.8%

Source: 2015 data: California Employment Development Department, 2016a; 2020 data: California Employment Development Department, 2016b, 2016c, 2017a; and 2040 data: Caltrans, 2014

The calculation of average annual change 2015-2020 is $x = ((2020empl - 2015empl)/2015empl)/7$; and, the calculation of average annual change 2015-2040 is $x = ((2040empl - 2015empl)/2015empl)/25$.

3.18.5.2 Population

As reported in the Merced to Fresno Final EIR/EIS (Authority and FRA 2012), the population increased with relatively high annual average rates of increase in the state, RSA, and cities between 2000 and 2010. Table 3.18-5 shows the population of the RSA increased from 1,133,070 to 1,337,108—an increase of about 18 percent for those 10 years (CDOF 2012a; U.S. Census Bureau 2010). The average annual population increases during this period for the three counties exceed 1.8 percent, with higher rates for Merced and Madera Counties and the cities in those smaller counties.

Table 3.18-5 Historical Population Increases, 2000-2015

Jurisdiction	2000	2010	2015	Change 2000-2015	Average Annual Change 2000-2010	Average Annual Change 2010-2015
Fresno County	799,407	930,450	974,871	175,464	1.6%	0.5%
City of Fresno	427,719	494,665	516,537	88,818	1.6%	0.4%
Madera County	123,109	150,865	154,850	31,741	2.3%	0.3%
City of Chowchilla	14,416	18,720	18,784	4,368	3.0%	0.0%
City of Madera	43,205	61,416	64,810	21,605	4.2%	0.6%
Merced County	210,554	255,793	269,280	58,726	2.1%	0.5%
City of Merced	63,893	78,958	83,131	19,238	2.4%	0.5%
Resource Study Area Total	1,133,070	1,337,108	1,399,001	265,931	1.8%	0.5%
State of California	33,873,086	37,253,956	38,907,642	5,034,556	1.0%	0.4%

Source: 2000 data: California Department of Finance, 2012a; 2010 data: U.S. Census Bureau, 2010; and 2015 data: California Department of Finance, 2016a

The 2000, 2010, and 2015 population for the resource study area total is the sum of the population numbers for the three individual counties presented in the table. The change 2000-2015 is the subtraction of the respective population numbers presented in the table. The calculation of average annual change 2000-2010 is $x = ((2010pop - 2000pop)/2000pop)/10$. The same formula was used to calculate the average annual change 2010-2015 except the period is reduced from 10 to 5 years. Comparing the two periods of average annual change shows the economic effects of the Great Recession on the RSA.

The 2000-2010 period captured the immediate effects of the Great Recession of 2007–2009, and those effects have continued to constrain population growth in the California Central Valley, including Fresno, Madera, and Merced Counties. Since 2010, the average annual increases in population for the RSA has decreased from 1.8 percent for the preceding decade to only 0.5 percent (Table 3.18-5) (U.S. Census Bureau 2010; CDOF 2016a).

The long-term population projections for the RSA reflect growth rates that are less than those between 2000 and 2010, but stronger than those between 2010 and 2015. Table 3.18-6 shows the projected population increases for the RSA through 2040 (CDOF 2014). This projection is based on an updated forecasting model that now relies on data from the 2010 census rather than the previous forecasting model that was based on the 2000 census. Between 2010 and 2040, the RSA’s population is anticipated to increase by more than 624,000, a 47 percent increase (U.S. Census Bureau 2010; CDOF 2014). The calculated average annual change through 2040 is estimated to be 1.6 percent. This 2040 estimate, however, is lower than previous long-term projections published by CDOF and the 2035 estimates in the Merced to Fresno Final EIR/EIS (Authority and FRA 2012).

Table 3.18-6 Population Projections, 2010 and 2040

Jurisdiction	2010	2040	Change 2010-2040	Percentage Change 2010-2040	Average Annual Change 2010-2040
Fresno County	930,450	1,332,913	402,463	43%	1.4%
Madera County	150,865	238,514	87,649	58%	1.9%
Merced County	255,793	389,934	134,141	52%	1.7%
Resource Study Area Total	1,337,108	1,961,361	624,253	47%	1.6%
State of California	37,253,956	47,233,240	9,979,284	27%	0.9%

Source: 2010 data: U.S. Census Bureau, 2010; 2040: data: California Department of Finance, 2014

The California Department of Finance does not prepare long-range population projections for individual cities. The 2010 and 2040 population for the resource study area total is the sum of the population numbers for the three individual counties presented in the table. The change 2010 to 2040 is a subtraction of the 2010 and 2040 numbers. The calculation of percentage change 2010-2040 is $x = (2040pop / 2010pop) - 1$. The calculation of average annual change 2010-2040 is $x = ((2040pop - 2010pop) / 2010pop) / 30$.

3.18.5.3 Housing Demand

Housing in the RSA is largely single-family, owner-occupied housing with 70 percent of the housing being single family and more than 55 percent being owner occupied (CDOF 2015). Higher percentages characterize the rural areas in the RSA. The 459,100 housing units in 2015 are a mixture of single-family attached and multifamily buildings, as well as several mobile home dwellings, particularly in Madera and Merced Counties. Additional details on housing are provided in Section 3.12.

By 2015, the RSA housing market was recovering from the Great Recession with housing vacancy rates dropping to less than 8 percent compared to almost 9 percent in 2010 (Table 3.18-7) (CDOF 2012b and 2016b). Of the three counties, Madera County was most affected by the housing crisis during the recession with vacancy rates approaching 12 percent in 2010. These vacancy rates alone, however, mask the effects of the recession when comparing changes in average annual construction of new homes within the RSA. On average, 6,884 residential units were constructed per year between 2000 and 2010; yet on average, only 2,146 units, or 31 percent, were constructed between 2010 and 2015. Following the Great Recession, the more rural Madera and Merced Counties experienced declines to 14 and 9 percent, respectively, compared to average annual new construction between 2000 and 2010.

Table 3.18-7 Historical and Projected Housing Units, 2000–2040

Jurisdiction	2000 Housing Units (vacancy)	2010 Housing Units (vacancy)	2015 Housing Units (vacancy)	2040 Estimated Total Housing	Increase 2015–2040	Average Annual Increase 2015–2040
Fresno County	270,767 (6.6%)	315,531 (8.3%)	324,941 (7.6%)	447,100	122,200	1.5%
Madera County	40,387 (10.5%)	49,140 (11.9%)	49,752 (11.4%)	77,000	27,300	2.2%
Merced County	68,373 (6.7%)	83,698 (9.6%)	84,407 (6.2%)	124,800	40,400	1.9%
Resource Study Area Total	379,527 (7.0%)	448,369 (8.9%)	459,100 (7.8%)	648,900	189,900	1.7%

Source: 2000 and 2010 data: California Department of Finance (CDOF), 2012b; 2015 data; CDOF, 2016b; assumed data for 2040 calculations: CDOF, 2014 and 2015

The 2040 housing estimate was calculated based on the projected 2040 population (CDOF 2014) divided by the 2030 countywide average persons per household (CDOF 2015) to account for anticipated decreases in overall rates of persons per household. Projected estimates are not available for 2040. This equals occupied households and increased households an additional conservative 5% for unoccupied dwellings to give a total estimated 2040 total for housing.

In the immediate aftermath of the Great Recession, the RSA experienced a dramatic increase in home foreclosure rates. For Merced County, the rate was nearly double that for all of California with approximately 24,000 foreclosure filings between June 2007 and May 2009 (Merced County 2013). The foreclosures resulted in a very large over-supply of houses and pushed median home values in 2009 down to less than one-third the value in 2005, a value more comparable to home values in the mid-1990s. With high rates of foreclosures, owner-occupancy rates in the three-county area declined.

With a rapidly growing population and a return to economic stability and growth, the long-term demand for housing is forecast to require construction of a large number of housing units through 2040. Overall, almost 190,000 housing units are calculated to be needed to meet this demand (Table 3.18-7). This is an increase of an estimated 41 percent compared to the 2015 total number of housing units.

This residential development is anticipated to be accommodated within the counties and municipalities in the RSA. The preparation of a housing element is one of the state-mandated elements for local government general plans. State housing law also requires local governments to demonstrate every 5 years in their housing elements that each jurisdiction can accommodate their proportional share of the state housing needs allocation. This requires local governments to review existing housing inventory, available land for residential development or redevelopment, current zoning designations, planned land uses, and development code requirements to estimate the residential build-out or capacity of each community.

3.18.6 Environmental Consequences

3.18.6.1 Overview

This section evaluates how the No Project Alternative and the Central Valley Wye alternatives could affect regional growth. The impacts of the Central Valley Wye alternatives are described and organized in Section 3.18.6.3, Central Valley Wye Alternatives, as follows:

Construction Impacts

- Common Regional Growth Impacts
- Construction-Related Employment Impacts

Operation Impacts

- Common Regional Growth Impacts
- Operations-Related Employment Impacts
- Operations-Related Population Impacts
- Systemwide Improved Transportation Accessibility Impacts
- Overall Operations Effects on Regional Growth

3.18.6.2 No Project Alternative

Under the No Project Alternative, the RSA is forecast to experience population growth between 2010 and 2040 that is largely attributable to higher birth rates compared to urbanized regions in California (Section 3.18.5.2, Population). In 2010, the U.S. census reported the population of Merced County was approximately 255,800, whereas the population of Madera County was approximately 150,900 and Fresno County was 930,450. Between 2010 and 2040, CDOF has forecast the population within the RSA will increase from approximately 1,337,108 to 1,961,361—an increase exceeding 46 percent (Table 3.18-6) (CDOF 2014).

Forecast long-term employment for the RSA reflects out-migration for employment opportunities as well as the historical high rates of unemployment (Section 3.18.5.1, Employment and Unemployment). For 2015, the California Employment Development Department estimates total employment in the RSA was 495,800 (California Employment Development Department 2016a). Employment in Merced County is forecast to increase from 77,500 in 2015 to 102,100 by 2040—a 31 percent change (Caltrans 2014). In less populated Madera County, employment is forecast to increase from 46,500 to 71,200—a 53 percent increase. The increase for Fresno County is considerably less as a percentage increase, but still considerable at 107,400 considering the comparably larger labor force. In total, employment in the RSA is forecast to increase by more than 156,700 by 2040—a 31.6 percent increase.

With an estimated 70 percent of the population in the RSA and about 75 percent of total employment, Fresno County has recovered faster than Madera and Merced Counties based on increased employment and lower rates of unemployment in the years following the Great Recession. Local business leaders have noted increased business activity, hiring additional workers by local businesses, and increased interest in relocating businesses to the county (Parsons Brinckerhoff 2015). The City of Fresno also has undertaken public works projects in the downtown area in an effort to restore economic vitality, and the county government is looking to expand tourism.

Long term, Fresno County is anticipated to continue to be the economic backbone and cultural hub of the RSA. Agricultural production and the associated food processing comprising about half of all manufacturing employment in the RSA will anchor future economic growth. Job growth, however, is anticipated to be focused in professional services, healthcare, education, and government. Increased secondary and higher education graduation and labor force training will help expand the economy.

With the northern portion of the RSA close to the strong high-tech economy in San Jose and surrounding communities, future economic growth also is anticipated to receive some benefit from the economic expansion in the Bay Area (Parsons Brinckerhoff 2015). Some residents within the RSA currently take advantage of employment opportunities and leave each morning to commute over Pacheco Pass to jobs in the Bay Area. Many of these residents, primarily from Merced County, prefer the less dense, more rural, and more affordable cost of housing despite the additional time spent commuting to their place of employment. In recent years, some high-tech businesses, including rocket testing and manufacturing companies, have relocated from the Bay Area to Merced County.

Located farther south and east, rural Madera County has experienced a slow recovery from the Great Recession (Parsons Brinckerhoff 2015). Agriculture is anticipated to continue to be the base of the county's economy. The county has a rapidly growing population, but faces challenges

because many workers do not possess the skills or education necessary to compete for jobs (e.g., high school diplomas, technical certificates, or advanced degrees).

Future growth within the RSA will be defined by land use plans and development regulations adopted by counties and cities to encourage infill and higher-density development in the urbanizing areas and to help preserve productive agricultural lands consistent with the 2015 State Environmental Goals and Policies and Sustainable Communities and Climate Protection Act of 2008 (see Section 3.18.2.2 and Section 3.18.2.3, respectively). These updated plans include accommodating future growth within existing city limits and established urban spheres of influence for the communities in the three counties. The communities have adequate land area to accommodate their share of the state-forecast population and employment growth in the decades to come.

3.18.6.3 Central Valley Wye Alternatives

The Central Valley Wye alternatives would result in little short-term or longer-term residential and commercial/industrial growth in the RSA. The construction of the HSR system is consistent with the long-term land use plans adopted by communities within the RSA. The following sections discuss common regional growth impacts, and the construction and operations impacts of the alternatives.

Construction Impacts

Common Regional Growth Impacts

The start of construction for the Central Valley Wye alternatives would be preceded by property acquisition of the right-of-way for HSR tracks and associated ancillary facilities. Some parcels, including buildings or other facilities or improvements, would be purchased outright. In most cases, however, narrow strips of land would be purchased along the edges of large parcels, primarily agricultural properties, either for temporary construction activities or for permanent use. The purchase and relocation of land uses would temporarily or permanently disrupt both residential and commercial/industrial property owners and business owners along the selected Central Valley Wye alternative corridor. For owners of some large agricultural properties, purchased land would remove property from continued agricultural production. From 16 (SR 152 (North) to Road 11 Wye Alternative) to 29 (Avenue 21 to Road 13 Wye Alternative) agricultural facilities would be displaced and from two (SR 152 (North) to Road 19 Wye Alternative and SR 152 (North) to Road 11 Wye Alternative) to five (SR 152 (North) to Road 13 Wye Alternative) dairies may need to be relocated or reconfigured for continued agricultural production (Table 3.12-13). The land acquired for right-of-way would change to public transportation use and would no longer generate property tax revenues for local governments (Section 3.12). However, the total amount of land that would need to be purchased is a very small proportion of all land by type within the RSA. In particular, the amount of agricultural land acquired would not change overall agricultural production within the RSA under any of the Central Valley Wye alternatives (Section 3.12).

Construction work for all Central Valley Wye alternatives would occur within the acquired HSR right-of-way and within purchased temporary construction easements adjacent to the right-of-way. Although construction could occur in several locations at once, in general, the work would progress along the selected Central Valley Wye alternative alignment such that construction in any one area would be of short duration during the overall 4-year construction period. The Central Valley Wye alternatives do not include stations or a heavy maintenance facility, thus limiting construction activities. Disruptions to adjacent property owners and traffic near construction activities would also be of short duration. Access to properties, businesses, commercial buildings, and residences would be provided throughout the construction period.

The number of construction-related workers required to construct the Central Valley Wye alternatives has been estimated (refer to the next section entitled Construction-Related Employment Impacts), and it would be small compared to forecast construction employment in the RSA. Some workers could relocate to communities within the RSA for construction jobs; however, local training programs, requirements to hire small businesses, and trained workers involved in current HSR system construction packages would discourage such relocations.

Construction-Related Employment Impacts

The construction of any the four Central Valley Wye alternatives would result in new near-term construction-related employment. The contractor would hire firms to provide construction services as well as hire workers directly, most of them from the RSA. Some workers with very specialized skills may be hired from outside of the RSA and brought to the construction site for short periods. Purchases in local cities and communities by the contractor and expenditures by construction workers also would indirectly increase the demand for workers.

Since the start of construction on the first construction package in 2013, the Authority and others have been implementing a variety of programs to increase the ability of local workers and construction firms to compete and obtain construction jobs associated with the HSR system. Through a cooperative partnership with skilled craft unions, the Authority is promoting and helping to implement education, pre-apprenticeship, and apprenticeship training programs. These activities focus on identifying economically disadvantaged communities along the HSR system corridor, including the alignments for the Central Valley Wye alternatives, particularly to help lower-income persons and persons receiving public assistance, single parents, persons with no high school or General Education Development diploma, and/or those who suffer from chronic unemployment compete for available jobs. Community organizations such as the Madera County Workforce Assistance Center and the Fresno Regional Workforce Investment Board also are working with individuals and community groups to get workers trained, re-trained, and certified for upcoming construction work. The Authority’s web page and community outreach activities are providing early communication about hiring opportunities to bid on upcoming construction contracts. In January 2017, the Authority held a job fair in Chowchilla where prospective workers could learn about employment opportunities and the hiring process directly from contractors, unions, and local firms. Moreover, through the Community Benefits Agreement, the Authority requires each prime contractor of an awarded construction package to commit 30 percent of all construction dollars to hiring small businesses, including separate goals for the hiring of disadvantaged and disabled veteran businesses. As such, the contractors have their own jobs coordinator, web page describing employment opportunities, and job workshops to help them meet these goals. (For additional information on the Community Benefits Agreement, see https://www.hsr.ca.gov/business/general/community_benefits.aspx.)

Consistent with the methods described in Section 3.18.4.3, estimates for construction employment impacts are based on the capital cost estimates for each of the Central Valley Wye alternatives (Table 3.18-8) (Authority 2016b). The direct, indirect/induced, and total employment for peak-year construction 2020 is estimated by calculating the proportional share based on the local construction expenditures to estimated construction employment presented in the Merced to Fresno Final EIR/EIS (Authority and FRA 2012) for the Merced to Fresno Section: Hybrid Alternative. Using this approach, the Central Valley Wye alternatives would create approximately 820 (SR 152 (North) to Road 11 Wye Alternative) to 950 (SR 152 (North) to Road 19 Wye Alternative) annual job years³ of direct construction jobs within the RSA during the 2020 peak year of construction (Table 3.18-9).

Table 3.18-8 Cost Estimates by Alternative (2015 \$Thousands)

Cost	SR 152 (North) to Road 13 Wye Alternative	SR 152 (North) to Road 19 Wye Alternative	Avenue 21 to Road 13 Wye Alternative	SR 152 (North) to Road 11 Wye Alternative
Capital Cost	\$3,834,181	\$4,208,116	\$3,764,704	\$3,613,068
Construction Cost	\$3,182,370	\$3,492,736	\$3,124,704	\$2,998,846
Local Construction Cost	\$1,113,830	\$1,222,458	\$1,093,647	\$1,049,596

Source: Authority, 2016

³ One annual job year is equivalent to one full-time job for a period of one year.

Table 3.18-9 Construction Employment Effects by Alternative

Construction Year	SR 152 (North) to Road 13 Wye Alternative	SR 152 (North) to Road 19 Wye Alternative	Avenue 21 to Road 13 Wye Alternative	SR 152 (North) to Road 11 Wye Alternative
Year 1				
Direct	620	680	610	580
Indirect/Induced	1,530	1,680	1,510	1,450
Total	2,150	2,360	2,120	2,030
Year 2 (Peak-Year 2020)				
Direct	870	950	850	820
Indirect/Induced	2,150	2,360	2,110	2,020
Total	3,020	3,310	2,960	2,840
Year 3				
Direct	620	680	610	580
Indirect/Induced	1,530	1,680	1,510	1,450
Total	2,150	2,360	2,120	2,030
Year 4				
Direct	370	410	370	350
Indirect/Induced	920	1,010	900	870
Total	1,290	1,420	1,270	1,220
TOTAL				
Direct	2,480	2,720	2,440	2,330
Indirect/Induced	6,130	6,730	6,030	5,790
Total	8,610	9,450	8,470	8,120

Source: Authority, 2018

To determine if this demand for additional construction workers in the RSA would be a large share of forecast construction-sector employment, the analysis conservatively used the top range of peak jobs, 950 construction jobs for the SR 152 (North) to Road 19 Wye Alternative. In 2020, forecast total employment for the RSA would be approximately 561,240, with 20,520 jobs forecast for the construction, mining, and logging sector based on updated data (Table 3.18-4) (California Employment Development Department 2016b, 2016c, 2017a).⁴ The estimate of peak construction-year employment of up to 950 additional construction workers for the SR 152 (North) to Road 19 Wye Alternative, the most of all the alternatives, would account for approximately 5 percent of the forecast construction employment in 2020 (Table 3.18-10). As with the analysis in Section 3.18 of the Merced to Fresno Final EIR/EIS (Authority and FRA 2012), this number represents a small increase in demand for construction workers when compared to total forecast employment in the sector. The increase in demand for construction workers would be lowest under the SR 152 (North) to Road 11 Wye Alternative, which would generate 820 annual jobs in peak construction year 2020, accounting for approximately 4 percent of the forecast construction employment. As such, with a demand for approximately 4 to 5 percent of the construction labor force in the RSA, the local work force is anticipated to be able to meet the demand for construction workers under all of the Central Valley Wye alternatives.

⁴ The construction data is combined with the mining and logging sectors because of the very small employment in these other two sectors and the need to maintain confidentiality.

Table 3.18-10 Peak Demand for Workers by Alternative

Construction Year	RSA Forecast Employment 2020	SR 152 (North) to Road 13 Wye Alternative	SR 152 (North) to Road 19 Wye Alternative	Avenue 21 to Road 13 Wye Alternative	SR 152 (North) to Road 11 Wye Alternative
Year 2 (Peak-Year 2020)					
Direct – Construction Sector	20,520	870	950	850	820
% of Forecast Employment		4%	5%	4%	4%
Total – All Employment Sectors	561,240	3,020	3,310	2,960	2,840
% of Forecast Employment		<1%	<1%	<1%	<1%

Source: 2020 data: California Employment Development Department, 2016b and 2016c

This conclusion, however, is based on a slightly different rationale than was discussed in Section 3.18 of the Merced to Fresno Final EIR/EIS (Authority and FRA 2012). In that document published in 2012, data indicated that the 2010 unemployment rate in the RSA was estimated to be 17.0 percent—almost one in six workers. The analysis assumed that a similar high unemployment rate would continue for the foreseeable future and would indicate that a large number of construction-sector workers would be available to meet the demand. However, with the recovery from the Great Recession, more recent data published by the California Employment Development Department reported 2010 unemployment for the RSA was 16.9 percent (Table 3.18-3) (California Employment Development Department 2017b). Moreover, additional years have now passed and the economy has improved such that the 2015 estimated unemployment rate declined to 10.4 percent, nearly the same rate of unemployment in 2000, although still high compared to the state as a whole (Table 3.18-3). As such, relatively high unemployment may continue and may contribute to why the construction labor force in the RSA is anticipated to meet the demand for construction workers to construct the Central Valley Wye alternatives. More importantly, however, the RSA is anticipated to meet the demand for construction workers because the demand is estimated to comprise a small percentage of the construction employment projected for 2020 under all four of the Central Valley Wye alternatives.

Workers residing in the RSA and desiring to obtain employment also are anticipated to qualify for jobs associated with construction of the Central Valley Wye alternatives. Workers would be able to take advantage of the many training and certification programs active within the RSA to compete for available jobs. Secondly, construction on the HSR system was initiated in 2013, and construction packages (CP) have been awarded for portions of the HSR system in proximity to the RSA. The CP-1 covers track and station construction between the planned Madera Station and slightly south of the planned Fresno Station; and CP-2-3 continues along the corridor from Fresno south through the San Joaquin Valley to just north of the Kern County boundary. Trained workers can seek out employment opportunities with firms and unions currently working on one of the awarded construction packages to gain work experience directly applicable to employment opportunities that would be available with the selected construction contractor and subcontractor firms that would be selected to construct any one of the Central Valley Wye alternatives. Many construction workers residing in the RSA likely would already have HSR system construction experience by the time construction contractors and subcontracting firms would be hiring for construction of the Central Valley Wye.

In addition, the large construction work force within the RSA available to meet the demand for construction workers, including trained workers and those with HSR system construction experience, would be expected to discourage construction workers residing outside of the RSA from moving to the RSA and seeking employment opportunities. Historical unemployment has been higher than the urbanized regions of the state. Before the Great Recession of 2007–2009, unemployment from 2001–2006 exceeded 8 percent, but included some years when unemployment was 10 percent or higher. The Authority has been working with local organizations to increase training opportunities to improve

opportunities for local workers who would like to do construction work. Contract requirements that 30 percent of the construction expenditures go to small businesses also would increase opportunities for local workers. It is therefore unlikely that workers would move to communities within the RSA for employment opportunities or move their families to these communities. Therefore, the small cities and towns near to the selected Central Valley Wye alternative alignment would not be expected to experience a large influx of new residents associated with construction, nor would local government services, emergency responders, or schools experience a large increase in demand for services from potential new residents.

As described in the Merced to Fresno Final EIR/EIS (Authority and FRA 2012), the RIMS II analysis showed the demand for construction workers would also create a demand for additional indirect and induced workers to fill jobs in other sectors of the economy. Using the analysis for the Merced to Fresno Section: Hybrid Alternative, the SR 152 (North) to Road 19 Wye Alternative would create the highest demand for indirect and induced jobs, up to about 2,360 annual job years, in the RSA during the peak year of construction in 2020 (Table 3.18-9). At the low end of the range, the SR 152 (North) to Road 11 Wye Alternative would create a demand for about 2,020 indirect and induced annual job years during the peak year. Combined, direct, indirect, and induced jobs during the peak year of construction would range from 2,840 for the SR 152 (North) to Road 11 Wye Alternative to 3,310 for the SR 152 (North) to Road 19 Wye Alternative, or somewhat less than 1 percent above the 2020 forecast total employment for the RSA. Over the construction period, the high demand for workers would reach 9,450 direct, indirect, and induced annual job years for the SR 152 (North) to Road 19 Wye Alternative, and the low demand would total 8,120 direct, indirect, and induced annual job years for the SR 152 (North) to Road 11 Wye Alternative. The demand for construction-related workers would be a benefit to employment in the RSA under all of the alternatives, but highest under the SR 152 (North) to Road 19 Wye Alternative and lowest under the SR 152 (North) to Road 11 Wye Alternative.

As such, construction activities under any of the Central Valley Wye alternatives is not expected to increase regional growth in the RSA. As shown in Table 3.18-8, the estimated capital costs, total construction costs, and local construction costs for each of the four Central Valley Wye alternatives are very similar, thus the calculated estimates based on local construction expenditures related to direct, indirect, and induced employment for the four alternatives also are similar (Table 3.18-9). The anticipated 2020 peak demand for direct employment (construction-sector jobs) as well as total employment account for 4 to 5 percent and less than 1 percent of 2020 forecast construction-sector and total employment, respectively, for all Central Valley Wye alternatives (Table 3.18-10). The majority of construction workers are anticipated to be residents of Madera, Merced, or Fresno County who would drive or carpool to active construction sites and would return home at the end of the day. A small number of specialized workers may come to work for short periods, but they would likely stay in area motels. There would be no construction worker camps established in the RSA. Therefore, growth-related impacts from construction are not anticipated under any of the Central Valley Wye alternatives.

Operations Impacts

Common Regional Growth Impacts

Operations impacts that could affect regional growth are related directly to operating cost estimates, number of workers employed to operate and maintain the HSR system, and indirect/induced employment related to operations of Phase 1 of the HSR system. Following construction, workers would be hired to operate the HSR system, including the selected Central Valley Wye alternative. These workers would be based primarily at stations and maintenance facilities, neither of which is part of the Central Valley Wye alternatives. Periodic repair and maintenance work would be conducted on the track and ancillary components of the Central Valley Wye alternatives. The estimated operating costs are nearly the same for all of the Central Valley Wye alternatives because the track length of the alternatives would be very similar (between 51 miles for the SR 152 (North) to Road 11 Wye Alternative and 55 miles for the SR 152 (North) to Road 19 Wye Alternative). Operations of any of the Central Valley Wye alternatives would result in very similar direct and indirect/induced impacts on employment. The

number of operations workers would be very small compared to the available labor force in the RSA. The relatively small number of operations jobs is anticipated to deter workers from moving to the RSA for job opportunities, except perhaps for those with very specialized skills. With very limited population increases associated with the demand for operations workers, additional regional growth would be very small under the Central Valley Wye alternatives. Section 3.12 describes the operations-related changes in tax revenue to local governments.

The new HSR system would provide improved transportation linkages both within the Central Valley urban centers and to the Bay Area and Los Angeles metropolitan regions. Over time, this increased connectedness may encourage both businesses as well as workers to relocate to urban areas in the San Joaquin Valley. The Central Valley Wye alternatives, however, would not include stations, nor would the alignments of the Central Valley Wye alternatives travel through or near large cities such as Merced or Fresno. The four Central Valley Wye alternatives would lead to limited regional growth associated with the improved connectivity. The following sections discuss operations-related employment and population impacts for the Central Valley Wye alternatives, employment and population growth in the RSA anticipated because of HSR systemwide operations, and overall employment and population effects on regional growth during operations.

Operations-Related Employment Impacts

Like all HSR sections, operations and maintenance workers would be associated with ongoing operation of the Central Valley Wye. Maintenance workers would be required to regularly inspect and occasionally repair the rail tracks, power, or communication infrastructure along the rail corridor. Most of these workers, however, would be based at the HSR system stations, maintenance-of-infrastructure facilities, or the heavy maintenance facility; and none these facilities are part of the Central Valley Wye alternatives. As such, local permanent employment opportunities would be limited. Operations employment impacts were evaluated in the Merced to Fresno Final EIR/EIS (Authority and FRA 2012). The discussion mentioned the maintenance workers would spend small amounts of money for such items as gasoline, food or other personal items when on location maintaining and repairing the track associated with the Central Valley Wye.

The updated estimates for total Phase 1 HSR system, including the Central Valley Wye alternatives, which would have operations employment for all types of HSR facilities, establish a range of about 1,000 to 1,200 jobs in the San Joaquin Valley starting in 2029 (Authority 2016). The number of operations jobs would be the same for all Central Valley Wye alternatives contributing to required operations of the Phase 1 HSR system. This estimate of operations jobs is presented for the area including Merced County south to Kern County in the San Joaquin Valley (referenced as the “Central Valley” on the map on page 90 of the 2016 Business Plan). No estimates have been published for individual counties or subareas such as the RSA associated with the Central Valley Wye alternatives. This estimate for operations workers is the same magnitude, but slightly less, than the original estimates for long-term operation impacts for 2035 presented in the Merced to Fresno Final EIR/EIS (Authority and FRA 2012: page 3.18-21). That document reported an estimate of 1,300 jobs at full implementation of the HSR system, including the extensions to Sacramento and San Diego. With new implementation plans and schedules based on available funding, the Authority’s current focus is on starting operation of Phase 1 of the HSR system by 2029, while continuing work on conceptual engineering, environmental planning, and construction of critical rail corridor improvements that would facilitate implementation of Phase 2.

The estimated 1,000 to 1,200 operations jobs in the San Joaquin Valley, which would be the same under all Central Valley Wye alternatives, would support operations of the Central Valley Wye alternatives as well as the HSR system sections linking the planned Merced to North Bakersfield Stations. The jobs largely would be associated with the operations control center, the heavy maintenance facility, five stations, maintenance-of-infrastructure facilities, and train crews. Workers filling these jobs in the San Joaquin Valley would come from many sectors of the economy. Assuming the high range estimate of 1,200 direct jobs, this demand for workers would add about 3,600 additional indirect and induced jobs to the economy if one grossly assumes each direct job results in three additional indirect/induced jobs associated with Phase 1. This totals about 4,800 jobs for the San Joaquin Valley, a portion of which would be associated with the

Central Valley Wye. In the unlikely event that all 4,800 workers associated with these direct, indirect, and induced jobs were located in the RSA, these operations-related jobs would increase demand for workers by less than 1 percent based on updated forecast 2040 total employment of 652,500 (California Department of Transportation 2014). This demand for operations employment would not have a meaningful impact on regional growth under any of the Central Valley Wye alternatives.

Operations-Related Population Impacts

As described in the section titled Operations-Related Employment Impacts, operations-related employment would be the same for all Central Valley Wye alternatives. In general, these jobs would be primarily based out of maintenance-of-infrastructure facilities and the heavy maintenance facility. In the unlikely event that all of the estimated 4,800 direct, indirect, and induced workers were located in the RSA, the demand for these operations-related workers would be associated with an estimated population of about 14,500, assuming 3.01 persons per worker (calculated as 2040 population divided by 2040 employment per Table 3.18-6 and Table 3.18-4, respectively). This population estimate would be less than 1 percent of the forecast 2040 population in the RSA. As such, the Central Valley Wye alternatives would result in a very small increase in population above the 2040 forecast population in the RSA.

Systemwide Improved Transportation Accessibility Impacts

The operation of the HSR system, including the selected Central Valley Wye alternative, is anticipated to lead to economic expansion across California because of improved transportation connectedness and accessibility. This economic expansion would lead to both employment and population growth in addition to the estimated operations-related employment and population impacts. The magnitude of this systemwide induced growth associated with improved accessibility was evaluated in the Merced to Fresno Final EIR/EIS (Authority and FRA 2012); however, that analysis is out of date. This discussion updates the analysis using new 2040 forecast employment and population data and provides an updated estimate of the overall statewide effects and estimated employment and population growth for the RSA.

Employment Growth

The original analysis presented in the Merced to Fresno Final EIR/EIS (Authority and FRA 2012) identifies additional jobs that would come to the RSA because of improved connectivity and growth in the overall economy due to the HSR system. That analysis estimated that total operations-related employment for all direct, indirect, and induced jobs plus overall growth from improved regional connectivity would be an estimated 31,805 jobs (Authority and FRA 2012: Table 3.18-16 on page 3.18-21). The information provided in the Merced to Fresno Final EIR/EIS, however, did not present a breakdown for only those jobs related to improved transportation accessibility. Using the same multiplier of 3.0 as used above in the section title Operations-Related Employment Impacts to estimate indirect and induced jobs, the direct (1,300 jobs), indirect, and induced jobs would total 5,200 jobs; and those jobs associated with improved transportation accessibility would be about 26,600 jobs (calculated as 31,805 minus 5,200). Based on this employment projection, the operations jobs associated with improved accessibility would account for less than 4 percent of the RSA's projected 2035 employment of 845,986.

Since the 2010 census, however, the long-range employment estimate for California and individual counties was lowered in Caltrans' forecasts. The agency's projection for 2040 employment in the RSA declined from 845,986 to 652,500 (Caltrans 2014). Despite this reduced employment projection, the estimated operations-related employment associated with improved accessibility of about 26,600 would be about 4 percent of total projected 2040 employment, a small number compared to total employment growth anticipated in the RSA without the HSR system.

Updated analysis also has been conducted to assess potential employment growth caused by the HSR systemwide improved transportation accessibility within the state (Authority 2017). The analysis estimated a total of 102,000 jobs would incrementally be created across California. An accessibility index was also developed to apportion these workers to counties and sub-regions of the state. Using these indices, an estimated 34.7 percent of these workers would be located

within the RSA, primarily in Fresno County. In total, this demand for workers in the RSA would be an increase of an estimated 35,400 jobs above forecast 2040 employment in the RSA, or slightly more than 5 percent of the 2040 forecast RSA employment of 652,500.

Population Growth

Population growth also would be associated with the incremental economic expansion and employment growth associated with improved transportation accessibility provided by the HSR system. The population growth associated with the HSR system was evaluated in the Merced to Fresno Final EIR/EIS (Authority and FRA 2012). Although that document included different wye alignments, the analysis concluded the population growth would be very small. The analysis considered population impacts resulting from the direct, indirect, and induced operations jobs plus the overall regional growth resulting from increased transportation accessibility provided by the HSR system. The conclusion was that any of the alternatives for the Merced to Fresno Section could result in an increased population of about 78,446 more than forecast population (Authority and FRA 2012: Table 3.18-16 on page 3.18-21). And if only looking at population associated with the estimated 26,600 jobs (calculated as 2035 attributed to increased accessibility), the increase in population would be about 65,702 assuming 2.47 persons per job (calculated as 2035 population divided by 2035 employment from Table 3.18-16 in Authority and FRA 2012: page 3.18-21). This 2035 population estimated of 65,702 would be less than a 3 percent increase over the 2035 projected population of 2,349,374 for the RSA. Using this same estimate, the increase in population would be slightly greater than 3 percent above the updated but reduced 2040 population projection of 1,961,361 for the RSA (CDOF 2014).

Moreover, assuming the 2040 updated multiplier of 3.01 persons per job and the updated estimate of 102,000 jobs created in the state because of improved transportation accessibility provided by the HSR system, total population growth is estimated to be about 106,200 persons associated with the estimated 35,400 new jobs in the RSA. Though a large number, this incremental increase in population would be just slightly greater than 5 percent of the forecast 2040 population of 1,961,361 for the RSA.

Overall Operations Effects on Regional Growth

As discussed in the sections above titled Operations-Related Employment Impacts, Operations-Related Population Impacts, and Systemwide Improved Transportation Accessibility Impacts, the overall effect on regional growth for the Central Valley Wye alternatives is derived from direct, indirect, and induced employment and associated population from operations of the Central Valley Wye alternatives plus the additional employment and associated population resulting from improved transportation accessibility provided by the operation of the HSR system. In the unlikely scenario where all of the San Joaquin Valley operations direct employees and the associated indirect and induced employees associated with operations of the Central Valley Wye alternatives were to locate in the RSA, there would be a maximum of 4,800 employees in the RSA. The employees associated with operations of the HSR system providing improved transportation access would add an additional 35,400 employees to the RSA. Together, a maximum of up to 40,200 employees associated with the Central Valley Wye alternatives would be located in the RSA. Compared to the 2040 forecast, total employment in the RSA would be 652,500 and total operations-related employment of 40,200 would increase forecast employment by about 6 percent. Similarly, the estimated population associated with the direct, indirect, and induced employment for the Central Valley Wye alternatives would add about 14,500 persons; and the estimated population associated with HSR systemwide operations would add an estimated 106,200 persons. The total population associated with operations employment would be about 120,700 persons. Compared to the forecast 2040 population, this increase in population would be about 6 percent above the forecast population of 1,961,361 for the RSA. In both cases, the total estimated increase in both employment and population would be large numbers, but a relatively small increase above 2040 employment and population forecast for the RSA.

This anticipated employment and population growth would be located in the RSA, but it would be speculative to determine where this growth would occur. The development of new commercial and industrial space to accommodate the employment growth and the development of housing to

accommodate the population growth would occur within the many communities within the RSA. Local real estate markets would influence where the growth would occur. The real estate markets reflect local government regulation of land development; and local government land use regulations reflect the values of the community and a vision for future growth. As required by state law, each local government must adopt and periodically update their general plan. Zoning regulations must be consistent with the adopted general plan. Local governments also adopt other land development regulations and a building code to guide development. Every 5 years, the California Department of Housing and Community Development apportions statewide projected population from the CDOF for the next 10 years to guide local governments in the development of their required Housing Needs Allocation Plans and help ensure general plans can accommodate anticipated population growth. Individual development projects, whether commercial/industrial or residential, must undergo environmental review, as appropriate, to identify environmental impacts and required mitigation measures to avoid or reduce identified environmental impacts. Developers also must submit proposed project plans for review and approval by local government planning departments to obtain land use approval and construction permits. As such, the potential operations effects from anticipated employment and population growth associated with the Central Valley Wye alternatives and the HSR system would be consistent with community visions for future development as reflected in land development plans, policies, and regulations.

The impacts on regional growth would be the same for all of the Central Valley Wye alternatives because none of the alternatives would include stations, maintenance-of-infrastructure, or heavy maintenance facilities, but all are part of the larger HSR system. Lacking these facilities, little operations-related employment or associated population is anticipated to be located within the RSA, although a large number of employees and associated population are anticipated in the RSA because of the improved transportation accessibility provided by the HSR system. Similar to the No Project Alternative, some residents in the RSA would continue to take advantage of employment opportunities in the Bay Area. Together, the total anticipated increase in employment and population would be a small percentage increase above the 2040 forecast employment and population.

The operations of the HSR system, including the Central Valley Wye alternatives, would strengthen economic ties between the communities of the Central Valley with those in the Bay Area and Southern California. The travel time and estimated cost of about \$89 (2015\$) one-way between San Francisco and Los Angeles would facilitate periodic in-person business meetings, but would not likely facilitate daily commuting on a broad scale from the Central Valley communities to jobs in the coastal metropolitan areas (Authority 2016). Some individuals, however, may choose to use the HSR system for weekly or more frequent trips, especially those with higher incomes. For example, some people with jobs in the Bay Area may choose to live in the RSA where more affordable housing is available. In this circumstance, these persons would pay more out-of-pocket for their commute in exchange for time on the train working, reading, or relaxing.

As such, the HSR system is not anticipated to remove obstacles to local population growth and stimulate the construction of new housing. Rather, the increasingly high cost of living in the state's large coastal metropolitan areas may encourage businesses to relocate to communities in the San Joaquin Valley where employees can find more affordable housing and costs of doing business could be contained; or people may seek employment in the San Joaquin Valley where they can find more affordable housing and work for companies with improved access to the large business communities located in the coastal metropolitan areas.

3.18.7 Mitigation Measures

All construction and operations impacts would be minimal. Therefore, no mitigation measures are required.

3.18.8 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 3.18-11 provides a comparison of

the potential impacts of the No Project Alternative and each of the Central Valley Wye alternatives, summarizing the more detailed information provided in Section 3.18.6.

Table 3.18-11 Comparison of Central Valley Wye Alternative Impacts in the RSA

Impacts	SR 152 (North) to Road 13 Wye Alternative	SR 152 (North) to Road 19 Wye Alternative	Avenue 21 to Road 13 Wye Alternative	SR 152 (North) to Road 11 Wye Alternative
Construction Impacts				
Employment-Related Impacts				
Peak-Year 2020 Direct Construction Employment	+870	+950	+850	+820
Percentage of 2020 Construction Employment	+4%	+5%	+4%	+4%
Peak-Year 2020 Total Employment Impacts (Direct, Indirect, Induced)	+3,020	+3,310	+2,960	+2,840
Percentage of Projected 2020 Total Employment	+<1%	+<1%	+<1%	+<1%
Total Employment Over 4 Years of Construction	+8,610	+9,450	+8,470	+8,120
Operations Impacts				
Employment Impacts				
Operations-Related 2040 Direct Employment	+1,000 to 1,200 jobs located in the San Joaquin Valley			
Operations-Related 2040 Employment (Direct, Indirect, Induced)	+4,800 jobs located in the San Joaquin Valley			
Maximum Percentage of 2040 Employment if All Jobs in the Resource Study Area	+<1% jobs			
HSR Systemwide Employment (Percentage of 2040 Employment)	+35,400 jobs (+>5%)			
Total Employment from Operations-Related Jobs Plus HSR Systemwide Employment (Percentage of 2040 Employment)	+40,200 jobs (+6%)			
Population Impacts				
Operations-Related Population (Percentage of 2040 Population)	+14,500 population (+<1%)			
HSR Systemwide Population (Percentage of 2040 Population)	+106,200 population (+>5%)			
Total Population from Operations-Related Population Plus HSR Systemwide Population (Percentage of 2040 Population)	120,700 population (+6%)			

Source: Authority, 2018

Under the No Project Alternative, increasing population and employment opportunities in the RSA are expected to result in increased development and growth. Located in the northern portion of the San Joaquin Valley, the economy of the RSA is anchored in agriculture and food manufacturing, though total employment in the services sector is more than twice as large as the agricultural sector. Between 2015 and 2040, total employment is projected to increase from 495,800 to 652,500, or an average annual increase of 1.3 percent (California Employment Development Department 2016a; Caltrans 2014).

New jobs are anticipated to be predominantly located in Fresno County, which would continue to anchor the RSA with more than 73 percent of all jobs. Total population for the RSA is projected to increase from 1,337,108 in 2015 to 1,961,361 in 2040 (CDOF 2014 and 2016a). This is an increase of 47 percent, or an average annual increase of 1.6 percent per year. Local government land use planning and commitments to meet their share of allocated regional housing needs through their adopted Housing Needs Allocation Plans demonstrate the ability the local governments within the RSA are planning to accommodate anticipated population growth in the coming decades (CDCH 2015a, 2015b, and 2015c).

The impacts of construction and operations of the Central Valley Wye alternatives are anticipated to result in small increases in employment and population in the RSA. The impacts of the four alternatives are similar because the track length of each alternative is similar, local construction expenditures is similar, and none of the alternatives includes stations or heavy maintenance facilities.

Construction and operations of the Central Valley Wye alternatives would increase the demand for workers above projected employment. As summarized in Table 3.18-11, construction-related employment based on local construction expenditures would create an estimated demand of between 820 (SR 152 (North) to Road 11 Wye Alternative) and 950 (SR 152 (North) to Road 19 Wye Alternative) new construction jobs during the peak year of construction in 2020. This demand for temporary construction workers under all Central Valley Wye alternatives, however, is less than 5 percent above forecast construction-sector employment. Because this is a very small portion of the total construction employment in the RSA, and in consideration of the established worker training and certification programs and ongoing HSR system construction activities located in the northern counties of the San Joaquin Valley, it is not anticipated that a large number of workers would move to the RSA looking for potential employment opportunities with the Central Valley Wye alternatives. In total, from 2,330 to 2,720 construction annual jobs years would be created over the 4 years of construction. In addition, there would be an increased demand for 5,790 to 6,730 indirect and induced annual jobs during the construction period in a variety of sectors of the economy (Table 3.18-9). As summarized in Table 3.18-11, all four Central Valley Wye alternatives would generate a similar number of total annual jobs (8,120 to 9,450) over the 4-year construction period, with the SR 152 (North) to Road 11 Wye Alternative generating the least number of jobs (8,120) and SR 152 (North) to Road 19 Wye Alternative generating the most number of jobs (9,450). These jobs would be only a small increase above forecast total employment under the No Project Alternative. As such, construction under any of the Central Valley Wye alternatives is not anticipated to result in regional growth that would require the construction of new housing or provision of new public services. Rather, construction would be a short-term benefit to the communities of the RSA in the early 2020s, especially considering historically high unemployment rates in Madera, Merced, and Fresno Counties.

The estimated operations impacts associated with the Central Valley Wye alternatives would be small and would not result in regional growth considerably above forecast employment. Operations jobs would be based at the HSR system stations and the heavy maintenance facilities. As summarized in Table 3.18-11, the Authority estimates operations of the HSR system would create up to about 1,200 jobs scattered in the San Joaquin Valley. The number of operations jobs would be the same for all Central Valley Wye alternatives and therefore the impacts on regional growth would be the same. Potential regional growth arising from greatly improved statewide transportation accessibility provided by the HSR system was also evaluated. These jobs would total an estimated 35,400 jobs within the RSA. This incremental increase would be slightly greater than 5 percent above forecast 2040 employment within the RSA.

Population growth would be associated with the estimated increase in operations employment associated with direct, indirect, and induced employment as well as employment stimulated by the operation of the HSR system. The operations-related population associated with direct, indirect, and induced employment would be about 14,500 and the HSR systemwide operations-related population would be about 106,200 persons for the RSA. The total increase in operations employment is estimated to be about 120,700, or about 6 percent above the 2040 forecast population of 1,961,361 for the RSA.