CALIFORNIA
High-Speed Rail Authority

September 22, 2011

Ms. Jennifer Blonn
High-Speed Rail, NEPA Lead
Environmental Review Office
USEPA, Region 9
75 Hawthorne Street, CED-2
San Francisco, CA 94105

Mr. Zachery Simmons
Project Manager
Sacramento District
U.S. Army Corps of Engineers
1325 J Street, Room 1480
Sacramento, CA 95814

RE: Checkpoint A Concurrence: San Jose to Merced HST Section

Dear Ms. Blonn and Mr. Simmons:

In accordance with the NEPA/Section 404/Section 408 Integration MOU, the purpose of this letter is to propose the following project purpose statement for the San Jose to Merced high-speed train (HST) section.

> "The purpose of this project is to implement the San Jose to Merced section of the California High-Speed Train system to provide the public with electric-powered high-speed rail service that provides predictable and consistent travel times between major urban centers and connectivity to airports, mass transit, and the highway network in the South San Francisco Bay Area and the Central Valley; and to connect the Northern and Southern portions of the statewide HST system.
>
> For Clean Water Act section 404(b)(1), the USACE must take into consideration the applicant's need in the context of the geographic area of the proposed action and the type of project being proposed. The USACE has determined that the overall project purpose (as stated above) allows for a reasonable range of practicable alternatives to be analyzed and is acceptable as the basis for the USACE 404(b)(1) alternatives analysis.

Figure 1 shows the location of the San Jose to Merced Section as part of the proposed HST system which would connect and serve the major metropolitan areas of California, extending from San Francisco and Sacramento in the north to San Diego in the South. Figure 2 shows the location of the San Jose to Merced Section within California. This region contributes significantly to the statewide need for a new intercity transportation service that will connect it with the major population and economic centers and to other regions of the state.

In addition to the project purpose, the project objectives include the following:

- Provide intercity travel capacity to supplement critically overused interstate highways and commercial airports.
- Meet future intercity travel demand that will be unmet by present transportation systems and increase capacity for intercity mobility.
- Maximize intermodal transportation opportunities by locating stations to connect with local transit systems, airports, and highways.
- Improve the intercity travel experience for Californians by providing comfortable, safe, frequent, and reliable high-speed travel.
- Provide a sustainable reduction in travel time between major urban centers.
- Increase the efficiency of the intercity transportation system.
- Maximize the use of existing transportation corridors and rights-of-way to the extent feasible.
- Develop a practical and economically viable transportation system that can be implemented in phases by 2020 and generate revenues in excess of operations and maintenance costs.
- Provide intercity travel in a manner sensitive to and protective of the region's natural and agricultural resources and reduce emissions and vehicle miles traveled for intercity trips.

A description of the statewide and regional project need is contained in the enclosed document.

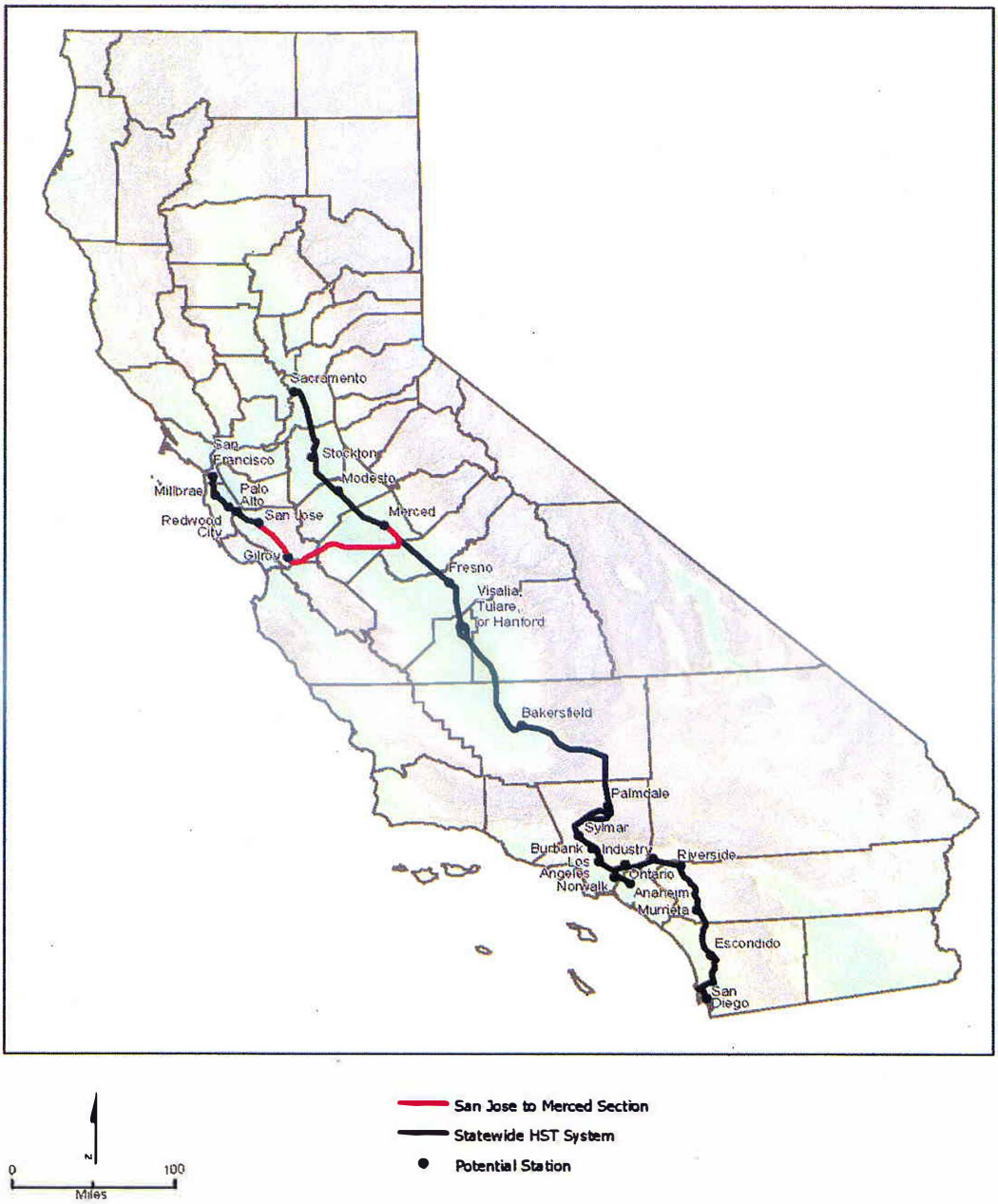
Should you have comments, please provide them to us no later than October 28, 2011. If there are no comments, please provide the Authority and the FRA written agreement of your Checkpoint A concurrence. Any questions regarding this submittal, please contact Bryan Porter at (916) 384-9522 or via email at porter@pbworld.com. Thank you.

Sincerely,

Dan Leavitt
Deputy Director

Enclosure: San Jose to Merced Chapter 1, Purpose & Need

cc: David Valenstein and Melissa DuMond, FRA
Connell Dunning, EPA
Veronica Chan, Los Angeles District, USACE
Ann Koby and Gary Kennerley, CHSRA PMT



Note: The San Jose to Merced Section and the Statewide System are described in Chapter 1, Purpose and Need, of the Draft EIR/EIS.

Figure 1
HST System in California

Note: The San Jose to Merced alternatives are described in Chapter 2, Alternatives, of the Draft EIR/EIS.

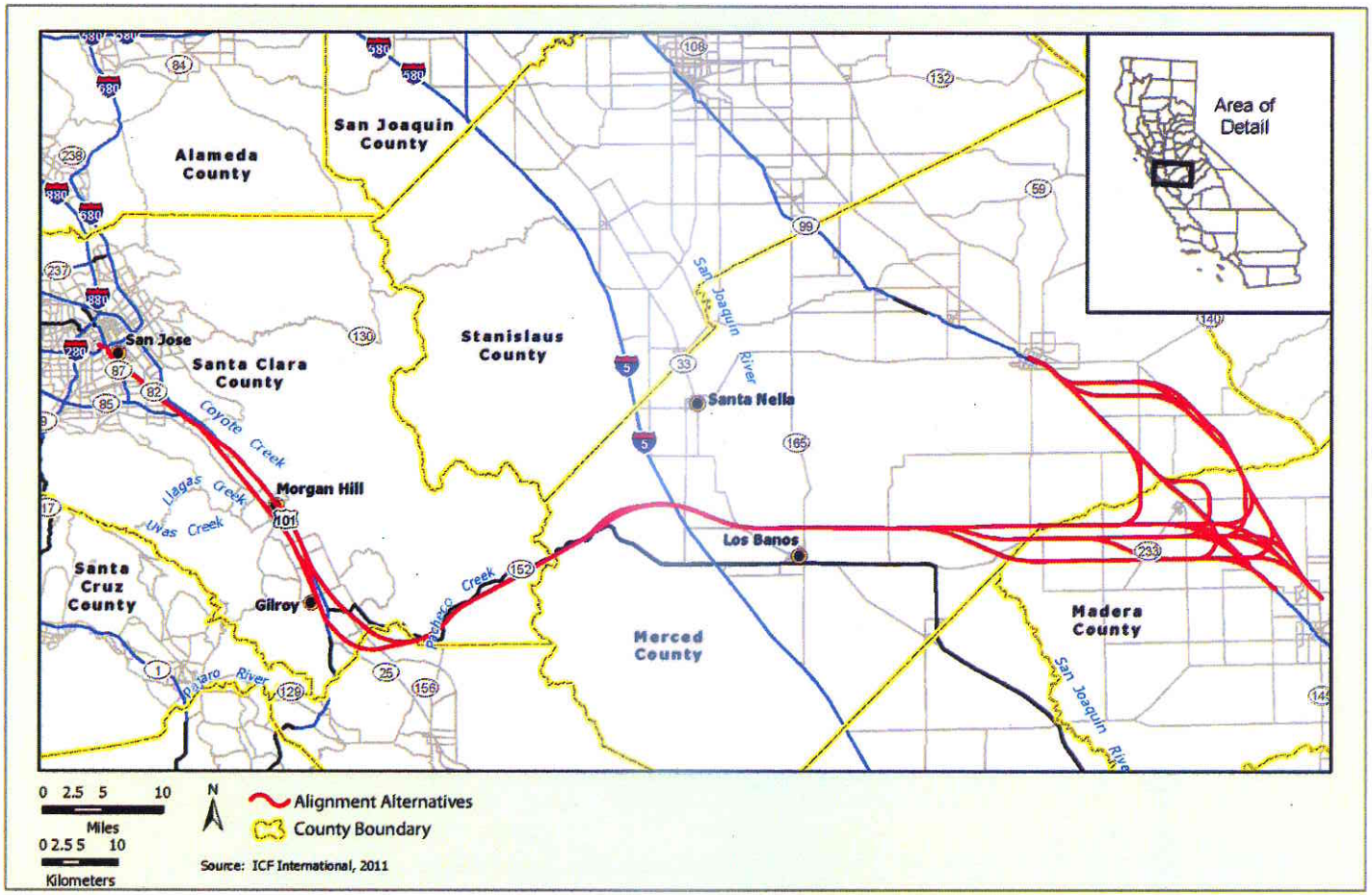


Figure 2
San Jose to Merced HST Section

1.0 Project Purpose, Need, and Objectives

1.1 Introduction

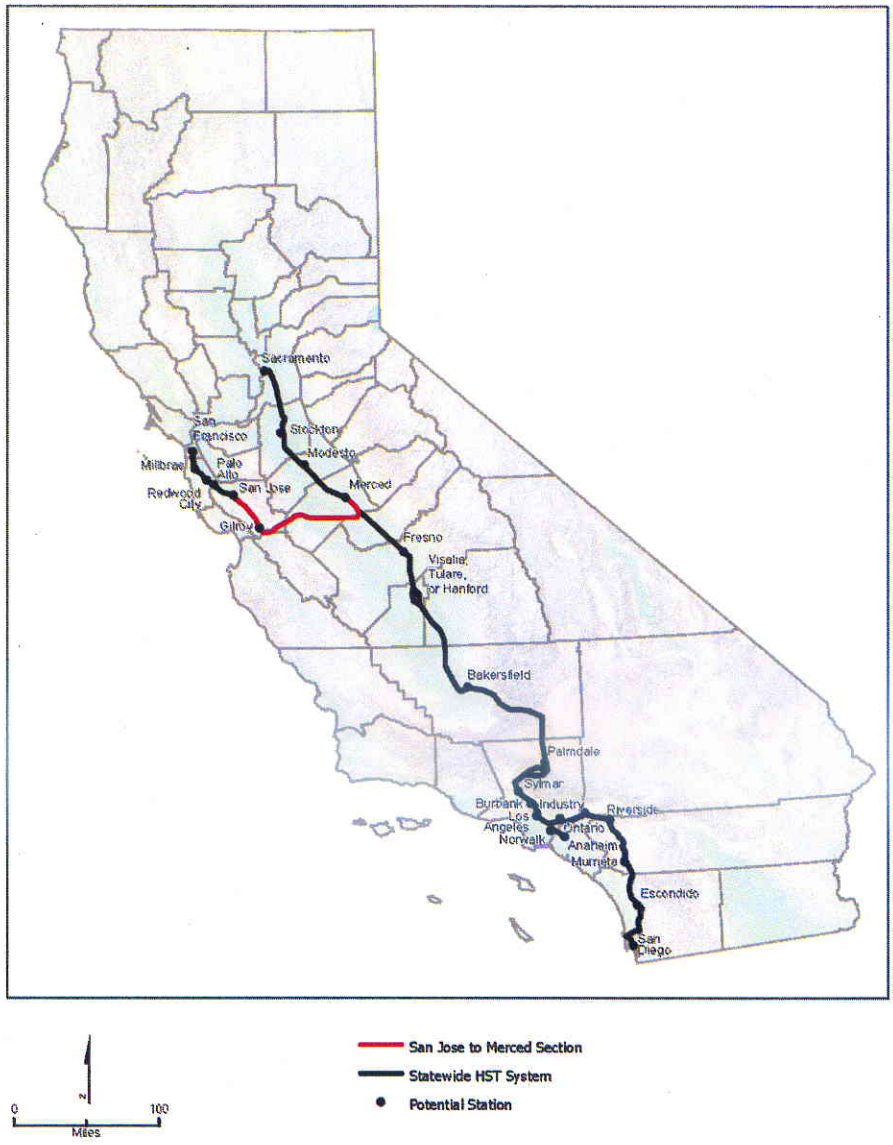
The High-Speed Train System: The California High-Speed Rail Authority (Authority) proposes to construct, operate, and maintain an electric-powered high-speed train (HST) system in California. When completed, the nearly 800-mile train system would provide new passenger rail service to more than 90% of the state's population. More than 200 weekday trains would serve the statewide intercity travel market.[1] The HST would be capable of up to 220-mile-per-hour (mph) operating speeds, with state-of-the-art safety, signaling, and automated train control systems. The HST system would connect and serve the major metropolitan areas of California, extending from San Francisco and Sacramento in the north to San Diego in the south (see Figure 1-1).

Following programmatic environmental review, the Authority and the Federal Railroad Administration (FRA) approved the HST system for intercity travel in California and selected corridors for project-level studies. Building a system of such magnitude, complexity, and cost is impractical to implement as a singular project. The Authority divided the HST system into nine project sections allowing phased system implementation. This approach is consistent with provisions of Proposition 1A, the Safe, Reliable, High-Speed Passenger Train Bond Act, adopted by California voters in November 2008.

The San Jose to Merced HST Project: The San Jose to Merced HST Project section would extend approximately 125 miles, starting at the Diridon train station in San Jose, where it would connect with the San Francisco to San Jose HST Project section. The planned HST line would run south of Gilroy and then east through the mountainous Pacheco Pass to Chowchilla, where it would connect with the Merced to Fresno HST Project section. Stations are proposed in San Jose, Gilroy, and Merced.

The HST Environmental Review Process: The Authority and FRA prepared a Statewide Program Environmental Impact Report/Environmental Impact Statement (Statewide Program EIR/EIS) evaluating the HST's ability to meet the existing and future capacity demands on California's intercity transportation system. The Authority and the FRA completed a Final Statewide Program EIR/EIS in August 2005 as the first phase of a tiered environmental review process (Tier 1) for the proposed California HST System. The Authority and the FRA completed a second program EIR/EIS in July 2008 to identify a preferred alignment for the Bay Area to Central Valley Section. The San Francisco Bay Area (Bay Area) to Central Valley HST Program EIR/EIS resulted in a decision by the Authority and FRA to connect the Bay Area and the Central Valley through the Pacheco Pass and to proceed along the Caltrain rail right-of-way from San Francisco to San Jose. In August 2008, the Town of Atherton and others challenged the adequacy of the Bay Area to Central Valley Program EIR for its compliance with the California Environmental Quality Act (CEQA). The final judgment in the case upheld the Program EIR in many respects, but required additional work in some areas to comply with CEQA. The Authority circulated a Revised Draft Program EIR with the necessary information in March and April 2010, prepared responses to comments, then circulated a Revised Final Program EIR in September 2010 and made a new decision selecting the Pacheco Pass Network Alternative servicing San Francisco via San Jose as the preferred alternative for further project-level environmental review.

[1] "Intercity rail passenger transportation" is defined at 49 U.S.C. 24102(4) as "rail passenger transportation except commuter rail passenger transportation." An intercity passenger rail service consists of a group of one or more scheduled trains (roundtrips) that provide intercity passenger rail transportation between bona fide travel markets (not constrained by state or jurisdictional boundaries), generally with similar quality and level-of-service specifications, within a common (but not necessarily exclusive or identical) set of identifiable geographic markets. Similarly, "commuter rail passenger transportation" is defined at 49 U.S.C. 24102(3) as "short-haul rail passenger transportation in metropolitan and suburban areas usually having reduced fare, multiple ride, and commuter tickets and morning and evening peak period operations."



Note: The San Jose to Merced Section and the Statewide System are described in Chapter 1, Purpose and Need, of the Draft EIR/EIS.

Figure 1
HST System in California

The Authority and FRA made these Program-level (Tier 1) decisions in coordination with the U.S. Environmental Protection Agency (USEPA) and the U.S. Army Corps of Engineers' (USACE's) determination that under the federal Clean Water Act, the Pacheco Pass Network Alternative serving San Francisco and Diridon Station in Downtown San Jose is most likely to yield the Least Environmentally Damaging Practicable Alternative (LEDPA). Tier 2 of the HST development process includes additional engineering and design and preparation of project-level EIR/EISs for all HST project sections. This San Jose to Merced EIR/EIS (Tier 2) evaluates proposed alignments and stations in site-specific detail to provide a complete assessment of the direct, indirect and cumulative effects of the proposed action, considers public and agency participation in the scoping process, and was developed in consultation with resource and regulatory agencies, including USEPA and USACE. FRA and the Authority intend this document to be sufficient to support Section 404 permit decisions and Section 408 permit decisions (as applicable) for alteration/modification of completed federal flood risk management facilities and any associated operation and maintenance, and real estate permissions or instruments (as applicable).

For the HST system, including the San Jose to Merced Section, the FRA is the lead federal agency for compliance with the National Environmental Policy Act (NEPA) and other federal laws. The USACE agreed by letter, dated December 30, 2009, to participate as a cooperating agency under NEPA. The Authority is serving as a joint-lead agency under NEPA and is the lead agency for compliance with CEQA.

Consistency with Federal Transportation Policy: In 2008, Congress enacted a major reauthorization of intercity rail passenger programs, creating a new priority for rail passenger services in the nation's transportation system. The Passenger Rail Investment and Improvement Act (PRIIA) of 2008 (Division B of Pub. L. 110-432, 122 Stat. 4907, October 16, 2008) authorized the appropriation of federal funds to support high-speed and intercity rail passenger services implementation, including authority for the Secretary of Transportation to establish and implement a high-speed rail corridor development program. In the American Recovery and Reinvestment Act of 2009 Congress appropriated $8 billion in capital assistance for high-speed rail corridors and intercity passenger rail service. Congress provided an additional $2.5 billion for this program in the Department of Transportation Appropriations Act, 2010 (Title I, Division A of the Consolidated Appropriations Act, 2010). FRA issued a strategic plan, *A Vision for High-Speed Rail in America* (FRA 2009) which describes the agency's plan for intercity passenger rail development and subsequent program guidance to implement the High-Speed Intercity Passenger Rail Program with funding provided by Congress through appropriations acts.

The HST system is also consistent with recent expressions of federal multimodal transportation policy, most notably the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users, the Transportation Equity Act for the 21st Century, and its predecessor, the Intermodal Surface Transportation Efficiency Act, which encourage public transportation investment that increases national productivity and domestic and international competition while improving safety and social and environmental conditions. Specifically, these policies encourage investments that offer benefits such as the following:

- Link all major forms of transportation.
- Improve public transportation systems and services.
- Provide better access to seaports and airports.
- Enhance efficient operation of transportation facilities and service.

1.2 Purpose of and Need for the HST System and the San Jose to Merced HST Section

1.2.1 Purpose of HST System

The program EIR/EISs identified and evaluated alternative HST corridor alignments and stations as part of a statewide HST system and established the purpose of the HST system. *The purpose of the statewide HST system is to provide a reliable high-speed electric-powered train system that links the major metropolitan areas of the state, and that delivers predictable and consistent travel times. A further objective is to provide an interface with commercial airports, mass transit, and the highway network and to relieve capacity constraints of the existing transportation system as increases in intercity travel demand in California occur, in a manner sensitive to and protective of California's unique natural resources* (Authority and FRA 2005).

1.2.2 Purpose of San Jose to Merced HST Section

The purpose of this project is to implement the San Jose to Merced section of the California HST system: to provide the public with electric-powered high-speed rail service that provides predictable and consistent travel times between major urban centers and connectivity to airports, mass transit systems, and the highway network in the South San Francisco Bay Area and the Central Valley; and to connect the Northern and Southern portions of the statewide HST system.

For Clean Water Act section 404(b)(1) compliance, the USACE must take into consideration the applicant's needs in the context of the geographic area of the proposed action and the type of project being proposed. The USACE has determined that the overall project purpose (as stated above) allows for a reasonable range of practicable alternatives to be analyzed and is acceptable as the basis for the USACE 404(b)(1) alternatives analysis.

1.2.3 CEQA Project Objectives for the HST System in California and in the Central Part of the San Joaquin Valley Region

The Authority's statutory mandate is to plan, build, and operate an HST system coordinated with California's existing transportation network, particularly intercity rail and bus lines, commuter rail lines, urban rail lines, highways, and airports. The Authority has responded to this mandate by adopting the following objectives and policies for the proposed HST system:

- Provide intercity travel capacity to supplement critically overused interstate highways and commercial airports.
- Meet future intercity travel demand that will be unmet by present transportation systems and increase capacity for intercity mobility.
- Maximize intermodal transportation opportunities by locating stations to connect with local transit, airports, and highways.
- Improve the intercity travel experience for Californians by providing comfortable, safe, frequent, and reliable high-speed travel.
- Provide a sustainable reduction in travel time between major urban centers.
- Increase the efficiency of the intercity transportation system.
- Maximize the use of existing transportation corridors and rights-of-way, to the extent feasible.
- Develop a practical and economically viable transportation system that can be implemented in phases by 2020 and generate revenues in excess of operations and maintenance costs.

- Provide intercity travel in a manner sensitive to and protective of the region's natural and agricultural resources and reduce emissions and vehicle miles traveled for intercity trips.

The approximately 125-mile-long corridor between San Jose and Merced is an essential part of the statewide HST system. It would provide access to a new transportation mode and contribute to increased mobility throughout California. This section would connect the Bay Area terminus of the HST system in San Jose to the Merced to Fresno HST Section via four counties: Santa Clara, San Benito, Merced, and Madera. Figure 1-1 shows how this section would connect the San Francisco Bay Area to the rest of the statewide HST system.

1.2.4 Statewide and Regional Need for the HST System within the San Jose to Merced Section

The need for an HST system exists statewide, with regional areas contributing to this need. The San Jose to Merced Section is an essential component of the statewide HST system.

The capacity of California's intercity transportation system, including the South Bay and Central Valley systems, is insufficient to meet existing and future travel demands. The current and projected future system congestion will continue to result in deteriorating air quality, reduced reliability, and increased travel times. The current transportation system has not kept pace with the increase in population, economic activity, and tourism within the state, including that in the South Bay and Central Valley. The interstate highway system, commercial airports, and conventional passenger rail system serving the intercity travel market are operating at or near capacity and will require large public investments for maintenance and expansion to meet existing demand and future growth over the next 25 years and beyond. Moreover, the feasibility of expanding many major highways and key airports is uncertain; some needed expansions might be impractical or are constrained by physical, political, and other factors. The need for improvements to intercity travel in California, including intercity travel between San Jose and the Central Valley, relates to the following issues.

- Future growth in demand for intercity travel, including the growth in demand in the South Bay and Central Valley areas.
- Capacity constraints that will result in increasing congestion and travel delays, including those in the South Bay and Central Valley areas.
- Unreliability of travel stemming from congestion and delays, weather conditions, accidents, and other factors that affect the quality of life and economic well-being of residents, businesses, and tourism in California, including the South Bay and Central Valley areas.
- Reduced mobility as a result of increasing demand on limited modal connections between major airports, transit systems, and passenger rail in the state, including the South Bay and Central Valley areas.
- Poor and deteriorating air quality and pressure on natural resources and agricultural lands as a result of expanded highways and airports and urban development pressures, including those in the South Bay and Central Valley areas.

Figure 1-2 shows the location of the San Jose to Merced Section within California. This region contributes significantly to the statewide need for a new intercity transportation service that will connect it with the major population and economic centers and to other regions of the state. The major population, economic, and political centers are located on the coasts of Northern and Southern California and in the Sacramento Valley. The following sections provide additional information about factors relevant to intercity travel between Merced, Fresno, the Sacramento Valley, the Bay Area, and Southern California.

Note: The San Jose to Merced alternatives are described in Chapter 2, Alternatives, of the Draft EIR/EIS.

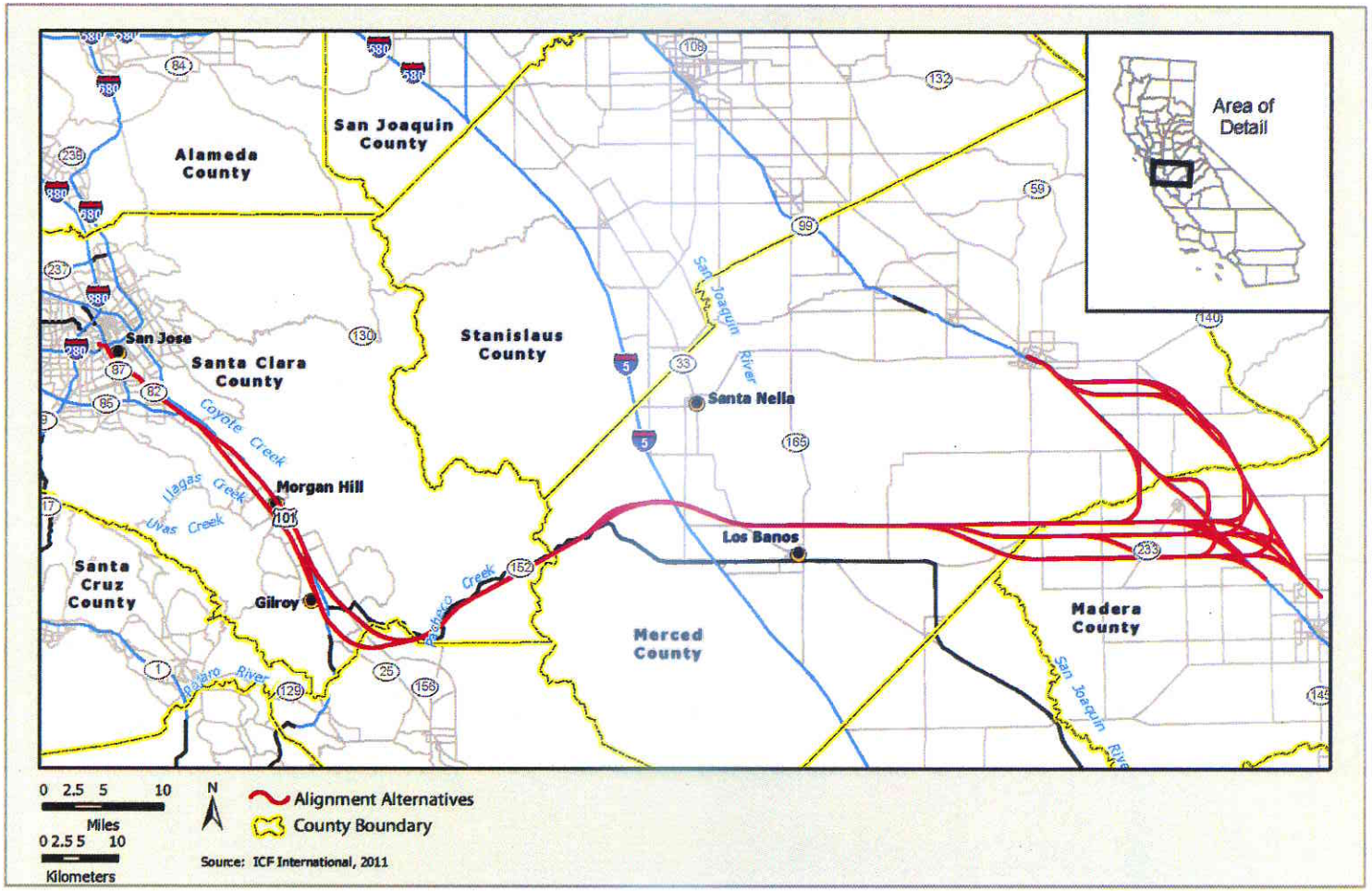


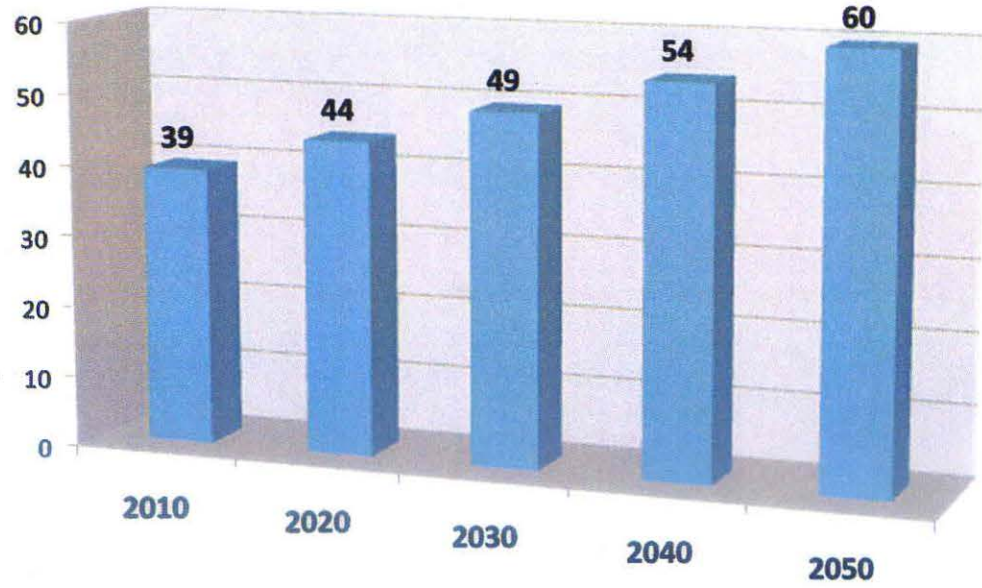
Figure 1-2
San Jose to Merced HST Section

A. TRAVEL DEMAND AND CAPACITY CONSTRAINTS

Intercity travel in California, including travel within the South Bay and Central Valley areas, is driven primarily by increased demand for such travel. Growing population, tourism, and economic growth generate this demand.

Population and Economic Growth

According to the California Department of Finance, California's population should increase by 12.5 million residents between 2010 and 2035. This means an increase from about 39 million to 51.5 million people (more than 30% growth). Figure 1-3 illustrates growth in California. The population should grow steadily to about 60 million people by 2050 (California Department of Finance 2010).



Source: State of California, Department of Finance, Population Projections by Race/Ethnicity for California and its Counties 2000 - 2050, March 2010.

Figure 1-3
Existing and Future California Population (in millions)

Santa Clara County is projected to experience an increase of 609,400 residents (33%) and 506,350 jobs (56%) between 2010 and 2035. These increases outpace the entire nine-county Bay Area, which is projected to gain 1.73 million new residents (23%) and 1.63 million new jobs (47%). Job growth in Santa Clara County will slightly outpace region-wide job growth between 2010 and 2035 (Association of Bay Area Governments [ABAG] 2009). The City of San Jose is the largest city in Santa Clara County. The population of San Jose is projected to grow 41% between 2010 and 2035 (ABAG Projections 2009). This growth rate is expected to be faster than growth in Santa Clara County and the Bay Area, and will increase San Jose's share of Santa Clara County population from 54% in 2010 to 57% in 2035. The population growth will put tremendous pressure on the existing transportation network. San Jose is a major regional employment center, and is home to the largest concentration of high-technology engineering, computer, and microprocessor companies in the region. Job growth in San Jose is also projected to be faster than in Santa Clara County and the Bay Area. San Jose's share of Santa Clara County jobs is projected to increase from 41% in 2010 to 50% in 2035.

While San Jose is projected to take on most of Santa Clara County's growth, a reasonable share of the growth would occur in the southern parts of the County. By 2035, Morgan Hill and Gilroy are anticipated to grow by 9,700 residents (25%) and 19,800 residents (40%), respectively. The workforce is also anticipated to grow significantly in the southern county, by approximately 82% in Morgan Hill and 48% in Gilroy. Together, these two cities would account for over 50,990 new jobs in 2035 (ABAG Projections 2009).

The Association of Monterey Bay Area Government's (AMBAG) Monterey Bay Area 2008 Regional Forecast for employment, housing, and population assumed that San Benito County's trend toward urbanization will continue. Between 2010 and 2035, the county population is expected to increase by 62,431 persons (52%). During this time period, the county's employment growth of 27% is considerably less than its population growth. This difference in employment and population growth, coupled with a shift from agriculture to non-agriculture employment indicates that more persons will travel outside San Benito County for work (Draft 2010 San Benito County Regional Transportation Plan).

The Central Valley is experiencing a population boom, with a current population of 4 million. This population is expected to grow to more than 6.6 million people by 2035. The population in the San Joaquin Valley has exceeded the statewide growth rate since 1970 (Council of Fresno County Governments 2007); more than 10% of the state's population resides in this region. San Joaquin County, which is within the central part of the San Joaquin Valley region, will continue to lead the way with a population increase of more than 200% by 2050, while the populations of Merced and Madera counties are projected to increase by 54.1%, and 105.6%, respectively, between 2009 and 2035. Much of the population growth is projected to stem from the overflow from urban coastal areas as people seek affordable housing within commuting range of major metropolitan areas.

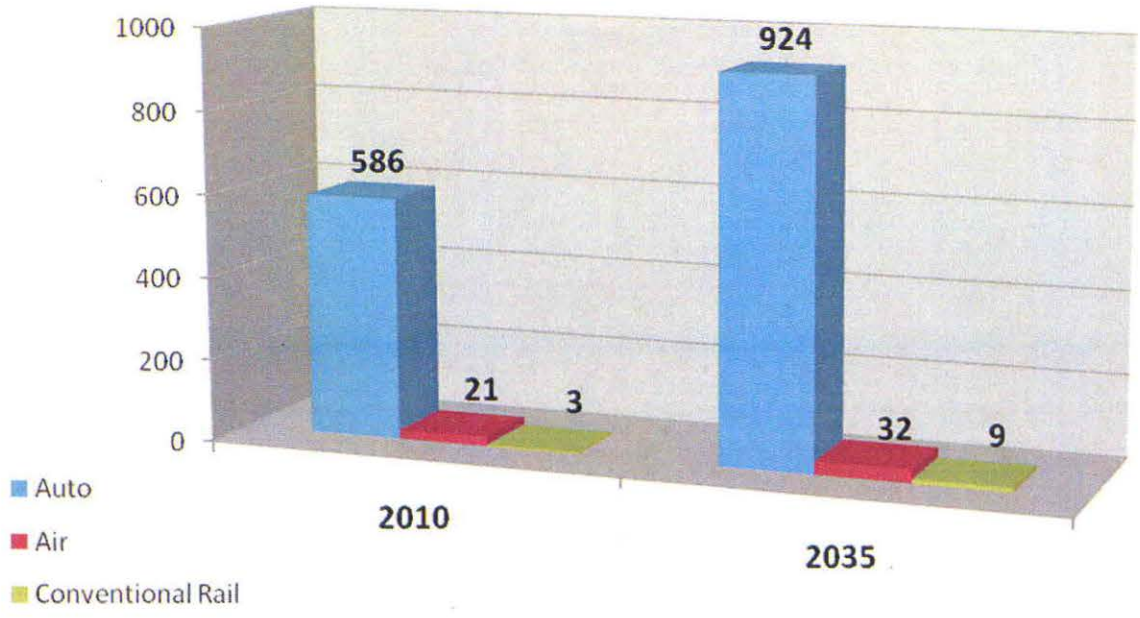
The City of Merced will continue to be a major economic growth center. In Merced and Madera counties alone, employment is anticipated to nearly double from approximately 138,000 jobs in 2010 to almost 250,000 jobs in 2035 (California Employment Development Department 2010a). Merced has long been a northern San Joaquin Valley economic center, which is fueled by agricultural industry producing high-value crops and other agricultural products. Merced County is the fifth-leading agricultural county in California, and agriculture is one of the Merced County's main revenue sources. Milk products from Merced's commercial dairies are major revenue generators; other important products include poultry, beef, and crops grown in commercial quantities, such as almonds and tomatoes. Nearly two out of every five jobs in Merced County are in agriculture or related to agricultural production (California Employment Development Department 2010a). About 10% of the Merced County's personal income is derived from agriculture-related activities. (U.S. Department of Commerce 2010). Merced is also the home of the newest campus in the University of California system.

The growth of this economic center combined with the region's reputation for agricultural production, would mean that congested local roads, highways, airports, and transit systems in the central part of the San Joaquin Valley region will increase. They will face unprecedented demand in the years ahead.

Travel Demand

In 2010, Californians will make an estimated 610 million trips per year between the state's metropolitan regions, including those in Northern and Southern California and in between. Approximately 209 million of these trips will be journeys of at least 100 miles; by 2035, this number is expected to increase to more than 271 million trips per year. Overall, intercity travel in California is forecast to increase by more than 58% between 2010 and 2035, from 610 million trips to about 965 million trips (see Figure 1-4). More than 50% of the intercity travel market between the state's major metropolitan regions is expected to have a destination within the Bay Area to Central Valley region.

The automobile will continue to predominate in intercity travel, and by 2035 is expected to account for more than 95% of all intercity travel and close to 90% of longer intercity trips. Figure 1-5 illustrates the major routes and airports used for intercity travel between the markets potentially served by the HST system.



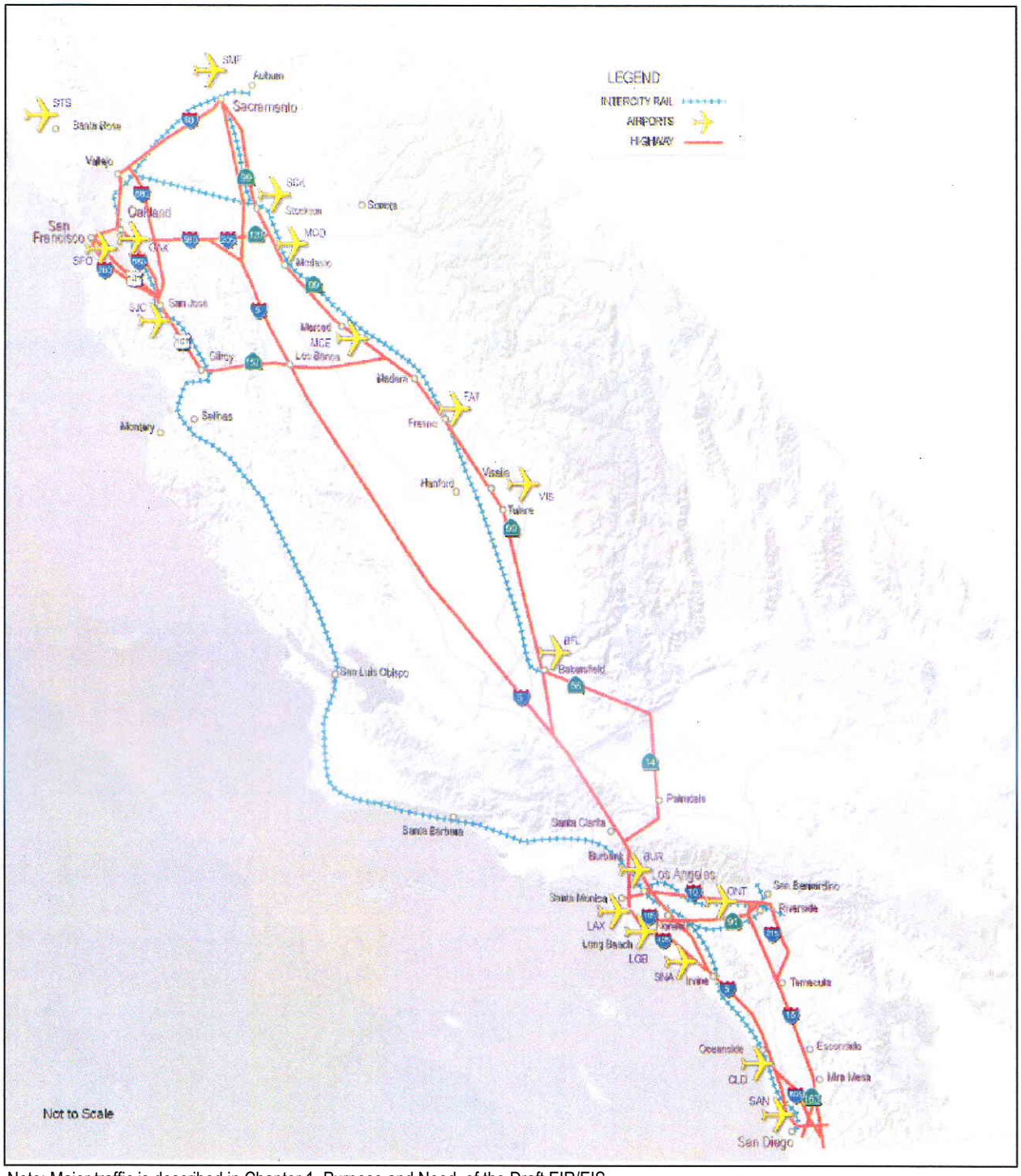
Source: Parsons Brinckerhoff 2010, based on Cambridge Systematics 2007 projections.

Figure 1-4
Intercity Trips (in millions)

The San Francisco Bay Area and the Central Valley have experienced substantial urban growth over the past two decades. Table 1-1 presents the forecasted jobs-to-housing ratios for 2010 and 2035 for the San Jose to Merced HST region. The jobs-to-housing ratio is an indicator of the balance between employment and housing in a geographical area, and can serve as an indicator of the amount of commute travel demand. A low jobs-to-housing ratio would suggest that there are relatively few job opportunities for the community's residents and they would need to commute elsewhere for work, while a high ratio would suggest a "surplus" of jobs, with employees needing to commute from the surrounding areas. As shown in Table 1-1, all study areas in Santa Clara County have job/housing ratios greater than one, while ratios in other areas are less than or closer to one. The jobs-to-housing ratio will provide another indication that travel demand will continue to rise in the next 25 years.

The Valley Transportation Authority plans to implement several improvements to US 101 and SR 152 in order to meet the growing demands of Santa Clara County and adjacent areas by 2035. Additionally, the Merced County Association of Governments also plans to improve SR 99 and SR 140 in the Central Valley. However, these improvements will not fully meet ideal operating standards set forth in the Valley Transportation Plan 2035 and 2011 Regional Transportation Plan due to a projected increase in population, jobs, and consequently, traffic congestion. Over the next 25 years, Santa Clara County will only be able to increase roadway capacity by roughly 5–6%.

The widening gap between growth of jobs and population and roadway capacity expansion means that a growing pool of the region's residents will face congested travel conditions that will persist for longer periods of time, as more drivers adjust their time of travel to avoid the most heavily congested commute hours. For the Central Valley, increased congestion and through traffic within the region would cause about one-fourth of all travel to be "stuck in traffic" by 2035.



Note: Major traffic is described in Chapter 1, Purpose and Need, of the Draft EIR/EIS.

Figure 1-5
Major Intercity Travel Routes and Airports

Table 1-1
Jobs-to-Housing Ratio in the San Jose to Merced HST Region, 2010 and 2035

Area	2010			2035		
	Jobs	Households	Ratio	Jobs	Households	Ratio
Cities[a]						
San Jose[b1]	369,500	305,140	1.21	708,980	435,110	1.63
Morgan Hill[b]	13,520	12,400	1.09	24,640	15,980	1.54
Gilroy[b]	17,850	14,330	1.25	26,350	19,970	1.32
Merced[c]	25,800	27,167	0.95	–	50,700	–
Chowchilla[d]	4,593	4,715	0.97	8,215	8,434	0.97
Counties						
Santa Clara County[1]	906,270	614,000	1.48	1,412,620	827,330	1.71
Madera County	52,826	54,626	0.97	94,480	97,707	0.97
San Benito County	17,380	19,187	0.91	21,700	29,683	0.73
Merced County	85,200	83,861	1.02	155,300	149,500	1.04

Notes:
a. The table selectively presents information for cities where stations are being considered
b City in the County of Santa Clara
c City in the County of Merced
d City in the County of Madera

Sources:
1. Association of Bay Area Governments Projections 2009; Merced County Association of Governments, June 2010; Madera County 2007 Regional Transportation Plan.

Freeway Congestion and Travel Delays

The overall daily freeway congestion in the San Francisco Bay Area increased by about 27%, or 30,000 daily vehicle-hours of delay between 1998 and 2008 (California Department of Transportation 2009). With 27,000 daily vehicle-hours of delay in 2008, Santa Clara County ranked 5th among the most congested counties in the state of California in 2008. Merced County ranked 22nd with 126 daily vehicle-hours of delay. In comparison, both Madera and San Benito counties experienced little traffic congestion, with less than an hour of daily vehicle-hours of delay.

In the San Jose area, congestion conditions are observed during the morning peak period on US 101 (northbound direction), SR 85 (westbound), SR 87 (northbound), I-280 (westbound), I-880 (northbound), and I-680 (northbound). Morning peak congestion was also observed on US 101 (northbound) in the Morgan Hill area. During the evening peak period, congestion conditions were reported in 2007 on southbound US 101, southbound I-880, southbound SR 87, eastbound I-280 and eastbound SR 85.

Caltrans travel time and speed studies indicate that major delays occur on both US 101 and I-280. Peak congestion generally occurs going into Silicon Valley in the morning and going out in the afternoon. In Santa Clara County, almost all segments of US 101 are very congested, from SR 152 in Gilroy to the Route 85 interchange in Mountain View. Peak-hour travel times in 1999 on almost all of this 43-mile-long stretch of US 101 were double, or in some cases, triple, travel times that would be experienced at 65 mph. (Caltrain 2004:3-125).

In 2010, the vehicle miles traveled (VMT)[2] in Santa Clara, Merced and Madera counties are projected at approximately 43.8, 7.4 and 4.5 million, respectively. Table 1-2 shows forecast travel increases by county. The VMT in Merced and Madera counties are forecasted to almost double by 2035. In Santa Clara County, approximately 52% of all VMT occurs in the state highway system. In comparison, about 70% of all VMT occurs on the state highway system in Merced and Madera counties (California Department of Transportation 2009b).

Caltrans' goal for state highway facilities is LOS B through D on a scale of A to F, where A is unencumbered travel and F is stop-and-go traffic flow. Without additional system improvements, Caltrans estimates that by 2030, service will likely deteriorate to an unacceptable LOS E and F because of increased interregional and statewide travel (Caltrans 2009a). If California wanted to bring the state route system facilities to an acceptable LOS, the state would need to spend several billion dollars, resulting in large six to eight-lane facilities on multiple state routes, which would not provide any new travel options or added connectivity. As a result of the regional and statewide population growth, the regional transportation system is expected to experience a substantial increase in congestion. Consequently, there will be a continued lack of reliable, predictable travel between the different regions within the study area and with the rest of the state.

Table 1-2
Increase in Total Daily Vehicle Miles Traveled

County	2010 Daily VMT[a]	2035 VMT (estimate)[b]	Increase in VMT (% of 2010 VMT)
Santa Clara	43,770,411	50,863,603	16
Merced	7,398,932	13,534,370	83
Madera	4,469,260	8,532,552	91
Total (three counties)	55,638,603	72,930,525	31

[a] Source: California Department of Transportation 2008b.
[b] Source: Estimates for the No Project Alternative were provided by Parsons Brinckerhoff on February 15, 2010.

Table 1-3 shows the statewide forecasting model results for expected growth in traffic volumes on major highways within the next 20 years. These trips include more than 339 million annual intercity trips between the Central Valley and other metropolitan areas, or 38% of all intercity travel. As shown in Table 1-3, daily traffic volume on US 101, just south of San Jose, which falls within the San Jose to Merced HST Study Corridor, is projected to increase 60% by 2035.

The major roadways that parallel the HST study corridor include US 101 and SR 152. Plans to improve several major facilities within the San Jose to Merced corridor, such as US 101, SR 152, and SR 99, are currently in various planning stages and are anticipated for completion over the next 10 to 15 years. Proposed improvements identified in the Valley Transportation Plan 2035 and the 2011 Regional Transportation Plan would increase capacity by widening the facilities within the San Jose to Merced corridor. These plans would provide additional travel lanes on freeways, or implement auxiliary lanes, or re-classify existing facilities. These improvements would not be sufficient enough to ease traffic flow within the region, and would also not be enough to offset the projected increase in population and jobs. Transit projects and other more efficient and sustainable modes of travel are heavily encouraged by both the VTP 2035 and the 2011 RTP, which covers the entire San Jose to Merced corridor.

[2] Annual VMT is the total number of miles traveled by vehicles in the given area (county) during a 1-year period.

Table 1-3
Travel Growth for Intercity Highways

Major Highways	Average Daily Volume 2010	Average Daily Volume 2035	Percent Change (%)
I-5 between San Diego and Los Angeles (Orange County-Los Angeles County line)	185,000	342,000	85
I-5 between Los Angeles and Bakersfield (at Santa Clarita)	222,000	332000	50
SR 99 in Central Valley (north of Bakersfield)	58,000	83,000	44
U.S. Highway 101 just south of San Jose	158,000	253,000	60
I-580 between Bay Area and Stockton (at Livermore)	156,000	191,000	23
Source: Parsons Brinckerhoff 2010, based on Cambridge Systematics 2007 projections.			

Freight Movement

Vehicle travel in the region competes with freight movement along US 101, SR 152, SR 99 and other local roads. The majority of freight in the San Jose to Merced HST Study area is transported by trucks. Trucks transport more than 80% of goods movement in the Bay Area. Most of the truck traffic within the study corridor in Santa Clara County is carried on US 101. The US 101 corridor will continue to be one of the two most significant intraregional goods movement corridors in the San Francisco Bay Area. Metropolitan Transportation Commission's (MTC) Regional Goods Movement Study forecasts conflicts between truck traffic patterns and commuter patterns in this corridor to increase in the future.

The majority of freight in Merced County is also moved by trucks. Rail accounts for about 5% of the total, while air is less than 0.1% (Merced County Association of Governments 2007, 2009). Merced County has both agricultural and light industrial demands for trucking.

Major highway corridors in Merced County experience relatively high truck traffic, between 20 and 30% of the vehicular traffic. SR 99 and I-5 are the primary north/south interregional routes used by trucks. SR 99 is a significant interregional route of state-wide importance and carries most of the truck-transported agricultural goods. Other state highways and county roads play major roles in distribution as well.

The freight rail system in the study corridor is operated by the Union Pacific Rail Road (UPRR) and Burlington Northern Santa Fe Railway (BNSF), which provide Class I rail service to the San Joaquin Valley. Freight trains operate daily along nearly the entire length of the Caltrain corridor. Between Gilroy and San Jose, UPRR typically operates three to five trains in each direction. The train operation is at random and do not follow a set schedule. UPRR does not project rail traffic growth beyond a five-year horizon and for the next five years, UPRR does not anticipate a notable change in freight rail traffic.

The BNSF and UPRR companies provide freight movement in and through Merced County on a daily basis. Several industrial/manufacturing and agricultural companies within the county use rail freight service. The largest of these rail freight service users are located in the cities of Merced, Atwater, and Los Banos.

Conventional Passenger Rail

Rail services in the study corridor are provided primarily by Caltrain and Amtrak. Caltrain serves the western part of the study area that falls within Santa Clara County, operating from San Francisco to Gilroy, via San Jose. Caltrain is managed by SamTrans and operates under the jurisdiction of the Peninsula Corridor Joint Powers Board (PCJPB). The majority of the Caltrain service is between San Francisco and San Jose with about half the service also serving the Tamien Station. Three peak hours trains run north from Gilroy in the morning peak, stopping at the San Martin, Morgan Hill, Blossom Hill and Capitol stations south of San Jose, with the same stations served southbound in the evening peak.

Double-tracking segments of Caltrain track between San Jose and Gilroy is a recommended Capital Improvement Project (Metropolitan Transportation Commission 2009). Double-tracking would assist in increasing the frequency of trains in the San Jose to Gilroy Caltrain Corridor. The existing peak hour Caltrain service is also proposed to be extended to Santa Cruz and Monterey Counties, stopping in Watsonville, Castroville and Salinas. The service is currently under study by the Transportation Agency of Monterey County (TAMC). This service is anticipated to start in 2013.

The existing Amtrak passenger rail network in the San Jose to Merced Section HST study area includes the San Joaquin Route, which follows the BNSF corridor through the study area and the Coast Starlight, which follows the UPRR from San Jose to Gilroy (as part of its West Coast route from Seattle to Los Angeles, via Sacramento and the Bay Area). While the Coast Starlight passes through the study area, it does not stop in Gilroy.

The San Joaquin Amtrak Route includes two trips daily in each direction from Sacramento to Bakersfield, and four trips daily in each direction between Oakland and Bakersfield, for a total of six daily roundtrips serving Merced. The intercity route carried over 819,000 riders in 2007 with an on-time performance of 67.9%. The scheduled running time between Bakersfield and Oakland averages 6 hours 9 minutes, at an average speed of 51.3 miles per hour. The maximum speed on the route is 79 mph (California Department of Transportation 2008). The San Joaquin Amtrak Route operates over the BNSF freight line in the San Jose to Merced Section HST study area. There are existing Amtrak stations in Merced and Madera.

The California State Rail Plan 2007/8–2017/18 (California Department of Transportation 2008) envisions an increase in service to eight daily roundtrips by 2018, carrying 1,430,000 annual riders, with 90% on-time performance and seeks to reduce the travel time from Bakersfield to Oakland to less than six (6) hours. Additional Amtrak service is also proposed from the Bay Area to Los Angeles, the Coast Daylight, which would run southbound through the study corridor in the morning peak and northbound in the evening peak. The service is currently under study by the Coast Rail Coordinating Council.

Travel by train can take longer than travel by car. Drivers from Bakersfield can reach Oakland in approximately 5 hours, 1 hour faster than the Amtrak's average travel time, and with the convenience of direct door-to-door travel. Passenger train service must yield to freight trains, resulting in longer travel times and less schedule predictability for train passengers. To increase ridership on the San Joaquin Route, the California State Rail Plan 2007–2008 to 2017–2018 (California Department of Transportation 2008a) seeks to improve the frequency of travel and on-time performance by implementing capital and operational improvements.

Air Travel

Air travel demand has been growing steadily in California and nationwide; federal, state, and regional transportation plans forecast continued growth in air travel over the next decades. By 2009, air travel between the Los Angeles and San Francisco metropolitan areas was the second busiest air route in the United States with a total of 8.5 million trips when combined with air travel trips between the Los Angeles and San Jose metropolitan areas (Brookings 2009). In 2009, approximately 13 million passengers are

estimated to have traveled between all major Northern and Southern California airports (Research and Innovative Technology Administration/Bureau of Transportation Statistics 2009). In addition, far fewer commercial air trips were made to and from Central Valley airports, which do not fall within the top 100 corridors in the United States (Table 1-4). Without HSTs, more than 3% of all intercity travel statewide and approximately 10% of longer intercity trips (those in excess of 100 miles) are forecast to be air travel.

Two airports currently provide commercial service in the study corridor: Norman Y. Mineta San Jose International Airport (SJC) and Merced Municipal/Macready Field (MCE). The South County Municipal Airport, Frazier Lake Airpark, Los Banos Municipal Airport and Chowchilla Municipal Airport are other airports in the study corridor, which provide mostly general aviation services.

The Regional Airport Planning Committee and the MTC project that Bay Area passenger and cargo flights will increase nearly 60% from 2000 to 2020 (Regional Airport Planning Commission and Metropolitan Transportation Commission 2000). SJC will have adequate capacity until about 2020, provided by a second runway system (opened in 2001) and expansions to its current runway (Armstrong 2001).

Half of all flights at SJC are to or from Southern California. Expansion plans will eventually permit the airport to serve 17.6 million passengers. As the airport is currently serving 8 to 10 million passengers and recent economic conditions have reduced air travel demand, SJC will have sufficient capacity for some time. However, SJC is physically and geographically constrained, and capacity is expected to be reached by 2017 to 2020.

Table 1-4
2009 Intercity Air Travel

From	To	Total Annualized Passengers
Los Angeles	San Francisco-Oakland	6.307 million
San Diego	San Francisco-Oakland	2.415 million
Los Angeles	San Jose	2.220 million
Los Angeles	Sacramento	1.909 million
Source: Research and Innovative Technology Administration/Bureau of Transportation Statistics (2009).		

The Merced Municipal Airport/Macready Field, which is located southwest of Downtown Merced and south of SR 140, is a smaller scale airport that provides some long distance connection flights. Annual enplanements rose from 5,157 in 2000 to 6,196 in 2007; however, enplanements dropped to 2,173 in 2008 when service was changed from Las Vegas to Ontario (Federal Aviation Administration 2009). On April 7, 2010, service resumed to Las Vegas and was discontinued to Ontario because of the previous popularity of the Las Vegas flights (Merced Municipal Airport/Macready Field 2010). Commercial service at this airport currently includes two daily roundtrip flights to Las Vegas, where connections can be made to other destinations. Roundtrip flights between Merced and Las Vegas cost approximately $300 (in 2010 dollars) (Great Lakes Airlines 2010). Therefore, this airport is not serving intra-California destinations for residents in the region.

Intercity air travel between Southern California and the Bay Area (annual enplanements) is forecast to increase to 31.6 million trips by 2020, while the total travel from the Bay Area (domestic and international) will reach 100 million trips by 2035 (SH&E 2009 and Cambridge Systematics 2008).

Because of existing constraints to expanding airports in the Bay Area and in Southern California, other solutions, including regional sharing of air travel among local airports, market mechanisms, and high-speed ground travel modes, will be needed to alleviate the demand and capacity constraints. The HST system, including the San Jose to Merced Section, will help to alleviate capacity constraints at Bay Area airports by providing a new mode of intercity transportation. The HST system will also improve transportation accessibility to Central Valley.

SJC is projected to increase its annual passenger demand from 10.7 million passengers in 2007 to 16.3 million by 2035 (Regional Airport Planning Committee and Metropolitan Transportation Commission 2006) While some of the projected air travel demand may be absorbed by this regional airport, and by external airports in the larger market area such as Sacramento, Stockton, and Monterey, they do not provide viable options to a number of air travel markets (e.g., the business commuter, international, and national tourist travelers).

Travel Time

With growing demand for intercity travel and growing capacity constraints, the total automobile travel time will increase statewide. Air and rail travel time will remain basically the same. While air travel time will not change, the number of desired flights to a given destination may be limited by runway capacity, thus reducing flexibility in travel dates available.

Table 1-6 shows the approximate total travel time in 2010 and the projected total travel time in 2035 for auto, air, and rail between various city pairs, based on the ridership analysis completed for the HST forecasting model with information collected from regional transportation planning agencies, Caltrans, and current air and conventional rail schedules. Projected increases in automobile travel time will be caused largely by growing travel demand and resulting congestion on highways used for intercity travel. Programmed and funded highway improvements will not measurably change these future conditions. Some capacity improvements funded for the San Francisco Bay Area, Central Valley and Southern California are only basic enhancements that will do more to improve reliability than travel time.

The Amtrak plan for the next 10 years includes adding one more roundtrips per day between Oakland and Bakersfield and reducing the travel time between these two cities to below 6 hours (California Department of Transportation 2008). Double-tracking Caltrain tracks between San Jose and Gilroy which would assist in increasing frequency of Caltrain in this corridor is being considered. There are also plans to extend Caltrain service to Santa Cruz and Monterey Counties. These improvements will provide some benefit to rail passengers, but will not provide substantial passenger rail capacity in the study corridor.

Continuing population growth and increasing tourism in California place severe demands on the already congested transportation system serving the state's major metropolitan areas. As described in the regional transportation plans (listed in Section 3.2, Transportation) for areas that would be served by the proposed HST system, the highways and airports serving key cities are operating at capacity, and plans for expansion will not keep pace with projected growth over the next 20 to 40 years.

Table 1-6
Estimated Total Travel Times (Door to Door in hours and minutes) between City Pairs by Auto, Air, and Rail (Peak Conditions)

City Pair	Auto 2010	Auto 2035	Air 2010[a, b]	Air 2035[a, b]	Conventional Rail 2010[b, c]
Los Angeles downtown to San Francisco downtown	8:10	9:04	4:40	4:42	9:45[d]
Fresno downtown to Los Angeles downtown	4:35	5:28	4:02	4:01	5:03[e]
Los Angeles downtown to San Diego downtown	4:13	5:09	3:24	3:24	3:19
Burbank (Airport) to San Jose downtown	6:57	7:08	4:39	4:32	10:40[f]
Sacramento downtown to San Jose downtown	3:09	3:36	4:40	4:36	4:06

Notes:
[a] Represents the same level of service observed in 2005, compiled from the Federal Aviation Administration data from the 10% ticket sample combined with wait, terminal, access, and egress times developed from the California High-Speed Rail ridership forecasting model (Cambridge Systematics 2010).
[b] Access and egress times based on transit connections.
[c] Conventional rail assumptions for travel times and wait and terminal times are the same for 2010 and 2035. Access and egress times may vary but in practice do not vary significantly between 2010 and 2035.
[d] Based on April 23, 2010 San Joaquin schedule, which would require bus connections from Los Angeles to Bakersfield and from Emeryville to San Francisco.
[e] Based on April 23, 2010 San Joaquin schedule, which would require bus connections from Los Angeles to Bakersfield.
[f] Based on April 23, 2010 San Joaquin schedule, which would require bus connections from Burbank to Bakersfield and from Stockton to San Jose.
Source: Parsons Brinckerhoff 2010 based on Cambridge Systematics data.

B. SAFETY AND RELIABILITY

Projected growth in California's people and goods movement by automobile, air, and rail over the next two decades underscores the need for improved travel safety. With more vehicles on the intercity highways, the potential for accidents increases. Travel demand will continue to outpace future highway capacity, resulting in increased travel delays. Roadway congestion, limited airport capacity, passenger train delays from freight train traffic, and a growing intercity travel market adversely affect the travel time reliability of air, conventional passenger rail, and automobile travel. Weather-related events are an additional source of disruption and delay that affect transportation reliability and safety. As noted previously (under Travel Demand), projected growth in the movement of people and goods into and out of the study area by auto, air, and rail over the next decades, without comparable increases in capacity underscores the need for improved travel reliability and safety.

The California Highway Patrol publishes an annual summary of accident data for state highways; according to those statistics, in 2008 California highways experienced 3,401 fatalities and 170,496 nonfatal injuries, which correspond to a fatality rate of 1.04 per 100 million VMT (California Highway Patrol 2008). Accident rates in Santa Clara, Merced and Madera counties exceed statewide rates (California Highway Patrol 2008).

By 2035, MTC projects 192.3 million daily vehicle miles of travel in the Bay Area, an increase of 33% over 2006 levels (Metropolitan Transportation Commission 2009). There are many reasons for increased

highway congestion all over California. For example, accidents, road work, cars stranded along the roadside, or a routine traffic violation stop can create a bottleneck, potentially delaying commuters for miles. Poor weather conditions (rain, wind, and dense Central Valley fog) also adversely affect the reliability of highway travel times. Rain and wind can make the roads dangerously slick, increasing accident rates. Snow and icy weather make road conditions even worse, especially in heavily traveled areas. Fog, haze, and glare can distract drivers or cause them to slow down. As delay on the freeway increases, the overall reliability of the system tends to decrease (Cambridge Systematics 2007).

The San Joaquin Valley is subject to dense fog, often called tule fog, during the winter months. Tule fog frequently delays commercial service to and from airports in the valley, resulting in unreliable air service. The fog also creates a substantial safety hazard for motorists. Visibility in tule fog is often less than one-eighth of a mile (approximately 600 feet); sometimes visibility can be less than 10 feet (National Weather Service 2010). Visibility in tule fog can also change rapidly; within a short distance, visibility can diminish to near zero. Low and changing visibility is the cause of many chain-reaction vehicle accidents on roads and highways in the San Joaquin Valley.

Weather conditions are also a key factor in airport flight delays. Some airlines adjust their schedules to achieve on-time arrivals even if departures are delayed; some airlines have increased their scheduled flight times between high-demand cities such as Los Angeles International Airport (LAX) and San Francisco International Airport (SFO) to maintain their on-time arrival statistics in the face of potentially increasing delays. Weather also results in flight cancellations. Aircraft delays cost both the airlines and the traveling public time and money, and the FAA has identified the reduction of airport delay nationwide as one of its highest priorities. Data from the U.S. Department of Transportation (DOT) Air Travel Consumer Report show SFO and LAX ranking among the worst of major airports in the country in terms of delay (U.S. Department of Transportation 2003). Approximately 14 to 18 percent of flights departing San Jose International Airport and were delayed in 2008 and 12 to 15 percent of flights were delayed in 2009(Bureau of Transportation Statistics 2010). Approximately 11 percent of flights departing Merced Municipal Airport/Macready Field were delayed during the past year (Elliott 2010). Airport delays are a function of capacity, weather conditions, and safety conditions. When demand at an airport exceeds the capacity on the airfield at that time, flights are delayed until they can be safely accommodated. Delayed flights sometimes compound problems for other flights and can result in cancelled flights. Because the FAA Ground Delay Program holds flights at their point of departure until the destination airport can accept the demand, and because short flights (e.g., SFO to LAX) are more easily adjusted than longer flights (e.g., the East Coast or Midwest to the West Coast), short flights are more likely to experience delays or capacity reductions. Consequently, intercity air travel within California can experience major delays because of the total airport demand.

Safety issues associated with the rail system relate to the joint use of the general railroad network by both passenger and freight rail services, and to the proximity of pedestrians and motor vehicles to trains at and along grade crossings. According to FRA, in 2009, California ranked second for most highway-rail grade crossing collisions in the nation (Operation Life Saver 2009a), first for highway-rail grade crossing fatalities (Operation Life Saver 2009b), and first in pedestrian rail trespass fatalities with 61 fatalities state-wide (Operation Life Saver 2010). Of these fatalities, about 30% occurred in the Caltrain corridor, primarily due to suicidal pedestrian rail trespass, followed by accidental pedestrian trespass and vehicle collisions at grade crossings. Grade crossing safety is a high priority for Caltrain, FRA, and the California Public Utilities Commission. Grade separations enhance rail safety by reducing pedestrian, rail, and vehicle conflicts. In addition, grade separations can also improve air quality by reducing emissions from idling vehicles, and they eliminate noise associated with train horns that are often used for warning at at-grade crossings. The HST between San Jose and Merced Section provides grade separations along the Caltrain corridor that will improve safety and help eliminate noise associated with the existing at-grade crossings.

C. MODAL CONNECTIONS

Limited connections exist between intercity travel facilities (primarily airports) and the extensive regional urban and commuter transit systems in the state. While some major connections with existing rail have been completed, such as the extension of the San Francisco Bay Area Rapid Transit (BART) system to SFO, other airports remain poorly connected to the local and regional transit systems. Except for BART, where connections exist, they are cumbersome, often involving multiple transfers and long waits. In addition, it is important to encourage these intermodal connections through a variety of transportation projects. Planning is currently underway to extend BART service from Fremont to San Jose. When complete, the BART extension is anticipated to connect with Diridon Station in San Jose.

The Diridon Station provides transit connectivity among Caltrain, Santa Clara Valley Transportation Authority (VTA) buses and light rail routes, the Capitol Corridor (intercity passenger rail service between Sacramento and San Jose), Altamont Commuter Express (ACE) trains (commuter rail service between Stockton in the Central Valley and San Jose), and Amtrak service (connecting the Bay Area with southern California). Gilroy Transit Center provides transit connectivity among VTA bus lines, San Benito County Transit shuttles, Monterey-Salinas Transit buses, Amtrak Thruway buses and Caltrain commuter trains. Merced Transit Center is served by The Bus, an urban and rural bus transit service. The Merced Amtrak Station is less than a mile away from the transit center.

However, auto is still the primary mode of transportation in the study corridor. Passengers prefer transportation systems with connections that perform similarly with respect to the convenience and speed of door-to-door service by auto. If multiple mode changes (e.g., from car to shuttle to plane to train) are needed to reach a destination, travelers might prefer to travel by car, even if travel times are comparable.

Currently, the San Joaquin Valley is underserved by the transportation facilities connecting communities in the valley with California's major commercial and cultural hubs. There are no direct transit connections linking Merced to Gilroy or San Jose. The only possible transit alternative would be to loop around the region by using the Amtrak San Joaquin line, BART and bus lines/Caltrain to reach San Jose and Gilroy. Currently, traveling from Merced to Gilroy by transit would take about five hours. This compares to a driving time of less than two hours by automobile.

The limited options of direct, fast, and safe connections to the major metropolitan areas isolate the Central Valley economically, limit the area from which Central Valley businesses draw customers and employees, and reduce the accessibility of job markets for residents. HST service to Merced and Fresno would provide linkages to a number of bus, light rail, and airport services for intercity travelers to other areas in the state.

D. AIR QUALITY AND GREENHOUSE GAS EMISSIONS

The Clean Air Act (CAA) makes transportation conformity the affirmative responsibility of the U.S. Department of Transportation and metropolitan planning organizations (MPOs). Transportation conformity addresses strategies for the attainment and maintenance of air quality standards contained in the California State Implementation Plan (SIP) used to evaluate transportation alternatives, including the No Project/No Action Alternatives. California has multiple air basins designated as nonattainment areas (see Section 3.3, Air Quality and Global Climate Change) ranging from severe to serious status, including those in the Sacramento Valley, the San Joaquin Valley, the South Coast Air Basin, and the Southeast Desert Air Basin (Coachella Valley).

Maintaining air quality is one goal of the State Transportation Improvement Program (STIP) and the various regional transportation plans (RTPs). Metropolitan areas will continue to be challenged to reduce emissions from a growing number of vehicles to acceptable levels and to maintain air quality standards by encouraging more efficient use of land resources, improving mobility, and providing alternative

transportation facilities and services. Policies aimed at reducing the demand for trips in single-occupant vehicles are integral to all transportation plans and programs to help areas presently in nonattainment status to conform to federal air quality standards.

One statewide strategy adopted in the California SIP is the development of multiuse transportation corridors. Among them, they include designated lanes for high-occupancy vehicles, the addition of more transit, and the inclusion of rail modal options. Meeting federal and state air quality standards over the next 20 to 40 years will also require reduction in the VMT, integration of land use and transportation planning and development, development of transportation demand strategies, implementation of operational improvements, and use of new technologies that improve transportation efficiencies and increase transportation alternatives to the single-occupant automobile. Without the HST system, auto trips are expected to account for more than 95% of all intercity travel and close to 90% of long intercity trips in California by 2035.

In 2005, California set statewide targets for reducing greenhouse gas (GHG) emissions. Executive Order S-3-05 requires that GHGs be reduced to 2000 levels by the year 2010, to 1990 levels by the year 2020, and to 80% below 1990 levels by the year 2050. Shortly after the issuance of Executive S-3-05, the California State Legislature adopted Assembly Bill (AB) 32, the Global Warming Solutions Act of 2006. AB 32 recognizes that California is the source of substantial amounts of GHG emissions. Legislative findings in the act state the following:

> The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to the marine ecosystems and that natural environment, and an increase in the incidences of infectious diseases, asthma and other health-related problems.

To avoid these consequences, AB 32 requires the California Air Resources Board (CARB), the state agency charged with regulating air quality, to create a plan and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases" in California. AB 32 requires CARB to design and implement emissions limits, regulations, and other measures, such that statewide GHG emissions would be reduced to 1990 levels by 2020, the same 2020 level indicated in Executive Order S-3-05. This plan was developed by CARB in 2008 as the Climate Change Scoping Plan (California Air Resources Board 2008), the state's road map to reaching the GHG reduction goals required by AB 32. The Plan supports the implementation of a High-Speed Rail System to provide more mobility choice and reduce GHG emissions. The "Approved Scoping Plan" was adopted by the CARB at its December 11, 2008, meeting. The measures in this Scoping Plan will be developed and in place by 2012.

Senate Bill (SB) 375, signed into law in September 2008, provides a new planning process to coordinate the community development and land use planning process with RTPs. SB 375 sets priorities to help California meet the GHG reduction goals and requires certain RTPs prepared by MPOs—which include the MTC in the Bay Area—to develop a "sustainable communities strategy" for their RTPs that could achieve GHG emission reduction targets set by CARB.

The Bay Area exceeds federal and state air quality standards for ozone and the state standard for particulate matter greater than 10 microns in size (PM10). The San Joaquin Valley exceeds federal standards for ozone and particulate matter greater than 2.5 microns in size (PM 2.5), and state standards for ozone, PM10, and PM2.5 (San Joaquin Valley Air Pollution Control District 2010a). The projected population growth in the Bay Area will result in a large increase in VMT and in the volume of pollutants emitted by motor vehicles. In the next 40 years, the San Joaquin Valley is expected to more than double in size from 3.3 to 7 million residents (San Joaquin Valley Air Pollution Control District 2010b). Particulate matter levels are a direct function of the amount of driving, with road dust kicked up by moving vehicles accounting for 60 to 80% of particulate emissions from mobile sources. As population grows and the

amount of miles driven increases, particulate matter emissions from tailpipes and road dust also will rise, with a 20% increase in finer particles (PM2.5) and a 29% increase in coarser particles (PM10) by 2035 (Metropolitan Transportation Commission 2009). Motor vehicle exhaust is a major source of fine particulates and the precursors to ozone, and the continued increase in traffic will exacerbate the existing air quality problem and impede the region's ability to attain state and federal ambient air quality standards.

The transportation sector is responsible for about 40% of California's GHG emissions (California Environmental Protection Agency 2010, Air Resources Board 2010). Sources in the Bay Area emit GHGs, principally carbon dioxide (CO_2), at three times the world average; 40% of these emissions come from the transportation sector, mostly from cars, trucks, buses, trains and ferries (Metropolitan Transportation Commission 2009). These emissions are directly proportional to the amount of fuel burned, so offering effective transportation choices that can reduce driving will be critical for cutting these GHG emissions.

Compared to travel by car, with their internal combustion engines, an electric-powered HST system would reduce carbon dioxide (CO2) emissions; an HST trip from San Francisco to Los Angeles would save 324 pounds of CO_2, for each car making the same trip, and a trip between San Jose and Los Angeles would save 288 pounds of CO2 per car (Bay Area Council Economic Institute 2008). The HST system will provide a more energy-efficient travel mode; a trip on the HST system will use one-third the energy of a similar trip by air, and one-fifth the energy of a trip made by car (Bay Area Council Economic Institute 2008).

E. PROTECT AND PRESERVE NATURAL RESOURCES AND AGRICULTURAL LANDS

In addition to improving and maintaining the state's air quality, avoiding and minimizing impacts on sensitive natural and agricultural resources is a guiding criterion in the environmental review process for the HST system, including the San Jose to Merced Section. Key resources include wetlands and waterways, habitat areas for sensitive species of plants and animals, wildlife migration corridors, and agricultural lands. California's natural resources, including wetlands and waterways, habitat areas for sensitive species of plants and animals, and wildlife migration corridors have been subject to direct and indirect impacts as the population has increased and growth has occurred in the less developed areas of the state. Of California's approximately 100 million acres, only 9 million are considered to be prime, unique, or statewide important farmlands. Since 1990, this urbanization has converted 538,000 acres. Of this, 30% were prime, unique or statewide important farmlands.

Conversion of open lands has led to inefficient urban development patterns that have resulted in increased cost for providing public services to the newly developed areas. The rapid population growth and the draw of relatively affordable housing in the San Joaquin Valley as compared with other urbanized areas of California has led to the threat of California's most valued agricultural lands, and valued habitat lands for supporting biodiversity. Agricultural lands are a vital part of the state's environment and economy, representing over $36.6 billion in direct farm sales, and 12.8% of the nation's total agricultural value (California Department of Food and Agriculture 2009). The agricultural lands of the Central Valley, with their high quality soils, support production of a wide array of food and fiber that are exported throughout the United States and internationally (refer to Section 3.14, Agricultural Lands, for detail on San Joaquin Valley crops and value). Statewide agriculture-related jobs account for approximately 1.4 of every 100 jobs (U.S. Department of Agriculture, Economic Research Service 2002). The San Joaquin Valley accounts for over half of all direct agricultural jobs in California (California Employment Development Department 2009). These lands, which form the underpinning of the state's agricultural industries, have been subject to a long-term trend of conversion to urbanized uses. Population growth in the Bay Area and the Central Valley in the coming decades is expected to continue, resulting in an ongoing pressure to use agricultural lands to accommodate growth.

The HST system would ease the pressure on the state's agricultural land base and open space by reducing the need for expanding airports and freeways. By offering a new transportation option, it

provides an opportunity to create transit centers in the central business districts, where mixed land uses (residential, commercial, and business uses) and urban densities are best suited. Multimodal centers draw high volumes of people to interact for pleasure, business, and commerce purposes. The presence of high volumes of people can induce economic investments within walkable distances of these centers. Worldwide and national examples demonstrate increased land values adjacent to large multimodal centers to develop more densely around stations. If the communities zone to take advantage of this increase in land values, the growth can be redirected to limit low density development, which has been consuming large amounts of land area. There is an opportunity to encourage walkable, more concentrated development patterns to meet new growth demands and reduce the rate and occurrence of low density, which erodes the valuable land resources.

Implementing the HST system would protect and preserve natural resources by limiting potential impacts related to expanding existing freeway and airport facilities.

1.3 Relationship to Other Agency Plans and Policies

The objectives of the California HST system include providing an interface between the HST system and major commercial airports, mass transit, and the highway network. Plans and programs that have been considered in the development of the San Jose to Merced Section alignment and station location options, or that already include recommendations for an HST project, follow

San Francisco Bay Area Regional Plan: Approved by Bay Area voters in March 2004, the Regional Measure 2 (RM2) Traffic Relief Plan provides funding to various transit operating assistance and capital projects and programs that have been determined to facilitate travel in the toll bridge corridors. One provision of RM2 provides for the preparation of a regional rail plan to guide near- and long-term planning for an integrated and expanded passenger rail system that would also accommodate freight needs (Streets and Highways Code Section 30914 [c] [33]). The MTC, BART, the Peninsula Joint Powers Board (Caltrain), and a coalition of rail passenger and freight operators prepared the comprehensive Regional Rail Plan in consultation with the Authority. MTC adopted the San Francisco Bay Area Regional Rail Plan in September 2007 (Metropolitan Transportation Commission et al. 2007). The Regional Rail Plan examined ways to incorporate passenger trains into existing rail systems, improve connections to other trains and transit, expand the regional rapid transit network, increase rail capacity, coordinate rail investment around transit-friendly communities and businesses, and identify functional and institutional consolidation opportunities. The plan also analyzed potential high-speed rail routes between the Bay Area and the Central Valley. The plan recommends improvements and extensions of railroad, rapid transit, and high-speed rail services for the near term (5 to 10 years), intermediate term (10 to 25 years), and long term (beyond 25 years).

The San Jose to Merced HST Section will help satisfy multiple objectives of the Regional Rail Plan, including incorporate passenger trains into existing rail system systems, improve transit connections, expand the transit network, increase rail capacity, and improve high-speed rail services. The Regional Rail Plan specifically acknowledges the complementary relationship between the HST system and the regional rail network.

HST complements and supports the development of regional rail—a statewide HST network would enable the operation of fast, frequent regional services along the high-speed lines and should provide additional and accelerated funding where high-speed and regional lines are present in the same corridor (Metropolitan Transportation Commission et al. 2007).

2035 Regional Transportation Plan: On April 22, 2009, MTC adopted the Transportation 2035 Plan, which specifies how some $218 billion in anticipated federal, state and local transportation funds will be spent in the nine-county Bay Area during the next 25 years. This RTP contains a fiscally constrained list of projects and programs that have a reasonable expectation of being funded during the life of the plan.

County-level projects seeking state or federal funding, completing environmental clearances, or desiring to enter into construction must be in this section of the RTP. In turn, the RTP helps to inform the development of the STIP, which prioritizes the use of State transportation funds (Metropolitan Transportation Commission 2009).

The vision for the Transportation 2035 Plan is to support a prosperous and globally competitive Bay Area economy, provide for a healthy and safe environment, and promote equitable mobility opportunities for all residents. A chief strategic initiative of the new plan is a joint regional planning effort known as FOCUS, which provides incentives for cities and counties to promote future development near transit services. Major transit projects included in the Transportation 2035 Plan that would be expected to be coordinated with HST system to enhance modal connections along the peninsula include a BART extension from Fremont to San Jose/Santa Clara, electrification of the Caltrain system, expanded ferry service around the region, enhanced service along the Amtrak Capitol Corridor, and improvement to local and express bus services (including bus rapid transit services in San Jose that would connect to the intermodal Diridon Station).

To reduce congestion along the Bay Area freeways, a new market-based pricing system would convert and expand current carpool lanes into a regional express lane network that would continue to grant carpoolers and buses free access to the lanes but permit solo drivers to use available space in the carpool lanes for a price. Revenue generated by the tolls would pay for the completion of the planned express lane network sooner and fund other mobility improvements such as additional express bus and rail services in the region's most heavily traveled corridors.

The HST system is recognized in the RTP as a Bay Area Region/Multi-County program (#230710, identified as a funding reserve to implement high-speed rail and related corridor improvements, with $2.13 billion in committed funds).

Santa Clara County Valley Transportation Plan 2035: The Valley Transportation Plan 2035 was adopted by the Santa Clara County Valley Transportation Authority (VTA) Board of Directors in January 2009. The VTA performs multiple agency functions and has wide-ranging authority to plan, fund, and deliver the programs and projects identified in the Valley Transportation Plan 2035 (Santa Clara Valley Transportation Authority 2009). As a congestion management agency, transit operator, funding conduit, and designer and constructor of transit and highway projects, VTA is at the forefront of transportation in Santa Clara County. In this capacity, VTA partners with the cities, towns and the County of Santa Clara, as well as intra-county agencies, to plan and deliver a multimodal transportation infrastructure and services.

The Valley Transportation Plan (VTP) 2035 is the long-range vision for transportation in Santa Clara County. The VTA, in its role as the congestion management agency for Santa Clara County, is responsible for preparing and updating the VTP on a cycle coinciding with the update of the Bay Area's RTP. VTP 2035 identifies the programs, projects, and policies that the VTA Board of Directors would like to pursue over the lifetime of the plan, and for which the Board may wish to pursue state and/or federal funds. It connects projects with anticipated funds and lays out a framework for the development and maintenance of the county's transportation system over the next 25 years. It considers all travel modes and addresses the links between transportation and land use planning, air quality, energy use and community livability. The VTP defines ten programs areas and provides project lists for the highway, transit, expressways, local streets and county roads, bicycles, and intelligent transportation systems.

VTA funds a significant portion of its program through the collection of a dedicated ½-cent county sales tax authorized by voters in November 2000. Collection of the sales tax began on April 2, 2006 and will continue through March 31, 2036. These funds are to help fund, in part, the extension of BART to Milpitas, San Jose, and Santa Clara; construction of a people-mover rail line connecting the San Jose International Airport to BART, Caltrain, and the VTA light rail system; construction of a new Palo Alto

Intermodal Transit Center; and improved bus service in major bus corridors. The program will also help provide VTA with matching funds for additional train sets, passenger facilities, and service upgrades for the ACE Commuter Service from San Joaquin and Alameda Counties.

The HST system supports the vision of the VTP 2035 by providing a mode of transportation that helps to manage automobile congestion at a regional level, increasing multimodal transportation infrastructure and services, and improving air quality and energy use by providing a clean, reliable, and efficient intercity transportation alternative while reinforcing the link between transportation and land use planning. The HST system would serve San Jose Diridon Station and would enhance the utility and connectivity of VTP's planned transit investments.

Caltrain Corridor Commuter Rail Service and Peninsula Rail Program: The Peninsula Joint Powers Board forecasts an increase in Caltrain ridership driven by population increase, work force increase, and convenience and economic influences (Federal Transit Administration Peninsula Corridor Joint Powers Board 2009). Caltrain reports discuss the "pull" demand composed of elective riders who could choose the automobile but elect to ride the commuter rail system as a preferred provider. Since 1995, Caltrain has focused much of its capital program on bringing the railroad to a good state of repair, and has made investments in infrastructure to increase operational capacity and improve performance and reliability. Caltrain's signature Baby Bullet express service began in 2004 with 10 express trains. A year later, the entire schedule was reinvented to offer faster trips, including 22 express trains and limited-stop trains. By 2009, average weekday ridership had increased more than 50%. Between 2009 and 2014, the capital program will be focused on the most significant systems enhancements to date—primarily a new signal system and electrification—that will add even more capacity and enable the use of high-performance rolling stock. Caltrain 2025 is the Peninsula Joint Powers Board's plan to modernize the system, expand capacity, and improve safety by 2015. The program includes three components:

- Electrification of the railroad
- Positive train control
- Electric-multiple units

The FTA adopted a Finding of No Significant Effect for the proposed Caltrain electrification program in December 2009 (Federal Transit Administration and Peninsula Corridor Joint Powers Board 2009), and the Caltrain Board is expected to consider certification of the EIR in 2010. The Caltrain electrification program is a component of the overall Caltrain 2025 program to identify system improvements and electrified vehicle technology that will increase capacity and enable Caltrain, once electrified, to provide a greater frequency and level of service to its customers. The electrification program includes an electrified rail system from the San Francisco Caltrain Station to the Tamien Station in San Jose, powered by overhead wires and designed to minimize visual impacts. In addition, the electrification program calls for converting the Caltrain rolling stock from its current diesel locomotive-powered cars to electric-multiple units that are in use throughout the world. The electrification of Caltrain also will result in significant reductions in noise and air pollution. The environmental assessment (EA) and Final EIR concludes that the electrified system would be quieter than the current diesel equipment and would result in a 90% reduction in emissions (Federal Transit Administration and Peninsula Corridor Joint Powers Board 2009).

Caltrain and the Authority have a continuing partnership to jointly cooperate and coordinate in implementing their closely related projects through the Peninsula Rail Program. The joint Peninsula Rail Program is coordinating and facilitating improvements to Caltrain under Caltrain 2025 and bringing the HST system to the peninsula.

San Jose Airport Master Plan: The current Norman Y. Mineta San Jose International Airport Improvement Program (the Airport Master Plan) was originally adopted by the City of San Jose in June 1997, approved by the Federal Aviation Administration (FAA) in December 1999, and subsequently

updated over time through a series of City-approved amendments, with a planning horizon now extending to the year 2027. The Airport Master Plan consists of terminal construction, access and roadway improvements, parking garages and airfield upgrades (City of San Jose 2010). The Airport Master Plan's goals are to provide a world-class airport facility with state-of-the-art passenger amenities and a technologically advanced security system in a cost- efficient manner. The full Terminal Area Improvement Program currently is estimated to cost $1.8 billion and will be completed in two phases. The first phase of the program includes the new Terminal B and North Concourse, upgrades for Terminal A and improvements to the roadway system, a new consolidated rental car and public parking garage, and public art. The second phase will begin when triggered by a level of predetermined passenger activity and will include the expansion of Terminal B and additional gates. Completion of this second phase will bring the total number of aircraft gates to the 40 gates allowed under the Airport Master Plan to manage a total of 17 million annual passengers. An airport people-mover, possibly using personal rapid transit vehicles, would connect the airport terminals to the nearby VTA light rail, Caltrain, Altamont Commuter Express, and future BART services. All of these local and regional rail passenger services stop at the Diridon Station.

The San Jose to Merced HST Section would begin at the Diridon Station in San Jose. The station is close to the airport and offers a connection point for high-speed rail and air travelers, increasing modal connectivity to this regional airport.

San Benito County Regional Transportation Plan: The 2010 San Benito County RTP was adopted by the San Benito County Governments in 2010. The purpose of the 2010 San Benito County RTP (Council of San Benito County Governments 2010) is to set forth goals, policies, programs, and projects for transportation improvements in San Benito County. The document serves to express short-term strategies as well as long-term goals to consistently improve the overall efficiency of the transportation system. The RTP is for the year 2035 and includes prioritizing improvement for short-term and long-term horizons; including streets and highways, public transit, pedestrian and bicycle usage, recreational transportation, aviation, and commodity movement.

Merced Regional Transportation Plan: On May 17, 2007, the Merced County Association of Governments adopted the Merced RTP (Merced County Association of Governments 2007), which specifies how $1.8 billion in anticipated federal, state, and local transportation funds will be spent in Merced County through 2030. The RTP contains a fiscally constrained list of projects and programs that have a reasonable expectation of being funded during the life of the plan. Projects seeking state or federal funding, completing environmental clearances, or desiring to begin construction must be included on the RTP list. In turn, the RTP helps inform the development of the STIP, which prioritizes the use of state transportation funds. The RTP notes that Merced County is participating in the HST planning process.

The Merced RTP supports growth that enhances multimodal transportation integration and connectivity. Other major goals include providing mass transit as a viable transportation choice and improving pedestrian-friendly facilities. Major projects on the RTP list that would be coordinated with the California HST system include widening SR 99 and associated interchange improvements.

Madera County 2007 Regional Transportation Plan: On May 23, 2007, the Madera County Transportation Commission adopted the Madera County 2007 RTP (Madera County Transportation Commission 2007), which specifies how $1.4 billion in anticipated federal, state, and local transportation funds will be spent in Madera County through 2030. The RTP contains a fiscally constrained list of projects and programs that have a reasonable expectation of being funded during the life of the plan. Projects seeking state or federal funding, completing environmental clearances, or desiring to begin construction must be included in the RTP list. In turn, the RTP helps inform the development of the STIP. The RTP notes that Madera County is participating in the HST planning process.

The Madera County RTP ensures that the county's transportation system and implementation policies and programs through fiscal year 2030 will safely and efficiently accommodate growth envisioned in the land use elements of the Cities of Chowchilla and Madera, and Madera County. The 2007 RTP is a planning guide that contains transportation policy and projects for the next 25 years. The RTP includes programs and policies for congestion management, transit, bicycles and pedestrians, roadways, freight and finances.

The RTP's primary use is as a regional long-range plan for federally funded transportation projects, and it also serves as a comprehensive, coordinated transportation plan for all the governmental jurisdictions within the region. Different jurisdictions have different transportation implementation responsibilities under the plan. These include Caltrans, the County of Madera, and the Cities of Chowchilla and Madera.

The Madera County 2007 RTP envisions a multimodal transportation system integrated with land use management strategies and air quality goals. Other major goals include supporting land use designs that are more conducive to alternative transportation modes, including greater density in existing developed areas, and implementing intelligent transportation systems to increase economic competitiveness and improve the quality of life. Major projects on the RTP list that would be coordinated with the HST system include widening of SR 99 from four to six lanes through Madera County and associated interchange improvements.

The overall goal of the RTP promotes the development of a coordinated multimodal transportation system that is integrated with land resource management strategies and air quality goals.

San Joaquin Valley Blueprint (San Joaquin Valley Regional Planning Agency Policy Council 2009)**:** In January 2006, the councils of government from the eight San Joaquin Valley counties (San Joaquin, Stanislaus, Merced, Madera, Fresno, Tulare, Kings, and Kern) jointly received a grant from the California Department of Business, Transportation, and Housing and the San Joaquin Valley Air Pollution Control District to develop a long-term blueprint for growth in the San Joaquin Valley. The goal was to determine if there are alternatives to current transportation improvement priorities that would make improvements to the region's travel patterns and air quality, while being consistent with local attitudes and values.

On April 1, 2009, the San Joaquin Valley Regional Policy Council reviewed the collaborative work on the blueprint and took the following actions:

- Adopted a list of smart growth principles to be used as the basis of blueprint planning in the San Joaquin Valley.
- Adopted a preferred blueprint growth scenario (Scenario B+) for the San Joaquin Valley to the year 2050. The preferred scenario will provide guidance for local jurisdictions with land use authorities as they update their general plans.

One of the smart growth principles adopted by the Policy Council is to provide a variety of transportation choices. Transportation is the key factor that will shape urban and rural development in the San Joaquin Valley. The region's transportation improvements will support the shared regional vision by providing connectivity between centers and to other regions, congestion relief, and choices for transporting people and goods while fostering new development, access to key economic assets, and connectivity to global markets. As part of this smart growth principle, the blueprint envisions HST service in the San Joaquin Valley, with stations in Merced, Fresno, the Kings/Tulare region, and Bakersfield.

San Joaquin Corridor Strategic Plan: The *San Joaquin Corridor Strategic Plan* (Caltrans 2008b) formalized the short-term (3 to 5 years), medium-term (6 to 10 years), and long-term (11 to 25 years) vision for passenger rail service in the Central Valley. The plan includes all San Joaquin Valley counties, except Tulare County, and destination cities such as San Francisco, Oakland, Sacramento, and Los Angeles. The purpose of the plan is to develop a program of improvements that will increase rail

ridership, revenue capacity, reliability, and safety within the corridor. Key stakeholders involved in the development of the plan included Amtrak, BNSF, UPRR, and the San Joaquin Valley regional transportation planning agencies. Public input on the plan suggested (1) improving communications regarding passenger services and ensuring station safety and security in the short-term; (2) adding more frequent service and more stations in the medium-term; and (3) providing passenger rail in the UPRR corridor, and direct connections to Los Angeles and the Bay Area in the long term.

The *San Joaquin Corridor Strategic Plan* recognizes that the current passenger trains (known as the San Joaquins) could interface with the HST System to serve as collectors/distributors with potential transfer stations in major cities, such as Sacramento, Merced, Fresno, and Bakersfield. These stations could allow passengers to transfer to and from the San Joaquins to the HST System. Other opportunities will arise for the San Joaquins to "bridge" the HST service while it is under construction in different regions, such as between the Bay Area and Merced and between Los Angeles and Palmdale. The San Joaquins could act as a Central Valley corridor bridge connecting the HST sections in the north and south.

1.4 Relationship to Other Transportation Projects and Plans in the Study Area

The objectives of the proposed HST system include interfaces between the HST system and major commercial airports, mass transit systems, and the highway network. Other key transportation projects within the San Jose to Merced Section that offer intercity travel benefits and could enhance intermodal connections to the proposed HST system are described below. These projects have been considered in the planning and development of the San Jose to Merced HST Project and station location options.

California State Rail Plan 2007–2008 to 2017–2018: The *California State Rail Plan 2007–2008 to 2017–2018* (California Department of Transportation 2008a) is implemented by Caltrans. The plan envisions capital and operational improvements that will increase service in Merced to eight daily roundtrips by 2018, carrying 1,430,000 passengers annually, with 90% on-time performance. One new roundtrip service will operate between Oakland and Bakersfield; the other new roundtrip service will operate between Sacramento and Bakersfield. This plan also seeks to reduce the travel time between Oakland and Bakersfield to less than 6 hours and between Sacramento and Bakersfield to less than 5 hours. The increased Amtrak service will provide more connections between Amtrak and the HST system.

San Jose Caltrain Station Improvement Project: The Santa Clara and South Terminal Station Improvement Project is one of a number of projects aimed at bringing Caltrain up to a state of good repair in preparation for the proposed electrification of the system by 2015. Under this project, the San Jose Diridon station is being modernized and renovated to improve connections with regional rail services, improve safety and flexibility and, in conjunction with other future projects, will allow for future expansion of service.

Two new, fully-equipped boarding platforms are being built on the west side of the San Jose Diridon Station, along tracks on each side of the platforms. Reconstructed signal control points at both ends of the terminal will allow for quicker train movement in and out of the terminal. This is a critical improvement because during the peak-commute hours, trains move through the station every two minutes. Trains traveling through the station include Caltrain, ACE, Capitol Corridor, Amtrak Coast Starlight, and Union Pacific freight trains. Construction is anticipated to be largely completed in 2011.

Station improvements, and platform and track design, are directly related to the San Jose to Merced HST project, since the San Jose Diridon station is proposed as a potential HST station location, connecting the San Jose to Merced HST Section with the San Francisco to San Jose HST Section.

Capitol Corridor Rail Service: The Capitol Corridor, having recently completed track improvements between Oakland and San Jose that allowed an increase in service frequency, is planning to implement the next phase of capacity increasing projects in the Oakland to San Jose corridor and a series of track improvements aimed at reliability in the Oakland to Sacramento corridor. A track capacity enhancement project is also planned for the Auburn to Sacramento corridor that will allow, in a phased project implementation approach, service frequency increases in this portion of the corridor. Projects previously programmed by the state include the Capitol Corridor Joint Powers Authority's (CCJPA's) contribution to the San Jose 4th Main Track project and the Bahia Track Improvement project. The proposed HST station in San Jose would conveniently connect to the Capitol Corridor and enable intercity travelers to continue into the East Bay and Livermore Valley regions of the Bay Area.

Altamont Commuter Express Service: The San Joaquin Regional Rail Commission, which owns and operates the Altamont Commuter Express (ACE), operates four daily roundtrips, Monday through Friday, between Stockton and San Jose through the Altamont Pass. The 86-mile ACE corridor directly serves three counties and eight cities between the Central Valley and the Silicon Valley. The trains stop at three San Joaquin stations (Stockton, Lathrop/Manteca, and Tracy), four Alameda County stations (Vasco Road, Livermore, Pleasanton, and Fremont), and in Santa Clara County (Great America, Santa Clara and San Jose). ACE is working with the UPRR to complete a major signal upgrade project between Fremont and Stockton to improve reliability and speed on the route. Over the next five-year period, ACE will be implementing capital projects that improve reliability and increase speeds in the Stockton to Fremont section of the corridor. Like the Capitol Corridor commuter rail service, ACE terminates in San Jose at the Diridon Station, which is proposed as an HST station location. A future connection here between ACE and HST would greatly enhance accessibility to major destinations throughout the state via rail service.

Altamont Corridor Rail Project: The California High-Speed Rail Authority is studying alignment alternatives for a regional rail corridor through the Altamont Pass and the Tri-Valley area that is capable of supporting intercity and commuter rail passenger services between the San Joaquin Valley and the Bay Area. The Authority is working with a regional partner, the San Joaquin Regional Rail Commission, to plan a joint-use rail line through the Altamont Pass that would support new regional intercity and commuter passenger rail services operating in northern California between Stockton and San José and would be capable of accommodating HST-compatible equipment. The corridor would be developed as a separate line from the existing Union Pacific Railroad route, wherever feasible. The new rail route is intended to provide incremental improvements to Altamont Commuter Express service in the near term and improve connectivity and accessibility between the northern San Joaquin Valley and the Bay Area. The ultimate facility would be designed and equipped to accommodate electrified lightweight passenger trains and could be used by HST-compatible equipment.

El Camino Bus Rapid Transit (BRT): The Santa Clara Valley Transportation Authority (VTA) BRT Strategic Plan proposes to develop an integrated near-term BRT network throughout Santa Clara County to provide high quality transit service. The VTA BRT Strategic Plan was prepared to:

- Establish a framework for BRT implementation;
- Provide direction on related policy issues; and
- Serve as a vehicle to engage cities and stakeholders.

The Valley Transportation Plan (VTP) 2035 and the Comprehensive Operations Analysis identified candidate corridors for BRT implementation in Santa Clara County. VTA recommended the El Camino as one of the prime routes, and service would operate just west of the Caltrain corridor and along the Santa Clara County portion of the proposed San Jose to Merced HST Section. The El Camino Corridor will provide enhanced public transportation service to the cities of San Jose, Santa Clara, Sunnyvale, Mountain View, and Palo Alto, improving accessibility to important destinations such as Santa Clara and Stanford Universities, Santa Clara and Sunnyvale's government offices, downtown Mountain View and

Palo Alto, and Stanford Shopping Center. The MTC Transportation 2035 Plan includes the El Camino BRT as a priority transportation project. The service would operate from Palo Alto Transit Center to the HP Pavilion near the Diridon Station in San Jose. This 16.6-mile stretch along El Camino Real is currently served by the VTA's Rapid 522 (15-minute headways) and Local 22 (12-minute headways). The preferred BRT plan for ultimate build out has 10-minute BRT headways and 15-minute local headways. The El Camino BRT is expected to be ready for service by 2016 and is projected to attract 33,000 daily riders by reducing in-vehicle travel time by 30% when compared to a local bus with right-of-way and station upgrades. El Camino has three segments of median busway (totaling 9.9 miles between Embarcadero - Jordan, Sylvan -Lawrence, and Calabazas - Benton), enhancements to mixed flow BRT sections, and 17 new BRT stations.

With a potential HST station in Palo Alto along El Camino Real and a proposed station in San Jose at the Diridon Station, the El Camino BRT project would help provide local transit connections the HST system, reducing the need for car travel to these stations.

Silicon Valley Rapid Transit Project: The BART Silicon Valley Rapid Transit project is an extension of the existing BART system to Milpitas, San Jose, and Santa Clara. This project will extend the current system 16 miles along the existing UPRR corridor south of the future Warm Springs Station in Fremont. When completed, the new line will include six stations - one in Milpitas, four in San Jose, and one in Santa Clara; a 5-mile tunnel in downtown San Jose; and a new maintenance and storage facility in Santa Clara. Project construction is scheduled to commence late 2011.

This major transit improvement project is intended to expand mobility options for Santa Clara County and Bay Area residents and help address serious transportation needs that will only become more critical as the region continues to grow in both population and employment. VTA's new BART extension will connect Santa Clara County residents to the existing 104-mile BART system servicing major destinations in the Bay Area. The project will provide enhanced commuter connections to VTA light rail and buses, Caltrain, ACE, Capitol Corridor, and Amtrak, with potential connections to Norman Y. Mineta San Jose International Airport and the statewide HST system through the proposed Diridon HST Station.

This San Jose transit connection would link the intercity statewide HST system to the regional BART system, enhance mobility, and provide an alternative to driving.

South County Caltrain Improvement Projects/South County Track Improvements Project: The South County Track Improvements Project, a component of the South County Caltrain Improvement Projects, would design and construct 8.3 miles of new railway track, including road and railway crossing improvements, from the Coyote area of South San Jose to just north of Morgan Hill and from south of Morgan Hill through San Martin. The construction of the second set of tracks will allow the UPRR to maintain its current level of freight service while Caltrain offers enhanced passenger service to and from the South County. This project would be designed and constructed by the Santa Clara County Valley Transportation Authority (VTA), in exchange for permission from UPRR to increase Caltrain service between Gilroy and San Jose. Construction is expected to be complete by 2011.

US 101 Widening: Several proposed improvements to the US 101 corridor from San Jose to Gilroy are currently in various stages of planning. Major operational improvements planned for US 101 in the South County area include the construction of auxiliary lanes from Tennant Avenue in Morgan Hill through Middle Avenue in Gilroy and the construction of new High Occupancy Vehicle (HOV) lanes and the conversion of existing HOV lanes to High Occupancy Toll (HOT) lanes along certain sections of the US 101 corridor. These operational improvement projects are intended to maximize freeway throughput and increase capacity in severely congested areas along US 101 in the South County area. In addition, other operational improvements such as new interchanges and improving cross street connectivity would help alleviate congestion in the South County area and provide easier access to proposed HST stations in San Jose and Gilroy. (Santa Clara Valley Transportation Authority 2010.)

State Route 152 Realignment Study: The Santa Clara Valley Transportation Authority is currently conducting a feasibility study for the development of an east-west trade and mobility corridor on SR 152 between US 101 and SR 99. The proposed SR 152 realignment intends to increase connectivity within the region by improving traffic operations and by improving the movement of goods between Santa Clara, San Benito, and Monterey counties as well as counties in the adjacent Central Valley. The proposed project would also enhance travel safety and improve travel times while bringing SR 152 to full expressway standards between the US 101 and SR 156 corridor. The first phase of the study which includes the preparation of preliminary studies and coordination between stakeholders for the feasibility studies is expected to be completed in summer 2010.

SR 152 is the only roadway spanning the entire length of the HST corridor between US 101 in Gilroy and SR 99. The planned improvements would enhance mobility of commuters and movement of goods in the traffic corridor and would improve access to the proposed Gilroy HST station location options, in particular the Downtown Gilroy HST station location option.

State Route 99 Corridor Business Plan: SR 99 is the transportation backbone of the San Joaquin Valley. In recent years, several efforts have focused on improving this highway to meet transportation standards and serve the expected growth in the valley. The updated *Route 99 Corridor Business Plan* (California Department of Transportation 2009a) incorporates these efforts and provides the current blueprint for the corridor. The business plan is an update of the original business plan published in 2005, which first established a comprehensive corridor management plan. That plan laid out the improvements necessary to attain the primary objective of a minimum six-lane freeway for the entire corridor. The funding provided in 2006 with statewide voter approval of Proposition 1B has allowed much of this plan to proceed.

With much of the freeway conversion underway, the business plan has now focused more on capacity-increasing projects. The four priority categories for improvements in the plan include the following:

Priority Category 1 – Freeway Conversion: This is now deemed complete because non-freeway sections will be eliminated within 5 years.

Priority Category 2 – Capacity-Increasing Projects: These projects will provide a minimum of six lanes throughout the corridor and eight lanes in some urban areas.

Priority Category 3 – Major Operational Improvements: These projects will improve out-dated interchanges and add auxiliary lanes.

Priority Category 4 – New Interchanges: These include new interchanges to accommodate growth and development along SR 99.

The business plan identifies 70 projects and establishes priorities by time period, with a goal of completion in 20 years. State and local funding resources have been allocated, and local agencies hope to advance the implementation schedule.

Some of the projects in the *Route 99 Corridor Business Plan* address potential improvements along SR 99 in Merced and Madera counties. These projects provide coordination opportunities for the San Jose to Merced HST project.

2007 Merced Municipal Airport Master Plan: Improvement plans for Merced Municipal Airport/Macready Field are addressed in the *Merced Municipal Airport Master Plan* (DMJM Aviation. 2007). Commercial service could increase moderately under this plan, with a baseline projection that will increase annual aircraft operations from 2,700 in 2004 to more than 9,000 in 2026, servicing up to 53,000 passengers annually. The primary facility improvement recommended in the plan is a new 11,000-

square-foot passenger terminal that is projected to be completed by 2011. This would increase the current footprint by more than 7,700 square feet. The improvements would expand options for air and HST passenger travel and would facilitate efficient transfers to complete longer trips.

The proposed Downtown Merced HST Station would provide connections to Amtrak and the Merced Municipal Airport/Macready Field, facilitating easy transfers between the HST and the airport. Currently, there is shuttle service between the Merced Transportation Center, which is located near the proposed Merced HST station sites, and the airport.

1.5 REFERENCES

Armstrong, David. 2001. San Jose's New Runway Takes Off. San Francisco Chronicle. August. Available: <http://www.sfgate.com/cgi-in/article.cgi?file=/chronicle/archive/2001/08/21/BU20692.DTL&type=business>. Accessed: May 1, 2009.

Association of Bay Area Governments Projections 2009

Bay Area Council Economic Institute. 2008. California High-Speed Rail, Economic Benefits and Impacts in the San Francisco Bay Area. October. San Francisco, CA.

Brookings Institute, 2009. Expect Delays: An Analysis of Air Travel Trends in the United States. October. Washington, D.C.

Bureau of Transportation Statistics, 2010. Available:<http://www.transtats.bts.gov/HomeDrillChart.asp?URL_SelectMonth=10&URL_SelectYear=2010>

California Department of Finance. 2008. Table E-5. Available: <http://www.dof.ca.gov/research/demographic/reports/estimates/e-5/2009/>. Accessed August 31, 2010.

California Department of Finance. 2010. Population Projections by Race/Ethnicity for California and its Counties 2000-2050, March 2010.

California Department of Transportation 2008b. 2008 California Motor vehicle Stock, Travel and Fuel Forecast, June 2009. Available: <http://www.dot.ca.gov/hq/tsip/smb/documents/mvstaff/mvstaff08.pdf>. Accessed November 21, 2010.

California Department of Transportation. 2008a. California State Rail Plan 2007-08 to 2017-18. March 2008. Available: <http://149.136.20.80/rail/dor/assets/File/SRP07_-_FINAL_Apprvd.pdf>. Accessed November 21, 2010.

California Department of Transportation. 2009a. *Route 99 Corridor Business Plan.* September 2009.

California Department of Transportation. 2009b. State Highway Congestion Monitoring Program (HICOMP) for 2008. Annual Data Compilation. September 2009.

California Employment Development Department (CEDD). 2010. *Employment by Industry Data—Historical Annual Average Data, Fresno MSA. May 21, 2010.* Available: <www.labormarketinfo.edd.ca.gov/?pageid=166>. Accessed June 1, 2010. Sacramento, CA.

California Environmental Protection Agency. 2010. Air Resources Board. Greenhouse Gas Inventory Data - Graphs. Last revised: May 28, 2010. Available: <http://www.arb.ca.gov/cc/inventory/data/graph/graph.htm>. Accessed: June 10, 2010.

California High-Speed Rail Authority and Federal Railroad Administration. 2008. Bay Area to Central Valley High-Speed Train (HST) Program Environmental Impact Report/Environmental Impact Statement (EIR/EIS). Final. May. Sacramento, CA and Washington, DC.

California Highway Patrol. 2008. CHP – Statewide Integrated Traffic Records System (SWITRS) 2008. Available: <http://www.chp.ca.gov/switrs/index.html>. Accessed August 31 and December 28, 2010.

Caltrain. 2009. Key Findings Caltrain Annual Passenger Counts. February. Last revised: May 2009. Available: <http://www.caltrain.com/Assets/Stats+and+Reports/Ridership/2009_Caltrain_Ridership_Counts.pdf>. Accessed: August 2, 2010.

Cambridge Systematics, Inc. 2007. Bay Area/California High-Speed Rail Ridership and Revenue Forecasting Study: Final Report. Prepared for the Metropolitan Transportation Commission and the California High-Speed Rail Authority. July.

Center for the Continuing Study of the California Economy. 2008. Appendix B: Projections of Jobs, Population and Households for the City of San Jose. A Summary of Results and Methodology. August. Available: <http://www.piersystem.com/posted/1823/SJ_Population_and_Jobs_Projections_Summary_Report_8_08.491183.pdf>. Accessed: August 2, 2010

City of San Jose. 2010. Airport Department. July 2010 Update: Airport Master Plan for Norman Y. Mineta San Jose International Airport. Available: <http://www.sjc.org/about/improve/overview/MP-ExecSum10.pdf>. Accessed: July 30, 2010.

Council of Fresno County Governments (COG). 2007. *Regional Transportation Plan.*

Council of San Benito County Governments. 2005. San Benito County Regional Transportation Plan. March. Available: <http://www.sanbenitocog.org/files/March%202005%20RTP.pdf>. Accessed: July 30, 2010.

Council of San Benito County Governments.2010. Draft 2010 San Benito County Regional Transportation Plan, Available: <http://www.sanbenitocog.org/pdf/2010%20FINAL%20RTP.pdf>. Accessed: November 19, 2010.

DMJM Aviation. 2007. Merced Municipal Airport Master Plan. September 2007.

Federal Railroad Administration. 2009. A Vision for High-Speed Rail in America: High-Speed Rail Strategic Plan. April. Washington, DC.

Federal Transit Administration and Peninsula Corridor Joint Powers Board. 2009. Caltrain Electrification Program Environmental Assessment/ Final Environmental Impact Report. July. Available: <http://www.caltrain.com/projectsplans/Projects/peninsularailprogram/Caltrain_2025__Electrification_/Caltrain_Electrification_Environmental_Assessment___Final_Environmental_Impact_Report.html>. Accessed: July 31, 2010.

Great Lakes Airlines 2010, < http://www.greatlakesav.com>

Madera County Transportation Commission. 2007. Madera County 2007 Regional Transportation Plan. County of Madera, City of Madera, City of Chowchilla. Adopted May 23. Available: <http://www.maderactc.org/pdf_files/RTP1.pdf>. Accessed: July 30, 2010.

Merced County Association of Governments 2007. 2007 Regional Transportation Plan for Merced County. Adopted May 17. Available: <http://www.mcagov.org/publications/2007/RTP/RTP.pdf>. Accessed: July 31, 2010.

Merced County Association of Governments. 2009. Draft Goods Movement Report, Available: <http://www.mcagov.org/publications/trans/2009/goods/111009.pdf>. Accessed: November 21, 2010.

Merced County Association of Governments. 2011. Regional Transportation Plan for Merced County, Adopted July 15, 2010 Available: <http://www.mcagov.org/programs/trans/1460.html>. Accessed: December 01, 2010.

Merced County. 2007. Merced County General Plan Background Report. June. Prepared by Mintier & Associates. Available: <http://www.co.merced.ca.us/documents/Planning_and_Community_Development/General_Plan/Documents_Maps/backround_report2.PDF>. Accessed: July 29, 2010.

Metropolitan Transportation Commission, Bay Area Rapid Transit (BART), the Peninsula Joint Powers Board (Caltrain), California High-Speed Rail Authority. 2007. San Francisco Bay Area Regional Rail Plan. September. Oakland, CA. Available: <http://www.mtc.ca.gov/planning/rail/BARegionalRailReport-ExSum.pdf>. Accessed: August 2, 2010.

Metropolitan Transportation Commission. 2009. Transportation 2035 Plan for the San Francisco Bay Area (Final). April. Available: <http://www.mtc.ca.gov/planning/2035_plan/FINAL/T2035_Plan-Final.pdf>. Accessed August 2, 2010.

Operation Life Saver, Inc. 2009a. Highway Rail Grade Crossing Collisions, Top 15 States. Last revised: March 9, 2010. Available: <http://oli.org/statistics/collisions_state.htm>. Accessed: April 16, 2010.

Operation Life Saver, Inc. 2009b. Highway Rail Grade Crossing Fatalities, Top 15 States. Last revised: March 9, 2010. Available: <http://www.oli.org/statistics/fatalities_state.htm>. Accessed: April 16, 2010.

Operation Life Saver, Inc. 2010. Trespass Fatalities by State, Top 15 States. Last revised: March 9, 2010. Available: http://www.oli.org/statistics/trespassing_state.htm. Accessed April 16, 2010.

Projections and Priorities 2009: Building Momentum, San Francisco Bay Area (Association of Bay Area Governments. Projections 2009.)

Regional Airport Planning Committee and Metropolitan Transportation Commission. 2000. Regional Airport System Plan Update 2000. September. Available: <http://www.mtc.ca.gov/planning/air_plan/RASP_2000.htm>. Accessed: August 31, 2010.

Regional Airport Planning Committee and Metropolitan Transportation Commission. 2006. Overview of Alternatives to New Runways as analyzed in the 2000 Regional Airport System Plan (RASP). September. Available: <http://www.bcdc.ca.gov/pdf/planning/2000_RASP.pdf>. Accessed: August 31, 2010.

San Joaquin Valley Air Pollution Control District. 2010a. Ambient Air Quality Standards & Valley Attainment Status. Available: <http://www.valleyair.org/aqinfo/attainment.htm>. Accessed: August 2, 2010.

San Joaquin Valley Air Pollution Control District. 2010b. Future of San Joaquin Valley Explored in Television Series. Available: <http://www.valleyair.org/newsed/AirQualityOutlookStream07/AirQualityOutlook.htm>. Accessed: August 2, 2010.

Santa Clara Valley Transportation Authority. 2005. Valley Transportation Plan 2030. February. Available: <http://www.vta.org/studies/index_vtp2030.html>. Accessed: August 2, 2010.

Santa Clara Valley Transportation Authority. 2009. Valley Transportation Plan 2035. January. Available: <http://www.vta.org/studies/vtp2035/index.html>. Accessed: August 2, 2010 December 01, 2010.

Santa Clara Valley Transportation Authority. 2010. US 101 Widening Project Fat Sheet. January. Available: <http://www.vta.org/news/factsheets/capital_projects_completed/27_us_101_widening_092905.pdf>. Accessed: November 21, 1010.

Simat, Helliesen & Eichner, Inc. (SH&E) 2009, *Regional Aviation Forecast*. March 2009

T&E Committee Memorandum (Subject – Relinquishment of State Routes), City of San Jose, February 1, 2010.

Texas Transportation Institute. 2009. 2009 Annual Urban Mobility Report,. Available: <http://tti.tamu.edu/documents/mobility_report_2009_wappx.pdf>. Accessed: August 31, 2010.

U.S. Census Bureau. 2003. American Community Survey (ACS). Average Travel Time to Work of Workers 16 Years and Over Who Did Not Work at Home (Minutes). Available: <http://www.census.gov/acs/www/Products/Ranking/2003/R04T160.htm>. Accessed: August 31, 2010.

U.S. Department of Commerce. 2010. *Regional Economic Information System (REIS) Regional Accounts Data, Local Area Personal Income*. Table CA 05—Personal Income and Employment Summary. Available at www.bea.gov/regional/reis/. Accessed July 1, 2010.

U.S. Department of Transportation. 2003. Air Travel Consumer Report for 2003. Available: <http://airconsumer.dot.gov/reports/atcr03.htm>. Accessed: August 31, 2010.