

## 3.18 Regional Growth

### 3.18.1 Introduction

This section describes the regulatory setting and affected environment related to regional growth and discusses the potential growth-inducing effects of the HST alternatives. The analysis looks at projected statewide and regional population and employment growth trends to determine how the HST alternatives could influence these trends, either directly or indirectly. The *Final Bay Area to Central Valley High-Speed Train (HST) Program Environmental Impact Report/Environmental Impact Statement (EIR/EIS)* (Authority and FRA [2008] 2010) concluded that (1) the HST would result in a small amount of induced population and employment growth statewide and (2) that the largest growth effects would occur in Merced and Madera counties, followed by the remainder of the Central Valley. Program-level analysis found that additional urbanized growth statewide due to HST would be limited when compared to the overall level of growth that would occur under the No Project Alternative. The BNSF Alternative would result in approximately 9,000 acres of addition growth over the No Project Alternative, or an increase of approximately 0.9% more acres of induced urbanization.

The program-level analysis also concluded that, across the state, HST would induce the highest incremental population growth in Madera County, followed by Merced County. Incremental employment growth would be highest in Madera and Merced counties, followed by Fresno County. The economic analysis found that the largest employment shifts by sector would occur in the Central Valley, and concluded that the HST system could be a strong influence in attracting higher-wage jobs to the Central Valley. Overall, the incremental employment effect would be much larger than the incremental population effect in all Central Valley counties. This suggests that the HST system might be more effective at distributing employment throughout the state. Taken together, these results suggest that additional population growth under HST would be driven by job growth due to the initiation of HST service, rather than due to long-term population shifts from the Bay Area and Southern California based on long-distance commuting.

The *Final Program EIR/EIS for the Proposed California HST System* (Statewide Program EIR/EIS) (Authority and FRA 2005) and the *Final Bay Area to Central Valley High-Speed Train (HST) Program Environmental Impact Report/Environmental Impact Statement (EIR/EIS)* (Authority and FRA [2008] 2010) did not identify growth impacts requiring mitigation. Therefore, no program-level mitigation strategies related to growth have been incorporated into the proposed HST alternatives for the Fresno to Bakersfield Section.

Because population and employment growth are closely linked to land use regulations and economic activity, refer to Section 3.12, Socioeconomics, Communities, and Environmental Justice, and Section 3.13, Station Planning, Land Use, and Development for additional information. 3.12, Socioeconomics, Communities, and Environmental Justice includes a discussion of economic impacts on the cities and counties. Section 3.13, Station Planning, Land Use, and Development includes a discussion of how growth is addressed in local land use regulations.

### 3.18.2 Laws, Regulations, and Orders

The following federal, state, and local laws, regulations, and agency jurisdiction and management guidance are relevant to regional growth.

#### A. FEDERAL

Federal regulations and guidelines are discussed in Section 3.1, Introduction to Chapter 3.

## **B. STATE**

State regulations and guidelines are discussed in Section 3.1, Introduction to Chapter 3.

## **C. REGIONAL**

This section discusses regional and transportation plans relevant to the project.

### **San Joaquin Valley Blueprint Roadmap Summary**

The *San Joaquin Valley Blueprint Roadmap* (the Blueprint) (San Joaquin Valley Regional Policy Council 2010) is a plan for the future of the San Joaquin Valley. Agencies involved in developing this plan included the following seven councils of government and one regional transportation planning agency:

- Kern Council of Governments.
- Tulare County Association of Governments.
- Kings County Association of Governments.
- Council of Fresno County Governments.
- Madera County Transportation Commission.
- Merced County Association of Governments.
- Stanislaus Council of Governments.
- San Joaquin Council of Governments.

The Blueprint describes the origins and planning process undertaken to develop a vision, goals, and alternative scenarios for growth and land use planning on a regional level. Under the Blueprint scenario that the San Joaquin Valley Regional Policy Council approved, less land is planned for development; more resources are preserved for future generations; distinctive communities are enhanced; and more travel choices, including high-speed rail, are available in the future than currently exist.

In addition, the Blueprint planning process identified 12 smart growth principles to be used as the basis of future Blueprint planning and implementation at a regional level. These 12 smart growth principles were based on the goals, objectives, and guiding principles developed by each council of government. Those most directly related to HST include the following:

- Create walkable neighborhoods.
- Foster distinctive, attractive communities with a strong sense of place.
- Create a mix of land uses.
- Preserve open space, farmland, natural beauty, and critical environmental areas.
- Provide a variety of transportation choices.
- Strengthen and direct development towards existing communities.
- Take advantage of compact building design.
- Enhance the economic vitality of the region.

The Blueprint will be implemented through collaborative local and regional programs and planning processes and through projects built by private sector developers. Preparation of a policy guide and planners' toolkit for implementing the Blueprint is underway. The planning process and associated reports are available at [www.valleyblueprint.org](http://www.valleyblueprint.org).

### **2011 Regional Transportation Plan – Long Range Transportation Vision for the Fresno County Region for the Years 2010 to 2035**

The *2011 Regional Transportation Plan – Long Range Transportation Vision for the Fresno County Region for the Years 2010 to 2035* (Council of Fresno County Governments [COG] 2010)

provides a comprehensive, long-range plan for all transportation modes. The plan identifies the needs for travel and goods movement through 2035. Regional growth policies comprise the following:

- Establish development policies that are directed toward the long-term beneficial use of the region's resources and protection of the public health, safety, and welfare.
- Protect productive and potentially productive agricultural land from urban encroachment, and thereby maintain the region's agriculturally based economy.
- Preserve and enhance the character and inherent values of natural, scenic, and open space land as well as historical features in the region.
- Encourage annexation prior to urban development on the unincorporated fringe, consistent with a city's development program.
- Promote the concentration of urban and other intensive development in and around existing centers.
- Encourage development alternatives that maximize energy consumption and promote clean air.
- Promote the Blueprint's adopted smart growth principles.

**2011 Kings County Association of Governments Regional Transportation Plan**

The Kings County Association of Governments (KCAG) adopted the *2011 Regional Transportation Plan* (Kings County RTP) on July 28, 2010. The Kings County RTP serves as the basis for the county's transportation decisions and provides policy direction for local plans. The 2011 Kings County RTP includes the implementation of a high-speed rail facility in the region among its stated objectives. The 2011 Kings County RTP supports state efforts to implement a high-speed-rail corridor in the San Joaquin Valley, and the development of strategies that further the goals of reduced traffic congestion through development of alternative transportation modes.

Goals and policies in the 2011 RTP related to regional growth promote the development and maintenance of a multi-modal transportation system to serve the region.

The central overall goal of the RTP states the following:

To develop a transportation system that encourages and promotes the safe and efficient development, management, and operation of surface transportation systems to serve the mobility needs of people and freight (including accessible pedestrian walkways and bicycle transportation facilities) and foster economic growth and development, while minimizing transportation-related fuel consumption and air pollution.

Additionally, Program Objective 7 states:

Public and private transportation facilities shall be planned and developed consistent with overall growth and development policies contained in city and county general plans.

**2011 Tulare County Association of Governments Regional Transportation Plan**

The Tulare County Association of Governments (TCAG) adopted the *2011 Regional Transportation Plan* (Tulare County RTP) on April 30, 2010. The Tulare County RTP addresses transportation needs through 2035. Implementation would result in improvements to existing regional transportation and circulation systems. The plan anticipates construction of a high-speed

train corridor that would connect the county to the Bay Area, Southern California, and other areas in the San Joaquin Valley. The RTP includes several policies supporting the extension of rail passenger service, including the HST; encouraging participation in the planning effort for HST; and supporting the CHSRA in connecting the Bay Area with Southern California. The 2011 Tulare County RTP includes the following goals and policies related to regional growth (Tulare County Association of Governments 2010):

### ***Regional***

**GOAL:** Provide an efficient, integrated multi-modal transportation system for the movement of people and goods that enhances the physical, economic, and social environment.

**Policy 14:** Identify the opportunities for increased utilization of existing rail corridors.

### ***Tulare County Regional Blueprint***

**Objective:** Improve transportation mobility, goods movement, and public transportation.

**Policy 6.** Integrate the development of land use and transportation, recognizing their dependence.

**Policy 9.** Support a 25% increase in overall density beyond the Blueprint Status Quo Scenario.

**Policy 10.** Support urban separators around cities.

**Policy 11.** Focus growth in urban areas.

### **Kern Council of Governments Destination 2030 Regional Transportation Plan**

The 2007 Kern Council of Governments' *Destination 2030 Regional Transportation Plan* (Kern County RTP) is a multimodal plan representing KCOG's vision for a better transportation system through the planning horizon of 2030 (Kern Council of Governments 2007). The RTP identifies the HST as a future transit option in the region, and supports state and federal actions that would increase accessibility to passenger rail service. It includes the following goal and policy related to regional growth:

**Goal:** Livability

**Policy:** Support goals contained in city and county general plans that strive to enhance urban and community centers, promote the environmentally sensitive use of lands in Kern County, revitalize distressed areas, and ensure that new growth areas are planned in a well-balanced manner.

### **D. LOCAL**

Fresno, Kings, Tulare, and Kern counties and the cities of Fresno, Hanford, Corcoran, Wasco, Shafter, and Bakersfield all have adopted general plans. The cities of Fresno and Shafter also have community and specific plans (detailed description of these plans and their goals and policies is provided in Section 3.13 Station Planning, Land Use, and Development and in Appendix 3.13-A of this EIR/EIS).

General plans are required by California state law, and each must include seven mandatory elements (Circulation, Conservation, Housing, Land Use, Noise, Open Space, and Safety and Seismic Safety) and must contain text that describes the goals, objectives, and policies for development. The general plans and their goals, objectives, and policies are guiding documents

for long-range growth, development, and redevelopment. These local plans and policies were considered in the preparation of this analysis.

### **Fresno County**

#### ***Fresno County General Plan***

Fresno County is in the process of updating their General Plan, originally prepared in 2000. A public review draft of the General Plan policy document was issued on August 1, 2010. The *Fresno County 2000 General Plan: Public Review Draft* (Fresno County 2010) establishes goals and policies to limit growth in rural areas and direct growth to urban areas in the county. The plan's fundamental policy is to direct intensive urban development to cities, unincorporated communities, and other areas planned for such development where public facilities and infrastructure are available or planned. The plan includes policies addressing development patterns in urban and urbanizing areas. These policies encourage pedestrian- and transit-oriented development and infill of vacant or underused urban land to create mixed use, higher-density developments in which jobs, commercial activities, and amenities are located along transportation corridors and closer to residential areas to encourage pedestrian and transit access. The plan prohibits the designation of new areas for rural residential development and limits the expansion of existing rural development to minimize environmental impacts and public infrastructure investments.

#### ***City of Fresno General Plan***

The *2025 Fresno General Plan* (City of Fresno 2002) encourages the efficient development, investment, and use of available resources to accommodate population growth, while limiting outward expansion. A secondary goal is to revitalize the existing urban core. To achieve this goal, the City will incorporate transit-oriented development and traditional neighborhood development approaches into its planning principles and development regulations. In addition, the City will encourage and facilitate urban infill by providing adequate public infrastructure and services, which is fairly and equitably financed.

### **Kings County**

#### ***Kings County General Plan***

The Kings County General Plan, which was adopted in 2010, includes land use designations and policies that are designed to encourage compact, community-centered development patterns that lower public service costs, make more efficient use of land, and discourage premature conversion of farmland to other uses. The Land Use Element supports the County's overarching priorities to protect prime agricultural land, direct urban growth to existing cities and community districts, and increase economic and community sustainability.

#### ***City of Hanford General Plan***

The city of Hanford's General Plan was adopted in 2002. The policies included in the *City of Hanford 2002 General Plan Update* (City of Hanford 2002) were crafted to address growth by considering historic growth factors, infrastructure, farmland, circulation, and impact from and to adjacent communities. The goals, objectives, policies, and programs in the General Plan, together with the Land Use Diagram, provide a framework for the future development of Hanford. The Land Use Element was written to respond to issues, opportunities, and constraints within the planning area established for Hanford. Major issues considered in the Land Use Element include the location and timing of growth, and balancing economic growth with urban growth.

***City of Corcoran General Plan***

The *Corcoran General Plan 2025* was adopted in 2007. The General Plan includes planning principles stating that development in the community should be compact and contiguous to existing developed areas, and that the City's Sphere of Influence and growth policies should ensure that the community is physically distinct from other communities, and contains an agricultural buffer area (City of Corcoran 2007). The policies in the Corcoran General Plan Land Use Element serve as guides for reviewing development proposals, planning facilities to accommodate anticipated growth, and accomplishing community economic development strategies. Specific policies related to regional growth include objects to minimize urban sprawl and leap-frog development, provide for an orderly and efficient transition from rural to urban land uses, and designate growth areas that can be served by logical infrastructure extensions.

**Tulare County*****Tulare County General Plan***

The *Tulare County General Plan 2030 Update*, adopted in 2010, includes policies stating that the County will work with every community to provide the opportunity to prosper from economic growth (Tulare County 2010). The County will also work with local communities to protect the County's important agricultural resources and scenic natural lands from urban encroachment by strictly limiting rural residential development potential in important agricultural areas outside of communities and cities to avoid rural residential sprawl.

None of the project alternatives pass through any incorporated cities within Tulare County. Therefore, no policies for cities within Tulare County are described here.

**Kern County*****Kern County General Plan***

The Kern County General Plan was adopted in 2007 (Kern County Planning Department 2007). The Kern County General Plan's Land Use, Conservation, and Open Space Element provides for a variety of land uses for future economic growth, while also ensuring the conservation of Kern County's agricultural, natural, and resource attributes. Objectives of the General Plan are intended to encourage economic development that creates jobs and capital investments in urban and rural areas, as well as encouraging new development to use existing infrastructure and services wherever feasible in the County's urban areas. In addition, the General Plan includes policies with the intent of protecting environmental resources and the development of adequate infrastructure, with specific emphasis on conserving agricultural areas, discouraging unplanned urban growth, ensuring water supplies and acceptable quality for future growth, and addressing air quality issues.

***City of Wasco General Plan***

The *City of Wasco General Plan* was adopted in 2002. The General Plan includes policies and goals to encourage contiguous growth, provide incentives for infill development, develop growth-phasing boundaries, and ensure development and/or redevelopment of underused properties. In addition, the General Plan states that infill shall be encouraged on unused or underused parcels; that the City should provide for orderly growth and development patterns through the designation of growth boundaries to be phased over time; and that the City should also establish "hard" edge growth phasing boundaries such as roadways, railroad right-of-ways, irrigation ditches, etc. to protect agriculture (City of Wasco 2002).

### ***City of Shafter General Plan***

The City of Shafter's General Plan, adopted in 2005, includes a Land Use Program that sets forth Shafter's fundamental land use philosophy and directs development to the most suitable locations while maintaining the economic, social, physical, environmental health, and vitality of the community. Policies call for maintaining Shafter's downtown as the center of community life, and maintaining a buffer of agricultural and rural residential uses surrounding Shafter's urbanizing core area to provide a physical separation between the area and industrial uses to the east, south, and southeast (City of Shafter 2005).

### ***Metropolitan Bakersfield General Plan***

The planning area for the Metropolitan Bakersfield General Plan includes the city of Bakersfield plus additional unincorporated areas of Kern County. The area covered by the General Plan is the same as the Bakersfield Metropolitan Priority Area of the Kern County General Plan. The Metropolitan Bakersfield General Plan includes policies to provide for a mix of land uses that meets the diverse needs of residents; offers a variety of employment opportunities; capitalizes, enhances, and expands upon existing physical and economic assets; and allows for the capture of regional growth. The General Plan defines the sphere of influence boundaries for planned urban growth. The General Plan includes policies for land development to encourage people to live and work in the same area, serving to minimize sprawl and reduce traffic, travel time, infrastructure costs, and air pollution.

## **3.18.3 Methods for Evaluating Impacts**

### **A. REGIONAL MODELING**

This section describes the regional modeling process undertaken to forecast growth in the 11 counties in the core Bay Area to Central Valley study area and 5 other multi-county regions in the state. The analysis was conducted by updating the population and employment estimates that were originally developed for the growth analysis in the Bay Area to Central Valley Program EIR/EIS and by evaluating impacts on regional growth that the HST project would create. The estimates of population and employment growth developed for the Bay Area to Central Valley Program EIR/EIS only included projections to year 2030, and have therefore been updated to year 2035 for use in the Fresno to Bakersfield Section project EIR/EIS.

The analysis determined construction-related employment created using Regional Input-Output Modeling System (RIMS) II multipliers for Fresno, Kings, Tulare, and Kern counties. RIMS II multipliers are regional input-output multipliers used to estimate regional economic activity changes generated by changes in regional industries. Using these four-county RIMS II multipliers, economists estimated short-term/temporary employment generated by project construction. Long-term job creation resulting from project operation was estimated by Cambridge Systematics and those results are presented here (Cambridge Systematics Inc. 2010).

The analytical process to estimate the growth inducement of the HST system for the Bay Area to Central Valley Program EIR/EIS required significant modeling tools and data. The following key steps summarize the process:

- Define transportation investments. The future baseline conditions of the No Project Alternative and the economic modeling process was used to forecast the incremental changes associated with the HST system.
- Estimate transportation benefits. Using results from the California Statewide High-Speed Rail Travel Demand Model, benefits such as reduced travel times and/or costs of the HST system for air, highway, and conventional rail trips were estimated using travel demand model

results. Congestion, pollution, and crash reduction benefits and accessibility benefits were directly estimated using travel demand model results for the HST system in comparison with the No Project Alternative. Mode shift benefits arising from the introduction of HST service were estimated by scaling benefits calculated for the statewide program EIR/EIS using HST ridership and other output from the travel demand model (Authority 2003, Appendix F).

- Estimate direct economic impacts. Direct economic impacts, which are generated from the transportation benefits of the HST system, generally fall into one of three categories.
  - Business cost savings: Reductions in travel time and/or cost for long-distance business travelers and commuters benefiting from the transportation improvements.
  - Business attraction effects: New and relocated firms taking advantage of market accessibility improvements provided through transportation investments.
  - Amenity (quality of life) changes: Non-business travel time and/or cost benefits and other societal benefits that improve the attractiveness of the region.
- Determine total regional economic impacts for regions and counties. All of the direct economic impacts have the potential to create additional multiplier effects on the regional and statewide economies of California. Total regional impacts were estimated using the TREDIS-ReDyn macroeconomic simulation model. For this analysis, total economic impacts include population and industry-specific employment, with impacts forecasted for the 11 counties in the core Bay Area to Central Valley study area and the remaining 5 multi-county regions in the state.

This information was then used to allocate county-level population and employment throughout each county and develop estimates of population and employment growth (by county) that would occur with the HST system.

After long-term/permanent and short-term/temporary employment was estimated using RIMS II multipliers, impacts of induced growth were evaluated based on the infill potential and magnitude of land needed to accommodate the population and employment growth. The analysis of land consumption estimated the population and employment growth that could fit within the urban growth boundaries delineated by each city and county within their current general plans. The population, employment, and land consumption estimates were then reviewed to characterize the nature and magnitude of potential secondary impacts on the human and natural environment.

This analysis presents a regional perspective of anticipated project impacts. At the regional scale, the HST alternatives cannot be differentiated. Therefore, this analysis compares the HST system, regardless of which HST alternative is implemented, against the No Project Alternative. Where data were available, economic impacts associated with the construction and operation of the project were evaluated separately for the HST alternative, station, and HMF. The economic impacts of specific HMF locations were not evaluated unless there were cost differences between locations.

The growth and development forecasts are based on HST ridership assumptions at the high end of the potential ridership range. Accordingly, the growth analysis is a worst case scenario, in that it represents the high end of the potential growth-related impacts from the project.

## B. STUDY AREA

For this regional growth analysis, the study area comprises Fresno, Kings, Tulare, and Kern counties. It encompasses the incorporated cities of Fresno, Hanford, Corcoran, Wasco, Shafter, Bakersfield. This impact analysis discusses the environmental impacts by geographic area (at the county and city level) rather than by HST alternative, because most sources publish economic data for areas that are within distinct geographical and political boundaries.

Although some sources provide economic data (such as total employment and unemployment rate) for cities, most economic data sources describe the correlation between various economic sectors only at the county level. County-level information includes data for the unincorporated parts of the county as well as the cities.

### 3.18.4 Affected Environment

The San Joaquin Valley's population growth rate has exceeded the statewide growth rate since 1970 (Fresno COG 2007). Currently more than 10% of the state's population resides in this region. Fresno, the fifth largest city in California as of January 1, 2010, is the financial and commercial capital of the central San Joaquin Valley. In the region, slightly more than 1 out of every 10 jobs is in the trade sector, and about 1 in 3 jobs is in the services sector, with jobs in educational and health services and professional and business services dominate.

#### A. POPULATION

Table 3.18-1 shows the state population in 2000 and 2010 and growth rates for the study area cities and counties, which were higher than at the state level. Urban growth in these cities was higher than the growth in unincorporated portions of Fresno, Kings, Tulare, and Kern counties. The city of Bakersfield had an annual average growth rate of over 3%, while the cities of Hanford, Corcoran, Wasco, and Shafter all had growth rates of 2% or greater. The city of Fresno had the lowest annual average growth rate for cities in the study area at 1.6%. Unincorporated areas of the counties experienced much less annual average growth than the major cities, ranging from 0.4 to 1.6%. Within the San Joaquin Valley, cities attract the bulk of new population and act as the economic engine of the south San Joaquin Valley.

**Table 3.18-1**  
 Population Growth, 2000 – 2010

Area	Population in 2000	Population in 2010	Change 2000 - 2010	Annual Average Growth Rate
<b>Fresno County</b>	<b>799,407</b>	<b>930,450</b>	<b>16.4%</b>	<b>1.6%</b>
City of Fresno	427,652	494,665	15.7%	1.6%
Unincorporated	164,405	174,783	6.3%	0.6%
<b>Kings County</b>	<b>129,461</b>	<b>156,289</b>	<b>20.7%</b>	<b>2.1%</b>
City of Hanford	41,687	53,266	27.8%	2.8%
City of Corcoran	20,843	25,692	23.3%	2.3%
Unincorporated	32,545	35,634	9.5%	0.9%
<b>Tulare County</b>	<b>368,021</b>	<b>447,814</b>	<b>21.7%</b>	<b>2.2%</b>
City of Visalia	91,891	125,971	27.1%	2.7%
City of Tulare	43,994	59,535	35.3%	3.5%
Unincorporated	140,822	146,356	3.9%	0.4%
<b>Kern County</b>	<b>661,653</b>	<b>839,587</b>	<b>26.9%</b>	<b>2.7%</b>
City of Wasco	21,263	25,541	20.1%	2.0%

**Table 3.18-1**  
 Population Growth, 2000 – 2010

Area	Population in 2000	Population in 2010	Change 2000 - 2010	Annual Average Growth Rate
City of Shafter	12,731	16,208	27.3%	2.7%
City of Bakersfield	246,899	338,952	37.3%	3.7%
Unincorporated	264,111	305,536	15.7%	1.6%
<b>Region</b>	<b>1,958,542</b>	<b>2,397,451</b>	<b>22.4%</b>	<b>2.2%</b>
<b>California</b>	<b>33,873,086</b>	<b>38,648,090</b>	<b>14.1%</b>	<b>1.4%</b>

Source: U.S. Census 2000 and 2010 and California Department of Finance (CDOF) 2010a

Table 3.18-2 shows the study area's city and county population estimates for the years 2010 through 2035. These estimates anticipate all four counties will grow at a higher average annual rate than the state of California. Over the next 25 years, population is projected to grow in Fresno, Kings, Tulare, and Kern counties over 59%, 75%, 80%, and 81%, respectively. The economic growth study conducted for the *Final Bay Area to Central Valley High-Speed Train (HST) Program Environmental Impact Report/Environmental Impact Statement (EIR/EIS)* (Authority and FRA [2008] 2010) found that the overflow of people from urban coastal areas seeking affordable housing within commuting range of major metropolitan areas drives the high growth projections for these San Joaquin Valley counties.

**Table 3.18-2**  
 Population Projections, 2010 - 2035

Area	Population in 2010 <sup>a</sup>	Population in 2035	Change 2010-2035	Annual Average Growth Rate
<b>Fresno County</b>	<b>953,761</b>	<b>1,519,325<sup>b</sup></b>	<b>59.3%</b>	<b>2.4%</b>
City of Fresno	502,303	961,366 <sup>b</sup>	91.4%	3.7%
<b>Kings County</b>	<b>156,289</b>	<b>274,576<sup>c</sup></b>	<b>75.7%</b>	<b>3.0%</b>
City of Hanford	53,266	114,171 <sup>c</sup>	114.3%	4.6%
City of Corcoran	25,692	54,987 <sup>c</sup>	114.0%	4.6%
<b>Tulare County</b>	<b>447,814</b>	<b>809,789<sup>d</sup></b>	<b>80.8%</b>	<b>3.2%</b>
City of Visalia	125,971	238,653	89.5%	3.6%
City of Tulare	59,535	90,341	51.9%	2.1%
<b>Kern County</b>	<b>839,587</b>	<b>1,523,934<sup>e</sup></b>	<b>81.5%</b>	<b>3.3%</b>
City of Wasco	25,541	46,181 <sup>e</sup>	80.8%	3.2%
City of Shafter	16,208	54,867 <sup>e</sup>	238.5%	9.5%
City of Bakersfield	338,952	841,500 <sup>e</sup>	148.3%	5.9%
<b>Region</b>	<b>2,397,451</b>	<b>4,155,881</b>	<b>73.3%</b>	<b>2.9%</b>

**Table 3.18-2**  
 Population Projections, 2010 - 2035

Area	Population in 2010 <sup>a</sup>	Population in 2035	Change 2010-2035	Annual Average Growth Rate
State of California	38,648,090	51,747,374 <sup>f</sup>	32.2%	1.1%
<sup>a</sup> CDOF (2010a) <sup>b</sup> Council of Fresno County Governments (Fresno COG 2010) <sup>c</sup> Kings County Association of Governments (2010) <sup>d</sup> Tulare County Association of Governments (2010) <sup>e</sup> Kern Council of Governments (2007) <sup>f</sup> California Department of Finance (CDOF 2010b)				

**B. EMPLOYMENT**

Table 3.18-3 provides information on regional employment by industry<sup>1</sup> using California Employment Development Department (CEDD) data for 2000 and 2008 (CEDD 2009a, 2009b). Between 2000 and 2008, total employment by industry increased by about 8% in Fresno County, 16% in Kings County, 13% in Tulare County, and 21% in the Kern County. In Fresno County, the professional, food, and educational services and public services sector contributed a substantial number of additional jobs, while some losses occurred in the agriculture, manufacturing, and information sectors. Kings County gained jobs in the transportation, retail, food service, and education sectors, while losing jobs in the agriculture and finance and insurance sectors. Tulare County gained jobs in all service sectors and industries. In Kern County, the government sector contributed a substantial number of additional jobs.

The government, agriculture, retail trade, and education sectors employ the most workers in all four counties. The CEDD data indicate that these same sectors will continue to account for more than half of the jobs within the four counties. Other employment sectors with strong growth include construction; professional and management services, entertainment, accommodation, and food services; and other services.

Table 3.18-3 also shows projected employment by industry for the Fresno, Kings, Tulare, and Kern counties.

<sup>1</sup> Total Industry Employment counts the number of jobs by the place of work.

**Table 3.18-3**  
 Fresno, Kings, Tulare, and Kern County and Regional Employment by Industry, 2000 - 2016

Industry	Fresno			Kings			Tulare			Kern			Regional		
	2000	2008	Projected 2016	2000	2008	Projected 2016	2000	2008	Projected 2016	2000	2008	Projected 2016	2000	2008	Projected 2016
Agriculture, forestry, fishing and hunting, and mining	56,000	49,300	48,500	7,700	6,700	8,900	34,900	37,100	36,800	56,500	59,900	61,800	155,100	153,000	156,000
Construction	15,100	17,900	24,300	1,100	1,200	1,500	5,200	6,200	7,500	11,600	16,200	21,900	33,000	41,500	55,200
Manufacturing	27,600	27,000	28,300	3,600	4,600	4,800	11,700	11,800	13,300	10,800	13,700	14,900	53,700	57,100	61,300
Wholesale trade	12,100	12,900	14,100	600	600	600	3,600	4,200	4,600	5,700	7,600	9,400	22,000	25,300	28,700
Retail trade	31,800	35,200	38,100	3,600	4,100	4,300	13,500	15,700	16,700	23,200	27,600	34,000	72,100	82,600	93,100
Transportation and warehousing, and utilities	9,100	11,100	11,100	500	900	1,000	4,600	5,300	5,900	8,400	9,600	11,000	22,600	26,900	29,000
Information	5,000	4,400	4,300	300	300	400	1,100	1,400	1,500	2,500	3,000	3,100	8,900	9,100	9,300
Finance, insurance, real estate, and rental and leasing	13,400	14,700	16,300	1,100	1,000	1,100	3,900	4,400	4,900	7,600	8,900	9,800	26,000	29,000	32,100
Professional, scientific, management, administrative, and waste management services	25,500	30,900	35,400	1,300	1,100	1,300	8,500	9,900	10,900	22,200	25,300	32,100	57,500	67,200	79,700
Educational, health and social services	63,200	74,600	80,600	2,800	4,400	4,700	7,600	10,900	11,700	43,100	53,200	57,500	116,700	143,100	154,500
Arts, entertainment, recreation, accommodation and food services	24,300	28,000	32,500	2,200	2,800	3,100	7,400	8,800	9,500	16,500	21,600	24,400	50,400	61,200	69,500
Other services (except public administration)	10,400	10,700	20,400	600	500	700	2,800	3,100	3,400	6,700	7,100	10,800	20,500	21,400	35,300
Public administration	32,800	35,400	35,200	12,500	15,600	15,000	28,300	31,600	35,000	22,100	33,900	35,300	95,700	116,500	120,500
<b>TOTAL</b>	<b>326,300</b>	<b>352,100</b>	<b>389,100</b>	<b>37,900</b>	<b>43,800</b>	<b>47,400</b>	<b>133,100</b>	<b>150,400</b>	<b>161,700</b>	<b>236,900</b>	<b>287,600</b>	<b>326,000</b>	<b>734,200</b>	<b>833,900</b>	<b>924,200</b>

Source: California Employment Development Department (CEDD 2009a, 2009b)

Table 3.18-4 shows the projected 2035 total employment in Fresno, Kings, Tulare, and Kern counties and the study area. The projections show that employment in Fresno County will grow at a higher average annual rate than California. Together, the three other counties will grow at or below the state annual average; however, the region overall will experience an annual average job growth rate that is larger than the state as a whole. Over the next 25 years, employment is projected to grow by an annual average growth rate of 1.4% in the region. Of the four counties, Kings County shows the lowest annual average growth rate at 0.5%.

**Table 3.18-4**  
 Regional Long-Range Employment Projections, 2010 and 2035

Area	Jobs		Change 2009-2035	Annual Average Growth Rate
	2009 <sup>a</sup>	2035-RTP		
Fresno	458,366	618,700 <sup>b</sup>	35.0%	1.4%
Kings	64,640	72,080 <sup>c</sup>	11.5%	0.5%
Tulare	205,943	258,337 <sup>d</sup>	25.4%	1.0%
Kern	384,441	459,391 <sup>e</sup>	19.5%	0.8%
Four County Study Area	1,045,704	1,408,508	34.7%	1.4%
State <sup>d,e</sup>	16,059,400	20,381,000 <sup>f</sup>	26.9%	1.0%

<sup>a</sup> Cambridge Systematics, Inc., July 2010  
<sup>b</sup> Council of Fresno County Governments (2010)  
<sup>c</sup> Kings County Association of Governments (2010)  
<sup>d</sup> Tulare County Association of Governments (2010)  
<sup>e</sup> Kern Council of Governments (2010)  
<sup>f</sup> California Department of Finance (CDOF 2010b)

**C. UNEMPLOYMENT RATES**

Unemployment rates in the Central Valley have historically been higher than those for the rest of the state. Moreover, unemployment in the four counties and the study area has increased in the past year as a result of the ongoing nationwide economic recession, which has been exacerbated by the continued weakness in construction and state budget cuts (CVBT 2010). Table 3.18-5 shows annual civilian labor force<sup>2</sup> and unemployment rates in the region in 2000, 2008, and 2009. County unemployment rates in the study area were higher than those at the state level, ranging from 14.4% to 15.3%, compared to a state rate of 11.4%. The unemployment rates were lower for the cities of Hanford and Bakersfield than the other cities in the region. In comparison, the small rural cities of Wasco and Shafter experiencing unemployment rates of 26.1% and 25.1%, respectively.

<sup>2</sup> Civilian employment counts the number of working people by where they live.

**Table 3.18-5**

Labor Force Characteristics – Counties, Major Cities, and Unincorporated Areas in the Study Area

	2000	2008	2009
<b>Fresno County</b>			
Civilian Labor Force	388,100	432,000	438,700
Percent Unemployment Rate	10.4	10.5	15.1
<b>City of Fresno</b>			
Civilian Labor Force	204,400	227,600	230,300
Percent Unemployment Rate	9.7	9.8	14.2
<b>Kings County</b>			
Civilian Labor Force	49,200	59,100	61,200
Percent Unemployment Rate	10.0	10.5	14.6
<b>City of Hanford</b>			
Civilian Labor Force	19,500	23,400	24,100
Percent Unemployment Rate	8.7	9.1	12.8
<b>City of Corcoran</b>			
Civilian Labor Force	3,700	4,500	4,700
Percent Unemployment Rate	10.0	10.9	15.2
<b>Tulare County</b>			
Civilian Labor Force	171,800	200,000	205,400
Percent Unemployment Rate	10.4	10.7	15.3
<b>City of Visalia</b>			
Civilian Labor force	47,100	54,400	54,600
Percent Unemployment Rate	6.3	6.5	9.5
<b>City of Tulare</b>			
Civilian Labor force	20,000	23,200	23,500
Percent Unemployment Rate	8.8	9.1	13.0
<b>Kern County</b>			
Civilian Labor Force	293,500	361,100	366,900
Percent Unemployment Rate	8.2	9.7	14.4
<b>City of Wasco</b>			
Civilian Labor Force	6,400	8,000	8,500
Percent Unemployment Rate	15.6	18.5	26.1

**Table 3.18-5**

Labor Force Characteristics – Counties, Major Cities, and Unincorporated Areas in the Study Area

	2000	2008	2009
<b>City of Shafter</b>			
Civilian Labor Force	4,700	5,900	6,200
Percent Unemployment Rate	14.9	17.7	25.1
<b>City of Bakersfield</b>			
Civilian Labor Force	125,200	153,300	153,300
Percent Unemployment Rate	5.7	6.7	10.1
<b>Region</b>			
Civilian Labor Force	902,600	1,052,200	1,072,200
Percent Unemployment Rate	9.7	10.3	14.8
<b>California</b>			
Civilian Labor Force	16,857,600	18,251,600	18,250,200
Percent Unemployment Rate	4.9	7.2	11.4
Source: California Employment Development Department (CEDD 2009a, 2010)			

**D. HOUSING DEMAND**

The predominant housing type across the study area is single-family homes, with an average household size ranging from 3.1 to 3.3 persons. Section 3.12, Socioeconomics, Communities, and Environmental Justice, provides more information on existing housing characteristics in the region. Based on population projections, housing needs for the next 25 years will increase by 66% in the study area, with the highest rate in Kings County at nearly double the current housing stock (see Table 3.18-6).

**Table 3.18-6**

Existing Housing Units and Projected Housing Units

Location	2010	2035	Change	Annual Average Growth Rate
Fresno County	314,758	490,105	55.7%	2.2%
Kings County	42,777	85,805	100.6%	4.0%
Tulare County	142,524	253,059	77.6%	3.1%
Kern County	281,735	476,229	69.1%	2.8%
<b>Four County Study Area</b>	<b>781,794</b>	<b>1,305,198</b>	<b>66.9%</b>	<b>2.6%</b>
<b>California</b>	<b>13,591,866</b>	<b>17,249,125</b>	<b>26.9%</b>	<b>1.1%</b>
Estimates were prepared by URS estimating housing units based on population estimated contained in the CDOF files, divided by average household size.				
Source: CDOF (2010)				

### 3.18.5 Environmental Consequences

#### A. OVERVIEW

The projected population and employment growth for Fresno, Kings, Tulare, and Kern counties already reflects effects of the No Project Alternative. Populations are projected to increase in Fresno, Kings, Tulare, and Kern counties over 59%, 75%, 80%, and 81%, respectively, between 2010 and 2035. Employment is projected to increase by approximately 35%, 12%, 25, and 20%, respectively. Under the No Project Alternative, new housing and commercial development would accommodate the projected population and employment growth.

The analysis shows the HST alternatives would create additional employment and business opportunities and attract higher-wage jobs in comparison to the No Project Alternative. The HST alternatives, however, would only slightly raise the projected population and employment growth beyond growth anticipated under the No Project Alternative. Under current city and county general plans in the region, communities in the region have adequate space to accommodate planned growth by 2035 and HST-induced growth within their current spheres of influence.

The HST-induced growth would, therefore, not require farmland conversion or the extension of public infrastructure beyond what is currently planned. The *Final Bay Area to Central Valley High-Speed Train (HST) Program Environmental Impact Report/Environmental Impact Statement (EIR/EIS)* reported that the more compact development patterns likely to occur under the HST alternatives could reduce farmland conversion by 30,000 acres statewide by year 2030 (Authority and FRA [2008] 2010). Chapter 2, Alternatives, describes Vision California. This modeling tool describes the impacts of varying climate, land use, and infrastructure policies and associated development patterns resulting from these policies. Results are produced for a range of metrics, including greenhouse gases (GHG), air pollutants, fuel use and cost, building energy use and cost, residential water use and cost, land consumption, and infrastructure cost. Essentially, the tool quantitatively illustrates the connections between land use policies and water and energy use, housing affordability, public health, air quality, GHG emissions, farmland preservation, infrastructure investment, and economic development.

Analysis of population increase prepared for the HST project shows that population and employment growth would be consistent with and support regional growth management plans and programs, which encourage infill development, concentrating growth in urban areas, and providing transit options and connections for regional residents and workers.

#### B. NO PROJECT ALTERNATIVE

Section 2.4, describing the No Project Alternative, provides a detailed review of the growth scenario that would occur under the No Project Alternative, including continued high regional population growth rates through 2035. Fresno and Bakersfield counties' land use plans encourage infill and higher-density development in urban areas and concentration of uses around transit corridors to provide more modal choices for residents and workers. These policies are being implemented in the region regardless of whether HST alternatives are constructed. However, many of the land use scenarios in local plans include HST as a critical element in meeting land use goals and the No Project Alternative would not be consistent with these plans. Under the No Project Alternative, cities and counties would have a more difficult time reducing low-density development and encouraging higher-density development closer to downtowns, and fewer transportation choices would be available.

Construction of planned development and transportation projects, including the expansion of SR 99, would generate short-term construction employment in the region and a small number of long-term permanent jobs to maintain new and expanded facilities. Under the No Project

Alternative, fewer business and employment opportunities would exist in comparison to the HST alternatives. Employment growth would continue to follow existing patterns and would attract fewer of the higher-wage jobs in the financial, insurance, and real estate sectors than would occur under the HST alternatives.

**C. HIGH-SPEED TRAIN ALTERNATIVES**

**Construction Period Impacts**

***Common Regional Growth Impacts***

The construction of any of the alternatives would result in new near-term construction-related employment and increases in sales tax revenues related to construction expenditures. Section 3.12, Socioeconomics, Communities, and Environmental Justice, analyzes the changes in tax revenues. Construction could temporarily disrupt agricultural activities. However, the amount of agricultural land in the region that would be disturbed by construction would be extremely small (approximately 1,600 acres depending on the alternative chosen) and would not result in measurable changes in agricultural production in the region. Therefore, changes in agricultural production are not discussed further in this section.

***Construction-Related Employment Effects***

Construction impacts were evaluated for each year of the construction period as described in Chapter 2, Alternatives. Chapter 5, Project Costs, provides the detailed capital costs developed for each of the alternatives, including the design options, for the Fresno to Bakersfield Section of the HST project. For this analysis, about 20% of the costs for right-of-way acquisition, final design, and program implementation were removed because those costs would not measurably affect employment in the region.

Not all the construction costs would be spent locally in the four-county study area. Materials from outside of the study area would be used to construct the HST system (i.e., concrete sections of the guideway, train sections, and quarry materials). Experts in the transportation field helped derive the local portions of these costs as well as the portion spent during each of the years of construction. These costs were used with the RIMS II multipliers for the four-county study area to derive the indirect and induced employment impacts of the project. The direct regional employment estimates were derived by dividing the local construction payroll by an annual average construction wage of \$156,000. The \$156,000 annual average wage is the actual cost of the construction workers based on an average hourly wage (including benefits) of \$75.

**BNSF Alternative**

Table 3.18-7 shows the annual direct and the indirect plus induced employment estimates for the BNSF Alternative.

**Table 3.18-7**  
 BNSF Alternative Employment Impacts during Construction

	<b>Direct Employment (annual job years)</b>	<b>Indirect and Induced Employment (annual job years)</b>	<b>Total New Employment (annual job years)</b>
Year 1	350	800	1,150
Year 2	1,250	2,600	3,850

**Table 3.18-7**  
 BNSF Alternative Employment Impacts during Construction

	<b>Direct Employment (annual job years)</b>	<b>Indirect and Induced Employment (annual job years)</b>	<b>Total New Employment (annual job years)</b>
Year 3	1,250	2,600	3,850
Year 4	1,250	2,600	3,850
Year 5	1,250	2,600	3,850
Year 6	750	1,500	2,250
Year 7	750	1,500	2,250
Year 8	350	800	1,150
<b>Total</b>	<b>7,200</b>	<b>15,000</b>	<b>22,200</b>

Over the entire construction period, project expenditures under the BNSF Alternative would result in the creation of a total of 7,200 direct and 15,000 indirect and induced annual job years. This is a total of 22,200 additional annual job years created by the project in the four-county area over these eight years. During the peak period of construction, the additional 1,250 direct-construction annual job years created would comprise an additional 2% of the total projected 2016 construction jobs in the region (see Table 3.18-3). This small percentage increase could attract some additional workers to the area.<sup>3</sup>

**Corcoran Elevated Alternative**

Table 3.18-8 provides estimates of the additional jobs created if the Corcoran Elevated Alternative is constructed instead of the corresponding portion of the BNSF Alternative. Because the cost estimates for the Fresno to Bakersfield Section with this alternative were higher than with the corresponding portion of the BNSF Alternative, there are more jobs created by the project. Thus, the total direct, indirect and induced employment over the 5-year construction period of this alternative increases by 680 annual job years in the four-county study area. This includes an increase of 170 direct annual job years in the construction sector and 510 indirect and induced annual job years in other economic sectors. During the peak period of construction, the additional 50 direct-construction annual job years created would not be substantial enough to greatly attract workers to the region for these jobs, as the existing work force would be expected to fill these jobs.

<sup>3</sup> A 1-year full-time job equivalent is one person fully employed for 1 year. It is likely that some of these jobs created over the entire construction period would be held by the same person for more than a year. Therefore, the total annual employment during the heaviest period of construction is compared to 2016 employment in the construction sector to better identify the peak number of job openings created, and therefore the number of additional workers needed in the region.

**Table 3.18-8**

Corcoran Elevated Alternative Relative Employment Impacts during Construction Compared to the BNSF Alternative

	Direct Employment (annual job years)	Indirect and Induced Employment (annual job years)	Total New Employment (annual job years)
Year 1	+25	+80	+105
Year 2	+35	+100	+135
Year 3	+50	+150	+200
Year 4	+35	+100	+135
Year 5	+25	+80	+105
<b>Total</b>	<b>+170</b>	<b>+510</b>	<b>+680</b>

**Corcoran Bypass Alternative**

Table 3.18-9 provides estimates of the additional jobs created if the Corcoran Bypass Alternative is constructed instead of the corresponding portion of the BNSF Alternative. Because the cost estimates for the Fresno to Bakersfield Section with this alternative were lower than with the corresponding portion of the BNSF Alternative, there are fewer jobs created by the project. Thus, the total direct, indirect and induced employment over the 5-year construction period of this alternative decreases by 450 annual job years in the four-county study area. This includes a decrease of 145 direct annual job years in the construction sector and 300 indirect and induced annual job years in other economic sectors. During the peak period of construction, this alternative would create fewer jobs than the BNSF Alternative and would be less likely to attract workers to the region for these jobs as the existing work force would be expected to fill these jobs.

**Table 3.18-9**

Corcoran Bypass Alternative Employment Impacts during Construction Compared to the BNSF Alternative

	Direct Employment (annual job years)	Indirect and Induced Employment (annual job years)	Total New Employment (annual job years)
Year 1	-20	-45	-65
Year 2	-30	-60	-90
Year 3	-50	-90	-140
Year 4	-30	-60	-90
Year 5	-20	-45	-65
<b>Total</b>	<b>-145</b>	<b>-300</b>	<b>-450</b>

**Allensworth Bypass Alternative**

Table 3.18-10 provides estimates of the additional jobs created if the Allensworth Bypass Alternative is constructed instead of the corresponding portion of the BNSF Alternative. Because the cost estimates for the Fresno to Bakersfield Section with this alternative were lower than with the corresponding portion of the BNSF Alternative, there are fewer jobs created by the project. Thus, the total direct, indirect and induced employment over the 5-year construction period of this alternative decreases by 615 annual job years in the four-county study area. This includes a decrease of 200 direct annual job years in the construction sector and 415 indirect and induced annual job years in other economic sectors. During the peak period of construction, this alternative would create fewer jobs than the BNSF Alternative and would be less likely to attract workers to the region for these jobs as the existing work force would be expected to fill these jobs.

**Table 3.18-10**

Allensworth Bypass Alternative Employment Impacts during Construction Compared to the BNSF Alternative

	<b>Direct Employment (annual job years)</b>	<b>Indirect and Induced Employment (annual job years)</b>	<b>Total New Employment (annual job years)</b>
Year 1	-30	-65	-95
Year 2	-40	-80	-120
Year 3	-60	-125	-185
Year 4	-40	-80	-120
Year 5	-30	-65	-95
<b>Total</b>	<b>-200</b>	<b>-415</b>	<b>-615</b>

**Wasco-Shafter Bypass Alternative**

Table 3.18-11 provides estimates of the additional jobs created if the Wasco-Shafter Bypass Alternative is constructed instead of the corresponding portion of the BNSF Alternative. Because the cost estimates for the Fresno to Bakersfield Section with this alternative were lower than with the corresponding portion of the BNSF Alternative, there are fewer jobs created by the project. Thus, the total direct, indirect and induced employment over the 5-year construction period of this alternative decreases by 1,090 annual job years in the four-county study area. This includes a decrease of 350 direct annual job years in the construction sector and 740 indirect and induced annual job years in other economic sectors. During the peak period of construction, this alternative would create fewer jobs than the BNSF Alternative and would be less likely to attract workers to the region for these jobs as the existing work force would be expected to fill these jobs.

**Table 3.18-11**

Wasco-Shafter Bypass Alternative Employment Impacts during Construction Compared to the BNSF Alternative

	Direct Employment (annual job years)	Indirect and Induced Employment (annual job years)	Total New Employment (annual job years)
Year 1	-50	-110	-160
Year 2	-70	-150	-220
Year 3	-110	-220	-330
Year 4	-70	-150	-220
Year 5	-50	-110	-160
<b>Total</b>	<b>-350</b>	<b>-740</b>	<b>-1,090</b>

**Bakersfield South Alternative**

Table 3.18-12 provides estimates of the additional jobs created if the Bakersfield Bypass Alternative is constructed instead of the corresponding portion of the BNSF Alternative. Because the cost estimates for the Fresno to Bakersfield Section with this alternative were lower than with the corresponding portion of the BNSF Alternative, there are fewer jobs created by the project. Thus, the total direct, indirect and induced employment over the 5-year construction period of this alternative decreases by 195 annual job years in the four-county study area. This includes a decrease of 70 direct annual job years in the construction sector and 125 indirect and induced annual job years in other economic sectors. During the peak period of construction, this alternative would create fewer jobs than the BNSF Alternative and would be less likely to attract workers to the region for these jobs as the existing work force would be expected to fill these jobs.

**Table 3.18-12**

Bakersfield South Alternative Employment Impacts during Construction Compared to the BNSF Alternative

	Direct Employment (annual job years)	Indirect and Induced Employment (annual job years)	Total New Employment (annual job years)
Year 1	-10	-20	-30
Year 2	-15	-25	-40
Year 3	-20	-35	-55
Year 4	-15	-25	-40
Year 5	-10	-20	-30
<b>Total</b>	<b>-70</b>	<b>-125</b>	<b>-195</b>

**HST Stations and Heavy Maintenance Facility**

Analysts evaluated construction impacts separately for the stations and HMF. Table 3.18-13 shows estimated capital and construction costs estimates for the Fresno, Kings/Tulare Regional, and Bakersfield stations and the HMF at any of the alternative HMF sites in this section. The construction costs exclude right-of-way acquisition, final design, and program management, which were assumed to be about 20% of the actual construction costs.

**Table 3.18-13**  
 Fresno, Kings/Tulare Regional, and Bakersfield Stations and HMF Costs (2010 \$M)

	Fresno Station	Kings/Tulare Regional Station	Bakersfield Station	HMF
Capital costs	\$85	\$97	\$103	\$620
Construction Costs	\$70	\$81	\$85	\$517
Local Construction Costs	\$37	\$43	\$45	\$274
Local Construction Costs during Year 1	\$4	\$4	\$4	\$64
Local construction Costs during Year 2	\$7	\$9	\$9	\$123
Local Construction Costs during Year 3	\$11	\$13	\$14	\$87
Local Construction Costs during Year 4	\$9	\$11	\$11	NA
Local Construction Costs during Year 5	\$6	\$6	\$7	NA

Note: NA = not applicable as the HMF would be constructed in three years and therefore there are no costs associated with years 4 and 5.

Tables 3.18-14 and 3.18-15 show the annual direct and the indirect plus induced employment estimates for the stations and the HMF, respectively. These estimates were derived using the annual construction costs and the RIMS II multipliers. The total employment created over the construction period is estimated to be 1,050 annual job years for the stations. The total employment created over the construction period for the HMF is estimated to be 2,300 annual job years. Therefore, construction of the BNSF Alternative, stations, and HMF would result in approximately 22,000 annual job years, or an average of 2,700 annual job years. This would comprise less than 5% of the total projected 2016 construction jobs in the region. This increase would not be substantial enough to greatly attract workers to the region for these jobs as the existing work force would be expected to fill these jobs.

**Table 3.18-14**  
 Employment Impacts during Construction of the Stations

	Direct Employment (annual job years)	Indirect and Induced Employment (annual job years)	Total New Employment (annual job years)
Year 1	30	70	100

**Table 3.18-14**  
 Employment Impacts during Construction of the Stations

	<b>Direct Employment (annual job years)</b>	<b>Indirect and Induced Employment (annual job years)</b>	<b>Total New Employment (annual job years)</b>
Year 2	50	160	210
Year 3	80	240	320
Year 4	70	190	260
Year 5	40	120	160
<b>Total</b>	<b>270</b>	<b>780</b>	<b>1,050</b>

**Table 3.18-15**  
 Employment Impacts during Construction of the HMF

	<b>Direct Employment (annual job years)</b>	<b>Indirect and Induced Employment (annual job years)</b>	<b>Total New Employment (annual job years)</b>
Year 1	130	420	550
Year 2	260	740	1,000
Year 3	190	560	750
<b>Total</b>	<b>580</b>	<b>1,720</b>	<b>2,300</b>

**Project Impacts**

***Common Regional Growth Impacts***

This section discusses operations impacts for the HST project, without consideration of the differences among the HST alternatives. Operations impacts relate directly to operating cost estimates, and the differences between the alternatives are not great enough to affect operating costs.

Operation of any of the alternatives would result in direct effects on employment. The alternatives would also cause indirect effects on population and employment growth, housing demand, farmlands, and urban development. Section 3.12, Socioeconomics, Communities, and Environmental Justice, briefly describes the anticipated changes in tax revenues.

**Operations-Related Employment**

Project operation would improve state and regional connectivity while creating job opportunities across many sectors of the regional economy (Cambridge Systematics Inc. 2010; Kantor 2008). The employment created has the potential to draw workers to the region. Overall, it is expected that employment growth from project operation would be a net benefit for the region as a whole.

Agriculture defines the socioeconomic structure of the San Joaquin Valley. As an economic driver and a factor in the socioeconomic structure of the San Joaquin Valley, agriculture will likely continue to play a decisive role in the future. However, lower land and labor costs in the valley compared to those of other regions have attracted businesses to the region over the past two decades. Many businesses are attracted by the low-cost labor and the relatively low land prices. In 2002, the three leading sectors of employment in the San Joaquin Valley were government (260,000 jobs), agriculture (225,000 jobs), and health services (85,000 jobs). Manufacturing, especially in smaller metropolitan areas, is also important to the region's economic growth. Manufacturing is an important stage of value-added production, and its continued and expanded role in the processing of agricultural products is regarded as an important source of future economic growth (Cowan 2005).

For the BNSF Alternative, it is estimated that approximately 47,500 jobs would be created by 2035 in the region as a result of the operation of the HST system (Cambridge Systematics Inc. 2010). This total would include the direct jobs to operate and maintain the project in the region (approximately 2,300 jobs); the indirect and induced jobs created to support these new workers (approximately 3,200 jobs); and the additional jobs created as a result of the improved connectivity of the region to the rest of the state leading to increased competitiveness of the region's industries and to growth in the overall regional economy. This total increase in jobs as a result of project operation is estimated to be only a 3.2% increase in total employment above the 2035 estimate of 1.4 million total jobs in the region under the No Project Alternative (Cambridge Systematics Inc. 2010).

The San Joaquin Valley has greater unemployment and a lower per capita income than the state as a whole. In response to the persistent unemployment problem in the valley, local governments are making a concerted effort to help create jobs. Fresno, the largest metropolitan area in the region, has taken steps to begin improving its economic structure with the Fresno Regional Jobs Initiative (RJI) that aims to create 30,000 net new jobs that pay at least \$30,000 per year. Set in motion by an executive order from Governor Schwarzenegger in June 2005 and renewed in July 2010, the California Partnership for the San Joaquin Valley is a public-private partnership focused on improving the region's economic vitality and quality of life. Therefore, although job attraction has been growing in the area, efforts remain under way to continue to create jobs in the area. Jobs created directly and indirectly by operation of the HST would provide employment opportunities for residents in the area and would not be growth inducing.

### **Induced Population Growth**

This section discusses the ways in which the project could foster population growth, or the construction of additional housing, directly or indirectly, in the surrounding environment. In general, a project may foster spatial, economic, or population growth in a geographic area if it removes obstacles to population growth (e.g., the establishment or expansion of an essential public service or the extension of a roadway to an area). Included in this definition are projects such as the HST, which could facilitate travel between areas of California by providing an additional mode of transportation.

California's population is expected to increase by 12.5 million residents (34%) between 2010 and 2035 (CDOF 2010a). Much of this population growth will be accommodated in the metropolitan coastal areas or in Southern California's Inland Empire. However, growth and development in these regions are increasingly challenged because of environmental and quality-of-life issues. Despite economic pressure to grow, the combination of rising costs and local opposition is likely to push a substantial number of people in these areas to seek homes and employment elsewhere.

The San Joaquin Valley is a likely outlet for this population pressure, and is also a major source of growth from both the local population, as well as immigration (Teitz et al. 2005). The population of the San Joaquin Valley is projected to increase by 66.8% between 2009 and 2035, almost twice the population increase projected for California over this same time period. Within the Fresno to Bakersfield four-county project area, this increase would be approximately 73%. This population increase is projected due to three main points: 1) overflow from urban coastal areas where people are seeking affordable housing within commuting range of major metropolitan areas, 2) immigration, and 3) local population growth (Cowan 2005).

#### *Land Use Consumption*

As shown in Table 3.18-16, the HST would increase population by approximately 3%, or approximately 110,650 people over the 2035 population forecasted in regional planning documents. Based on a probable population density of approximately 10 persons per acre (see Section 2.4, No Project Description for justification), an additional 11,065 acres of land would be needed to accommodate this additional population.

The research conducted for the *Final Bay Area to Central Valley High-Speed Train (HST) Program Environmental Impact Report/Environmental Impact Statement (EIR/EIS)* (Authority and FRA [2008] 2010) found that regulatory-style efforts by cities to encourage increased density and a mix of land uses near rail stations have been effective in attracting higher-density development. The HST project would encourage increased densities resulting in more compact urban development around the Fresno and Bakersfield stations. Development around the downtown Fresno and Bakersfield HST stations potentially would consist of both consolidation of currently projected growth (under the No Project Alternative) and new regional employment and population associated with any of the HST alternatives. Given the dramatic population and employment growth projected in the Central Valley compared to the rest of the state, the presence of the HST stations would help direct this growth into higher-density and more sustainable development patterns, and help achieve the goals of regional growth management plans and General Plans in these areas. These development patterns would be consistent with local land use plans, which anticipate the HST station in Downtown Fresno and Downtown Bakersfield and would not induce unplanned growth. This consolidation of growth supports city planning policies that promote infill and higher-density development in existing urban areas.

The potential effect of the regulatory-style land use strategies discussed above (encouraging increased density and a mix of land uses near rail stations) was evaluated in the Statewide Program EIR/EIS. Results suggested that even a modest strategy focused on the immediate station areas could reduce the potential statewide urbanized acreage by an additional 30,000 acres under the HST system (Authority 2003). These results represent a low-end estimate of the possible densification effects of regulatory strategies in combination with the market forces likely to occur following the introduction of HST service. The research suggested that other jurisdictions have had some success in implementing more aggressive and region-wide regulatory-style strategies<sup>4</sup> in conjunction with high-capacity intercity and urban transit services (Authority and FRA 2005, [2008] 2010). Experience in these areas suggests that more aggressive strategies might be more attractive to policy makers because HST service could offer an economic rationale to developers to cluster new commercial, industrial, and residential development to provide easy access to downtown HST stations. Growth that is clustered in areas with easy access to the downtown Fresno and Bakersfield HST stations would represent the "Growing Smarter" scenario tested in the Vision California growth model. The Growing Smarter Model would result in many benefits, including reductions in auto trips, lower energy usage, reduction in greenhouse gas emissions, and less land consumption (urban sprawl). In general, the No Project Alternative does

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<sup>4</sup> Examples of these strategies include urban growth boundaries, maximum parking requirements, jobs-housing balance, greater diversity of land uses, higher densities, and higher service levels of mass transit.

not have the potential for such market incentive. See Chapter 2 for a description of Vision California and how policies affecting transportation and land use can be analyzed in advance.

In short, any of the HST alternatives would provide a strong incentive for directing urban growth and minimizing a variety of impacts that are frequently associated with growth. Additional land use strategies could be considered to further reduce development impacts on sensitive natural resources and provide further concentration of a wide variety of activities, making local transit options more feasible and possibly reducing local automobile travel. The HST project, and its resulting population and employment growth, would not only agree with regional growth management plans and programs, but would assist the region in implementing those plans.

While the downtown Fresno and Bakersfield stations are anticipated to direct growth in the surrounding area due to their urban locations, the Kings/Tulare Regional Station would not be located in an urbanized area. Since the station would be located in an agricultural area, the Authority would not encourage direct or indirect growth around this station to accommodate regional growth. See Section 3.13, Station Planning, Land Use, and Development, for a discussion of the potential for land use change around the Kings/Tulare Regional Station.

While some housing could be accommodated within the downtowns of Fresno and Bakersfield to accommodate population growth, more housing would be needed to accommodate the 2035 population under both the No Project and HST alternatives. Cities and counties in California are required to prepare Housing Elements to meet the State Housing Element law, which requires jurisdictions to adequately plan for existing and projected housing needs. These Housing Elements are updated on a regular basis, generally for a five-year period, which is a much shorter planning timeframe than what the general plans address. As population increases, cities and counties would entitle development to meet the housing need in the area. Therefore, all jurisdictions within the HST project area would be required to plan for and meet the housing need for the population as it increases.

Under the No Project Alternative, population growth would be commensurate with regional growth forecasts (see Section 2.4.1 No Project Alternative). Using the methods in Section 2.4.1 for relating population growth to conversion of farmland, regional growth forecasts indicate development of approximately 56,500 acres of farmland occurring in Fresno County, 11,800 acres in Kings County, 36,200 acres in Tulare County, and 68,400 acres in Kern County by 2035. However, this loss of farmland would occur even absent the HST, and development around HST stations would direct housing into higher-density and more sustainable development patterns and help achieve the goals of regional growth management plans and General Plans in these areas. Under city and county planning policies, current spheres of influence have adequate space to accommodate planned growth by 2035.

The economic growth study for the *Final Bay Area to Central Valley High-Speed Train (HST) Program Environmental Impact Report/Environmental Impact Statement (EIR/EIS)* (Authority and FRA [2008] 2010) found that the HST alternatives would reduce farmland conversion by 30,000 acres statewide because they would encourage more compact development patterns and more efficient land use. This trend would also be expected in the Fresno to Bakersfield Section, with less farmland conversion occurring long-term due to more efficient land use in urban areas.

HST-induced growth could require the development of more incremental energy production and/or transmission capacity, particularly in Fresno, Kings, Tulare, and Fresno counties, compared to the No Project Alternative. Because existing urban spheres of influence could accommodate the growth, the physical extension of utilities such as electrical transmission, natural gas, water supply, and wastewater lines would not be any greater than already planned under current city and county policies.

The HST project would serve the existing and future need for transportation, would help to provide employment opportunities in a region with high unemployment, and would encourage more compact urban development around the station areas. Based on the amount of undeveloped land within urban spheres of influence throughout each county, communities in the region have adequate space within their spheres of influence to allow for development to accommodate this additional population growth. Therefore, the HST would not induce unplanned growth.

**Consistency with Regional Growth Management Plans**

The Regional Transportation Plans (RTPs) project regional population and employment growth for year 2035, using projections developed by the California Department of Finance (CDOF). The economic growth analyses performed for the Statewide Program EIR/EIS (Authority and FRA 2005) and *Final Bay Area to Central Valley High-Speed Train (HST) Program Environmental Impact Report/Environmental Impact Statement (EIR/EIS)* (Authority and FRA [2008] 2010) also projected regional population and employment growth, which has been updated to year 2035 for both No Project and HST alternatives for use in this analysis. Both the RTP population projections and the Program EIR/EIS No Project projections estimate the amount of growth that would occur without implementation of the HST project. However, because they use different methods and assumptions to project this growth, the two sets of projections differ. The RTP population projections are 2.2% lower than the Program EIR/EIS No Project population projections, and the RTP employment projections are 2.7% higher than the Program EIS employment projections.

The HST alternatives would result in an additional 2% to 3% population growth and 3% of jobs growth in Fresno, Kings, Tulare, and Kern counties when compared to the No Project Alternative projections (see Table 3.18-16), based on the economic growth analyses performed for the Statewide Program EIR/EIS and *Final Bay Area to Central Valley High-Speed Train (HST) Program Environmental Impact Report/Environmental Impact Statement (EIR/EIS)* (Authority and FRA [2008] 2010). The economic growth study conducted for the *Final Bay Area to Central Valley High-Speed Train (HST) Program Environmental Impact Report/Environmental Impact Statement (EIR/EIS)* found that this additional population growth under the HST alternatives would be driven by regional job growth (that is, internal to Fresno, Kings, Tulare, and Kern counties) induced by the presence of the HST system, rather than by population shifts from the Bay Area and Southern California. In general, HST station areas would offer a more attractive market for commercial and office development than the same areas under the No Project Alternative. The HST alternatives would tend to attract more jobs in the services, government, and financial activities sectors than currently exist in the region. Research of urban rail systems elsewhere in the world found that industries needing large numbers of highly skilled and specialized employees are most attracted to rail station areas, and that a noticeable densification pattern is likely to emerge in the vicinity of many HST stations under regular market forces (Authority 2007). Such development patterns would be consistent with the General Plans of both the City of Fresno and the City of Bakersfield (City of Fresno 2002; City of Bakersfield 2007). Therefore, population growth in the San Joaquin Valley would occur absent the HST project, and the HST project alone would not meaningfully induce population growth.

**Table 3.18-16**  
 Regional Projected and Induced Population and Employment

County	RTP 2035 Projections	Program EIS 2035 No Project Projections	HST-Induced Growth	Total 2035 HST Alternative Projections	Growth Inducement
<b>Population</b>					

**Table 3.18-16**  
 Regional Projected and Induced Population and Employment

County	RTP 2035 Projections	Program EIS 2035 No Project Projections	HST-Induced Growth	Total 2035 HST Alternative Projections	Growth Inducement
Fresno	1,519,325	1,549,885	32,023	1,581,908	2%
Kings	274,576	275,143	8,269	283,412	3%
Tulare	809,789	811,225	24,379	835,604	3%
Kern	1,321,000	1,529,933	45,978	1,575,911	3%
<b>TOTAL</b>	<b>3,924,690</b>	<b>4,166,186</b>	<b>110,649</b>	<b>4,276,385</b>	<b>3%</b>
<b>Jobs</b>					
Fresno	618,682	610,166	18,549	628,715	3%
Kings	72,080	81,274	2,720	83,994	3%
Tulare	258,337	268,774	8,996	277,775	3%
Kern	459,391	513,055	17,171	530,226	3%
<b>TOTAL</b>	<b>1,408,493</b>	<b>1,473,269</b>	<b>47,436</b>	<b>1,520,710</b>	<b>4%</b>
RTP = Regional Transportation Plan For percent growth inducement, the calculations used the higher of the two growth inducement rates from the Cambridge Systematics' 2003 and 2007 reports (Cambridge Systematics 2003, 2007). Source: California Department of Finance (CDOF 2010b)					

### 3.18.6 Summary

The HST project would not induce growth substantially beyond what is projected in city and county general plans. Compared to the No Project alternative, the HST alternatives would encourage more compact, efficient land use in the region and would generate higher-density infill development around HST stations. These effects would not only agree with regional land use policies and growth management plans, but would assist communities in realizing the goals of these plans.

The proposed HST stations would be compatible with Fresno and Bakersfield planning goals. The station-area planning process has been organized so that the stations are sited and designed to maximize potential benefits. This process also allows cities to make relevant land use decisions well in advance of any construction that would occur. The Vision California effort and the San Joaquin Blueprint processes are working to explore the interaction of transportation and land use, which is intended to help local and regional governments envision land use changes based on major public transportation infrastructure improvements. Based on these efforts, the cities of Fresno and Bakersfield are developing site-specific plans to adapt to the potential of a HST station and realize new land use patterns in the downtown areas of Fresno and Bakersfield.

The Kings/Tulare Regional Station would not be located in an urbanized area. Since the station would be located in an agricultural area, the Authority would support local government regulations to continue to discourage growth in the agricultural area around the Kings/Tulare Regional Station.