U.S. Department of Transportation
Federal Railroad Administration

Record of Decision
Bay Area to Central Valley High-Speed Train

1. Introduction

The California High-Speed Rail Authority (Authority) and the Federal Railroad Administration (FRA), an operating administration of the U.S. Department of Transportation, prepared a joint programmatic environmental impact report/environmental impact statement (EIR/EIS) to evaluate a broad corridor between the Bay Area and Central Valley for the California High-Speed Train (HST) system (Program EIR/EIS herein discussed). As a joint document, the EIR/EIS was prepared in compliance with both the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). The Authority is the state lead agency for purposes of compliance with CEQA and the FRA is the lead Federal agency for purposes of compliance with NEPA.

In November 2005, the Authority and FRA approved the statewide HST system program for intercity travel in California between the major metropolitan centers of Sacramento and the San Francisco Bay Area in the north, through the Central Valley, to Los Angeles and San Diego in the south. The system, proposed by the Authority, is about 800-miles long, with electric propulsion and steel-wheel-on-steel-rail trains capable of maximum operating speeds 220 miles per hour (mph) (354 kilometers per hour [kph]) on a mostly dedicated system of fully grade-separated, access-controlled steel tracks and with state-of-the-art safety, signaling, communication, and automated train control systems. As part of the November 2005 decision on the statewide HST system, the Authority and FRA selected, for further project-level study and implementation planning, a series of alignments and station locations for the HST system.

The Authority and the FRA have prepared a programmatic environmental document under CEQA and NEPA to support selection of a preferred network alternative, preferred alignments and station location options within the broad corridor between and including the Altamont Pass and the Pacheco Pass to connect the Bay Area and Central Valley. The Program EIR/EIS builds on, and tiers from, the prior California High Speed Train Program EIR/EIS (statewide program EIR/EIS herein discussed) for the HST system, and Authority and FRA's decision in November of 2005. Specifically, the current Program EIR/EIS builds from the Authority's prior decisions, articulated in Authority Resolution No. 05-01, that approved the Statewide HST System Program, defined the HST as a steel wheel/steel rail system with maximum speeds of up to 220 mph (354 kph), and selected corridor alignments and station location options. The current Program EIR/EIS also tiers from the prior statewide program EIR/EIS by incorporating the design practices and mitigation strategies identified in that document and approved by the Authority for the HST System Program.

At the same time that the current Program EIR/EIS builds on and tiers from the statewide program EIR/EIS, it is itself a first tier, programmatic EIR/EIS under CEQA and NEPA. The focus of the analysis is the programmatic environmental impacts associated with different network alternatives to connect the Bay Area to the Central Valley for the HST system. The network alternatives and station location options are defined conceptually, and the level of detail for the impacts analysis and the mitigation strategies is commensurately broader and more general than found in a typical site-specific project EIS.

The Council on Environmental Quality's (CEQ) NEPA implementing regulations regarding Tiering (CEQ - 40 CFR § 1508.28) state that: "'Tiering' refers to the coverage of general matters in broader environmental impacts statements (such as a national program or policy statements) with subsequent narrower statements or environmental analyses (such as regional or basinwide program statements or ultimately site-specific statements) incorporating by reference the general discussions and concentrating solely on the issues specific to the statement subsequently prepared. Tiering is appropriate when the sequence of statement or analysis is: … (b) From an environmental impact statement on a specific action at an early stage (such as need and site selection) to a supplement (which is preferred) or a subsequent statement or analysis at a later stage (such as environmental mitigation). Tiering in such cases is appropriate when it helps the lead agency to focus on the issues which are ripe for decision and exclude from consideration issues already decided or not yet ripe." The use of tiering under NEPA, and the consideration of the Bay Area to Central Valley portion of the HST system in a separate first tier, program EIS allows the Authority and FRA to focus on the broad policy choices that are ripe for decision, including:

1. Which proposed network alternative and alignment alternatives should connect the San Francisco Bay Area to the Central Valley for the HST system; and

2. Which station location options along the selected network alternative should be chosen.

This Record of Decision (ROD) makes decisions selecting certain conceptual HST corridors, alignments, and station options with regard to the Bay Area to Central Valley HST system, at the programmatic phase of environmental review. These conceptual HST corridors, alignments, and station options will subsequently be evaluated at the project phase of environmental review in site-specific detail. In making this decision, FRA considered the information, and analysis, contained in the Draft and Final Program EIR/EIS for the Bay Area to Central Valley HST system, public and agency comments, and the Authority's decision documents on the Final Program EIR/EIS. To minimize potential future environmental harm from cumulative implementation of the proposed HST system, in this ROD the FRA adopts the design practices and mitigation strategies included in the Mitigation Monitoring and Reporting Plan (MMRP) included as Appendix A.

This ROD has been drafted in accordance with the CEQ's regulations implementing the National Environmental Policy Act (NEPA), (40 CFR § 1505.2) and FRA Environmental Procedures (64 Fed. Reg. 28545, May 26, 1999).

In summary, this ROD provides background on the proposed HST system and the NEPA tiering process and describes the factors considered by the FRA in making this decision.

The ROD identifies the alignment alternatives, network alternatives, and station options considered by the FRA. The ROD also summarizes the environmental benefits and adverse impacts associated with the preferred network alternative, and further identifies and describes measures to minimize harm as a result of adverse environmental impacts. Finally, the ROD summarizes the FRA and Authority responses to comments received on the Final Program EIR/EIS.

2. Record of Decision Contents

3. Background

The Authority is the agency of California state government charged under California law (California Public Utilities Code § 185000 et seq.) with the exclusive responsibility for planning, construction, and operation of high-speed passenger train service at speeds exceeding 125 miles per hour. The Authority was created pursuant to state legislation in 1996 to develop a plan for the construction, operation, and financing of a statewide, intercity high-speed passenger train system offering intercity service (California Public Utilities Code § 185000 et seq.). The Authority's enabling legislation, Senate Bill (SB) 1420 (chaptered 9/24/96, Chapter 796, Statute of 1996), defines high-speed rail as "intercity passenger rail service that utilizes an alignment and technology that makes it capable of sustained speeds of 200 miles per hour (mph) (320 kilometers per hour [kph]) or greater." Based on the results of initial feasibility studies, the Authority advanced the evaluation of a proposed HST system as the logical next step in the development of California's transportation infrastructure.

In June 2000, the Authority adopted the final business plan (Business Plan) (California High Speed Authority 2000) describing an economically viable HST system over 700 miles long (1,127-kilometers). This system would be capable of speeds in excess of 200 miles per hour (mph) (322 kilometers per hour [kph]) and would travel on a mostly dedicated system with fully grade-separated tracks with state-of-the-art safety, signaling, and automated train control systems. As such, the HST would connect and serve the major metropolitan areas of California, extending from Sacramento and the San Francisco Bay Area through the Central Valley to Los Angeles and San Diego. Such a system would be expected to carry a minimum of 42 million passengers annually, representing 32 million intercity trips and 10 million commuter trips, by the year 2020 and would have revenues in excess of operations and maintenance costs.

At the beginning of the first EIR/EIS process for the HST program, in order to describe a proposed HST system and alternatives for analysis in the EIR/EIS, the Authority and FRA reviewed previous studies and considered the purpose and need of the HST system. Given the anticipated scope of the project, the Authority and the FRA determined that the appropriate initial California Environmental Quality Act (CEQA) and NEPA document for the proposed HST system would be a programmatic EIR/EIS, considering the comprehensive nature and scope of the HST system, to support conceptual decision-making. The programmatic level of environmental review allows for the broadest disclosure of impacts, and has provided the opportunity for the Authority, the FRA, and the public to consider alternatives to an HST system, and different conceptually defined HST corridor alignment and station options. Analyzing a proposed large-scale transportation system at the conceptual planning stage also provides the Authority and FRA with the best opportunity to develop design practices and mitigation strategies to avoid and minimize identified impacts.

The statewide program EIR/EIS was the first phase of a tiered environmental review process, and was prepared for the first and programmatic-level of review and consideration of early policy decisions on the HST system. The statewide program

EIR/EIS was prepared to support decisions about whether to pursue a high speed train system, involving steel-wheel-on-steel-rail technology; and which of the conceptual corridors, alignments, and station options evaluated in the Program EIR/EIS would be eliminated from consideration and which would be selected for further consideration in the tiered environmental reviews to be prepared subsequent to the statewide program EIR/EIS.

In November 2005, following a programmatic environmental review process, the Authority and the FRA approved the HST system program for intercity travel in California between the major metropolitan centers of Sacramento and the San Francisco Bay Area in the north, through the Central Valley, to Los Angeles and San Diego in the south. As part of this decision, the Authority and the FRA selected, for further project-level study and implementation planning, a series of alignments and station locations for the HST system. For the section of the HST system connecting the Bay Area and the Central Valley, the Authority directed staff to prepare a separate Program EIR/EIS to identify a preferred alignment within the broad corridor between and including the Altamont Pass and the Pacheco Pass.

NEPA requires that an agency consider the environmental effects of its actions at the earliest point in time when the analysis is meaningful, and it is within the agencies' discretion to fashion an environmental process appropriate to the type of decisions they are considering. The statewide and Bay Area and Central Valley Program EIR/EIS include first-tier analyses that shape the parameters for future site-specific environmental analysis and documentation, which will be conducted in the subsequent second-tier of environmental review. The second-tier analysis will build upon the foundation of the first-tier, allowing for more detailed study based on refined engineering design to shape subsequent necessary project decisions. The second-tier project-level environmental reviews will fully describe site-specific environmental impacts of project alternatives within selected corridors and at station locations carried forward from the Program EIR/EIS, and will define and analyze site-specific and appropriate mitigation measures to address localized environmental impacts.

Pursuant to the requirements of NEPA and CEQA, a comprehensive public and agency involvement effort was conducted as part of the program environmental process. Public and agency involvement was accomplished through a variety of means, including the following: scoping process that included a series of public and agency scoping meetings; consultation meetings with federal and state resource agency staff representatives throughout the environmental process; informational meetings with interest groups and agencies; presentations and briefings to a broad spectrum of interest groups; information materials; the Authority's Web site (www.cahighspeedrail.ca.gov) presenting information about the proposed project; noticed public meetings of the Authority's governing board at which key policy issues and decisions were raised and discussed and opportunities for public comment were provided; public circulation of the Draft Bay Area to Central Valley Program EIR/EIS; and posting on the Authority's website, including public information sessions and eight public hearings on the Draft Bay Area to Central Valley Program EIR/EIS, as well as written comments received during the public comment period from July 20, 2007 to October 26, 2007; and public circulation of the Final Bay Area to Central Valley Program EIR/EIS. The FRA's website was linked to the Authority's website throughout the program environmental process.

As part of the agency involvement in the environmental process, the U.S. Environmental Protection Agency (USEPA) and U.S. Army Corps of Engineers (USACE) served as cooperating agencies under NEPA for the preparation of the Program EIR/EIS. The USEPA and the USACE have participated in the development of both the Draft and Final Program EIR/EIS and, in accordance with the June 12, 2006, Interagency Memorandum of Understanding among federal agencies and the Authority for the programmatic, or Tier 1, environmental review, were consulted concerning the selection of the corridor and alignments most likely to yield the Least Environmentally Damaging Practicable Alternative (LEDPA). The USEPA and USACE have concurred that the Preferred Network Alternative described in this ROD is most likely to yield the least environmentally damaging practicable alternative (LEDPA) under Section 404 of the Clean Water Act (CWA).

The announcement of the availability of the Draft and Final Bay Area to Central Valley Program EIR/EIS and the Authority's website listed the 14 libraries within the project area having a hard copy of the documents available for review. Participating libraries were located in the following cities: Fremont, Gilroy, Livermore, Merced, Modesto, Mountain View, Oakland, Palo Alto, Pleasanton, Sacramento, San Francisco, San Jose, Stockton, and Tracy. The federal cooperating agencies and other selected agencies received an announcement letter from the Authority, a hard copy of the Draft Program EIR/EIS, and a CD copy of the document with appendices. Sixty-six other affected public agencies received an announcement letter from the Authority, an Executive Summary, and a CD copy of the document with appendices. Sixty Native American tribal representatives received an announcement letter from the Authority, an Executive Summary, and a CD copy of the document with appendices. Eighty-two elected officials received an announcement letter from the Authority and an Executive Summary. A distribution list for the Draft Program EIR/EIS was included in the Draft Program EIR/EIS. The general public was informed of the Draft Program EIR/EIS release through distribution of an announcement of the document's availability to the project mailing list. The announcement also provided the details for submitting comments by mail or fax and announced dates, times, and locations of public hearings. The mailing list contained approximately 3,600 statewide contacts, including federal, state, and local elected officials; federal, state, and local agency representatives; chambers of commerce; environmental and transportation organizations; special interest groups; media; private entities; and members of the public. The Program EIR/EIS was also made available for viewing and downloading at the Authority's web site, www.cahighspeedrail.ca.gov. Comments were accepted directly from the website as well. The website also provided the opportunity to request a CD ROM or printed copies of the document.

The release of the Draft Bay Area to Central Valley Program EIR/EIS and the release of the Final Bay Area to Central Valley Program EIR/EIS were also announced through a display advertisement distributed in 10 statewide newspapers. The display ads were published in the following newspapers: *Sacramento Bee, Daily Republic, Oakland Tribune, San Francisco Examiner, San Jose Mercury News, Modesto Bee, Merced Sun Star, Fresno Bee, Stockton Record, and Tracy Press*. In addition, a second advertisement was placed in the San Francisco Chronicle announcing the Authority Board Meetings in July when the Board would consider certifying the Final Program EIR and adopting decision documents.

A Notice of Availability of the Final Bay Area to Central Valley Program EIR/EIS was published in the Federal Register by the Environmental Protection Agency on May 30, 2008. The Final Program EIR/EIS was distributed similarly to the Draft Program EIR/EIS. Those that commented on the Draft Program EIR/EIS were added to the distribution list. The Authority Certified the Bay Area to Central Valley HST Program EIR/EIS in accordance with CEQA on July 9, 2008.

4. FRA's Role in the HST Program

The FRA is serving as the lead Federal agency for the preparation of the joint State/Federal environmental review of the HST program. As the lead Federal agency, the FRA is responsible for the form and content of the EIS, which has been prepared cooperatively with the Authority as a joint document to serve both NEPA and CEQA.

The FRA anticipates that portions of the HST project could be eligible for receipt of future federal funds that may be administered by the FRA. The nature of these federal funding programs, including eligibility requirements and award availability, would be determined in accordance with possible future Congressional appropriations, and as such are unknown at this time.

In addition to administering possible future funding, the FRA is likely to require a Rule of Particular Applicability to establish safety standards for the proposed HST system. Such a rule could be established for operating speeds over 200 mph (322 kph) and for operations in shared-use rail corridors.

5. Purpose and Need for the Proposed Action

5.1 Purpose

The Authority's statutory mandate (California Public Utilities Code § 185000 et seq.) is to plan, build, and operate an HST system that is coordinated with the state's existing transportation network, particularly intercity rail and bus lines, commuter rail lines, urban rail transit lines, highways, and airports. The Authority adopted the following specific objectives and policies for the proposed statewide HST system that respond to this mandate, lead to the definition of the project purpose and were considered in the definition and evaluation of alternatives in the Program EIR/EIS:

- Provide intercity travel capacity to supplement critically over-utilized 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.
- Preserve environmental quality and protect California's sensitive environmental resources by reducing emissions and vehicle miles traveled (VMT) for intercity trips.
- Consult with resource and regulatory agencies during the Tier 1, programmatic environmental review and use all available information for assessing the alternative that is most likely to yield the least damaging, practicable alternative by avoiding sensitive natural resources (wetlands, habitat areas, conservation areas) where feasible.
- 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, which would generate revenues in excess of operations and maintenance costs.

The purpose of the selected HST system was defined in the first statewide program EIR/EIS. *The purpose of the proposed HST system is to provide a reliable mode of travel that links the major metropolitan areas of the state and delivers predictable and consistent travel times. A further purpose is to provide an interface with commercial airports, mass transit, and the highway network and 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.*

In the Program EIR/EIS the purpose was appropriately focused on the alternative selected with the statewide program EIR/EIS and the Bay Area to Central valley study region. *The purpose of the Bay Area to Central Valley HST is to provide a reliable high-speed electrified train system that links the major Bay Area cities to the Central Valley, Sacramento, and Southern California, and that delivers predictable and consistent travel times. Further objectives are to provide interfaces between the HST system and major commercial airports, mass transit, and the highway network and to relieve capacity constraints of the existing transportation system in a manner sensitive to and protective of the Bay Area to Central Valley region's and California's unique natural resources.*

5.2 Statewide Need

The capacity of California's intercity transportation system is insufficient to meet existing and future demand, and the current and projected future congestion of the system will continue to result in deteriorating air quality, reduced reliability, and increased travel times. The system has not kept pace with the tremendous increase in population and tourism in the state. The interstate highway system, commercial airports, and conventional passenger rail system serving the intercity travel market are currently operating at or near capacity and will require large public investments for maintenance

and expansion in order to meet existing demand and future growth over the next 20 years and beyond. Moreover, the ability to expand many major highways and key airports is uncertain; some needed expansions may be impractical or may be constrained by physical, political, and other factors. Simply stated, the *need* for improvements serving intercity travel within California relates to the following issues:

- Future growth in demand for intercity travel. Intercity travel in California is forecasted to increase up to 63% over the next 20 years, from 155 million trips to more than 253 million trips (see Chapter 1 of the statewide program EIR/EIS).
- Capacity constraints that will result in increasing congestion and travel delays. Travel between the downtowns of Los Angeles and San Francisco is anticipated to increase by one hour for autos and 30 minutes for air travel over the next 20 years (see Chapter 1 of the statewide program EIR/EIS).
- 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. From 1990 to 2020, the Bay Area Regional Transportation Plan forecasts a 249% increase in average daily vehicle hours of delay (see Chapter 1 of the statewide program EIR/EIS).
- Increasing frequency of accidents on intercity highways and passenger rail lines in congested corridors of travel.
- Reduced mobility as a result of increasing demand on limited modal connections between major airports, transit systems, and passenger rail in the state.
- Poor and deteriorating air quality and pressure on natural resources as a result of expanded highway and airports. Meeting federal and state air quality standards over the next 20 to 40 years will require reductions in the total distance traveled by vehicles, 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 provide a transportation alternative to the single-occupant automobile (see Chapter 1 of the statewide program EIR/EIS).

5.3 Regional Need

The needs of the Bay Area to Central Valley region are similar to those identified for the statewide HST system.

Regional Growth

By 2050, the nine-county Bay Area region's population is anticipated to grow by more than 40%, reaching a total of 10 million people. This population growth will put tremendous pressure on the existing transportation network, and the peak travel periods are expected to encompass significantly more hours of the day. For example, the Metropolitan Transportation Commission's (MTC's) 2000 San Francisco Bay Crossing Study projected the Bay Bridge peak period to more than double from 1.5 hours in 2000 to 3.5 hours by 2020.

Additionally, growth in the region occurs in the form of dispersed land uses. Such decentralized land uses force residents to rely heavily on individual vehicles for most trips. Without improved and more extensive mass transportation systems, such as the HST system, leading to and connecting the main Central Valley cities, there will be little chance for these cities to affect compact transit-oriented development (TOD) that would mitigate adverse growth effects. TOD is an articulated goal of multiple regional and local jurisdictional land use, transportation, and redevelopment plans throughout the state, promulgated by Bay Area and Central Valley regional and local governments. TOD provides a variety of environmental and lifestyle benefits, including less travel time for multiple trip purposes (e.g., trips to/from work, shopping, entertainment, and education). TOD also contributes to a reduction in VMT, which helps to achieve emissions reduction and global warming goals.

Regional Congestion

The Bay Area already experiences the second-worst traffic congestion in the country, after Los Angeles. Congestion is expected to worsen over the next 25 years, especially in existing hotspots. The combination of significant population growth, dispersed development patterns (requiring a car for most trips), highway facilities that cannot keep pace with traffic demands, and large increases in interregional commuting, has worsened and will continue to worsen congestion levels and the associated environmental and economic impacts.

Economic Implications

The adverse economic impacts of congestion and inadequate transportation/transit access are already apparent. The 150,000 daily hours of Bay Area commute congestion had an estimated cost of $2.6 billion in 2003 alone. When transportation access to urban and suburban centers becomes too difficult, employers are likely to move jobs to areas where land prices are lower and workers' commutes might be shorter. Without better passenger rail access, major job growth will continue to decentralize and move to the Central Valley or other outlying areas, further increasing personal vehicle reliance, contributing to congestion, increasing commute times and shifting regional economic bases.

Environmental Implications

Without an expanded rail and transit network and more compact development, there may be greater adverse effects on the natural environment. More than 400,000 acres (ac) of land in the Bay Area are at risk from future development. Promoting development in walkable communities near HST, intermodal, and other transit stations offers the best opportunity for taking development pressure off open space and farms. Demand for an additional 550,000 homes near transit in the Bay Area by 2030 is anticipated, but TOD functions well only when transit service is sufficiently frequent and reliable that residents can reduce the length and the number of car trips they take.

An additional growing environmental concern is global climate change, and the transportation sector is responsible for about 40% of greenhouse gas emissions in California and up to 50% in the Bay Area. Because these emissions are directly proportional to the amount of fuel burned, offering effective and efficient transportation choices results in reduced driving and reduced emissions.

6. Alternatives Considered

A portion of the proposed HST system selected in the statewide program EIR/EIS (November 2005) was further evaluated in the Bay Area to Central Valley Program EIR/EIS. The selected HST system is electrified steel-wheel-on-steel-rail dedicated service, with a maximum speed of 220 mph (350 kph) and a fully grade-separated, access-controlled right-of-way that in some areas would share tracks at lower speeds with other compatible passenger rail services. Shared-track operations would use existing rail infrastructure in areas where construction of new separate HST facilities would not be reasonable or feasible. Although shared service would reduce the flexibility and capacity of HST service because of the need to coordinate schedules, it would also result in fewer environmental impacts and a lower construction cost.

The selected HST system includes "corridors [that] are conceptually described and represent routes for an over 800-mile long system providing for high-speed intercity passenger rail service between the major metropolitan areas of Sacramento and the San Francisco Bay Area in Northern California, through the Central Valley, to the Los Angeles area and Orange County and to San Diego via the Inland Empire." (statewide program EIR/EIS ROD, p. 3) In the statewide program EIR/EIS ROD (p.14), FRA selected for the Bay Area to Central Valley portion of the HST system:

> "A broad preferred corridor between the Bay Area and the Central Valley containing a number of feasible route options within which further study will permit the identification of a single preferred alignment option. This corridor is generally bounded by (and includes) the Pacheco Pass (SR-152) to the south, the Altamont Pass (I-580) to the north, the BNSF Corridor to the east, and the Caltrain Corridor to the west (Highway route numbers are provided only as a convenient reference for the reader, not as a limitation on the corridor to be considered). The future additional study will also further consider the selected alignments and station locations in the Bay Area described below.
>
> San Francisco Peninsula: Caltrain Corridor with potential stations at downtown San Francisco (Transbay Terminal), SFO (Millbrae), and Redwood City or Palo Alto.
>
> East Bay Alignment: "Hayward Line to I-880" alignment with potential stations at Oakland (West Oakland) or 12th Street/City Center, Union City, and San Jose."

As a tiered environmental document, alternatives considered in the Program EIR/EIS are an integral part of the HST system selected with the statewide program EIR/EIS, which would provide HST services along corridor alignments connecting station locations from San Francisco and Sacramento in the north through the Central Valley to Los Angeles and San Diego in the south. The Program EIR/EIS did not further evaluate alignments and station locations outside of the study region defined in the November 2005 ROD that would connect the alternatives considered to Sacramento in the north and Los Angeles in the south. The implications and changes to the HST system related to choices of alignments and station locations in the Bay Area to Central Valley study region were described in the Program EIR/EIS and are addressed in this ROD.

Informed by previous studies and the scoping process, the Authority and the FRA evaluated potential HST alignment alternatives and station location options in the Bay Area to Central Valley study region and defined those that best meet the statewide project purpose and objectives of the HST system.

The Authority and FRA conducted a screening evaluation to identify potential alignment alternatives and station location options in line with the statewide purpose that were anticipated to be practicable, reasonable, and feasible for further consideration in the Program EIR/EIS. The screening evaluation included the following activities:

- Review of alignment alternatives and station location options identified in previous studies in the study region. (See Chapter 2, Program EIR/EIS.)
- Identification of alignment alternatives and station location options not previously evaluated.
- Evaluation of alignment alternatives and station location options using standardized engineering, environmental, and financial criteria and evaluation methodologies listed below. (See Chapter 2, Program EIR/EIS.)
- Evaluation of alignment alternatives and station location options against defined objectives listed above. (See Chapters 2, 7, and 8, Program EIR/EIS.)

The alignment and station-screening evaluation, along with public and agency input, together provided the Authority and the FRA with the necessary information to identify a reasonable range of alignment, station location, and HST corridor options.

Table 1 presents the relationship of objectives and criteria applied in the screening evaluation. The objectives and criteria used in this evaluation represent further refinement of those used in previous studies and also incorporated the HST system performance goals and criteria. Alignment alternatives and station location options were considered and compared based on these established objectives and criteria:

Table 1
High-Speed Rail Alignment and Station Evaluation Objectives and Criteria

Objective	Criteria
Maximize ridership/revenue potential	Travel time Length Population/employment catchment area
Maximize connectivity and accessibility	Intermodal connections
Minimize operating and capital costs	Length Operational issues Construction issues Capital cost Right-of-way issues/cost
Maximize compatibility with existing and planned development	Land use compatibility and conflicts Visual quality impacts

Objective	Criteria
Minimize impacts on natural resources	Water resources impacts Floodplain impacts Wetland impacts Threatened and endangered species impacts
Minimize impacts on social and economic resources	Environmental justice impacts (demographics) Farmland impacts
Minimize impacts on cultural and parks/wildlife refuge resources	Cultural resources impacts Parks and recreation impacts Wildlife refuge impacts
Maximize avoidance of areas with geologic and soils constraints	Soils/slope constraints Seismic constraints
Maximize avoidance of areas with potential hazardous materials	Hazardous materials/waste constraints

At the scoping phase, some alignment alternatives and station location options were considered and removed from further study. Based on the above objectives and criteria, the Authority and FRA determined that certain alignment alternatives were impracticable or unreasonable based on infeasibility or anticipated environmental impacts.

- For most of the alignment alternatives and station location options not carried forward in the Program EIR/EIS, failure to meet the articulated project purpose, need and objectives or practicability constraints were the primary reasons for elimination.
- General project purpose and objectives were considered in terms of ridership potential, connectivity and accessibility, incompatibility with existing or planned development, and severe operational constraints.
- Environmental criteria were considered a reason for elimination when an alignment alternative or station location option had considerably more probable environmental impacts, based on geographic, population or ecosystem characteristics, than other practicable alignment alternatives or station location options for the same corridor.
- Practicability constraints were considered in terms of cost, constructability, right-of-way constraints, and other technical issues.
- Specific thresholds were established to help guide the evaluation of tunnel constructability. Continuous tunnel lengths of more than 12 mi (19 km) were considered impracticable based on constructability, project scheduling, and the seismic characteristics and associated dangers in the region, The crossing of major fault zones at grade was also identified as a necessary criterion to minimize threat to system stability during seismic movement.

6.1 HST Alternatives Eliminated from Further Consideration During the Scoping Phase

The following HST Alignment Alternatives and station location options were considered but rejected from further consideration in the statewide program EIR/EIS for the HST system (California High-Speed Rail Authority and Federal Railroad Administration 2005) and this Program EIR/EIS process. The reasons for elimination of each of the alignments evaluated are categorically summarized in Table 2.

Table 2
Bay Area to Merced: High-Speed Train Alignment Alternatives and Station Location Options Considered and Eliminated in Program EIR/EIS

Alignment or Station	Reason for Elimination							
	Construction	Incompatibility	Right-of-Way	Connectivity / Accessibility	Revenue / Ridership	Alignment Eliminated	Environment	Environmental Concerns[1]
San Francisco to San Jose								
US-101 Alignment (exclusive guideway)	P	S	P				P	Visual, land use (right-of-way acquisition) impacts
Caltrain Corridor (exclusive guideway)	P	P	P				P	Visual, land use (right-of-way acquisition), cultural resources impacts
I-280 Alignment	P		P				P	Visual, land use (right-of-way acquisition) impacts
Station Locations								
Millbrae–SFO (US-101)						P		
Redwood City (US-101)						P		
Santa Clara (Caltrain)					P			Station area would be served by Diridon Station only 3 miles away
Oakland to San Jose								
Mulford Line	P	P	P				P	Visual, land use, wetlands, parklands impacts
I-880 (Note: Only Oakland to Fremont portion to be eliminated)	P		P					
Former WPRR Rail Line to Mulford Line (WPRR/Niles/Mulford alignment)	P						P	Wetlands, parklands impacts
Hayward Line via tunnel to Mulford Line (Hayward/Tunnel/Mulford alignment)	P	S	P				P	Wetlands, parklands, land use impacts; seismic constraints
Former WPRR Rail Line via tunnel to Mulford Line (WPRR/Tunnel/Mulford)	P	S	P				P	Wetlands, parklands, land use impacts; seismic constraints

Alignment or Station	Reason for Elimination							
	Construction	Incompatibility	Right-of-Way	Connectivity / Accessibility	Revenue / Ridership	Alignment Eliminated	Environment	Environmental Concerns[1]
Former WPRR Rail Line to Hayward Line to I-880 (WPRR/Hayward/I-880)	P							
Former WPRR (Warm Springs to San Jose)	P		P					
Tunnel under Fremont Central Park	P						S	Seismic constraints, parklands
Station Locations								
Lake Merritt		P		P				
Jack London Square	P			P				
I-880 Hegenberger						P		
Coliseum BART (WPRR)						P		
Mowry Avenue	P					P		
San Jose to Central Valley								
Merced Southern alignment (Central Valley Portion of San Jose-Merced section for Diablo Range Direct alignments)							P	San Luis National Wildlife Refuge impacts
Direct Tunnel Alignment (Northern or Southern Connection to Merced	P						S	Seismic constraints
Diablo Range Direct Alignments (Northern Alignment and alignments through Henry Coe State Park)	P						P	Parklands, habitat fragmentation, high value aquatic resources, visual, noise impacts
Caltrain/Morgan Hill/Foothill/Pacheco Pass Alignment	P	P		P			P	Visual, land use impacts
Caltrain/Morgan Hill/East US-101/Pacheco Pass Alignment		P		P				
Caltrain/Morgan Hill/Pacheco Pass Alignment	P		P					
Station Locations								
Morgan Hill (Foothills)				P		P		
Morgan Hill (east of US-101)				P		P		
Los Banos					P		P	Water resources, threatened and endangered species, growth related impacts

Alignment or Station	Reason for Elimination							
	Construction	Incompatibility	Right-of-Way	Connectivity / Accessibility	Revenue / Ridership	Alignment Eliminated	Environment	Environmental Concerns[1]
East Bay to Central Valley								
SR-84/South of Livermore		S		S			P	Natural resources, habitat and endangered species, agricultural lands, water resources impacts
SR-84/I-580/UPRR		S		S			P	Natural resources, habitat and endangered species, agricultural lands, water resources impacts
I-580: Bay Fair to Pleasanton	P		S					Construction, logistical constraints, right-of-way
Station Locations								
Pleasanton (I-680/SR-84)				S		P		
Livermore (Greenville Rd/SR-84/UPRR)				S		P		
Livermore (Isabel/SR-84)				S		P		
Central Valley Alignments								
West of SR-99				P			P	Farmlands, water resources, floodplains, severance impacts
East of SR-99				P			P	Farmlands, water resources, floodplains, severance impacts

Alignment or Station	Reason for Elimination							
	Construction	Incompatibility	Right-of-Way	Connectivity / Accessibility	Revenue / Ridership	Alignment Eliminated	Environment	Environmental Concerns[1]

Definitions:

Reason: Primary (P) and secondary (S) reasons for elimination.

Construction: Engineering and construction complexity and initial and/or recurring costs would render the project impracticable and logistical constraints.

Environment: High potential for considerable impacts to natural resources, including water resources, streams, floodplains, wetlands, and habitat of threatened or endangered species, would fail to meet project objectives.

Incompatibility: Incompatibility with current or planned local land use as defined in local plans would fail to meet project objectives.

Right-of-Way: Lack of available rights-of-way or extensive right-of-way needs would result in high acquisition costs and/or delays that would render the project impracticable.

Connectivity/Accessibility: Limited connectivity with other transportation modes (aviation, highway, and/or transit systems) would impair the service quality, could reduce ridership of the HST system, and would fail to meet the project purpose.

Ridership/Revenue: The alignment/station would result in longer trip times and/or have suboptimal operating characteristics and would have low ridership and revenue and would fail to meet the project purpose.

Alignment Eliminated: Station or connection eliminated because the connecting alignment was eliminated.

* Alignment Eliminated column applies only to station locations. If an alignment is eliminated, a specific station location may no longer be necessary.

[1] Environmental Concerns are only noted when Environment criteria were a primary or secondary reason for elimination.

6.2 Alternatives Considered in the Program EIR/EIS

No Project Alternative

Under NEPA, FRA is required to consider a no action alternative, which is substantially equivalent to the No Project Alternative that the Authority is required to consider under CEQA, and which evaluates the environmental impacts that would occur if the proposed HST system is not advanced or implemented. The No Project Alternative represents the region's transportation system (highway, air, and conventional rail) as it existed in 1999–2000 and as it would be in 2030 with the addition of transportation projects currently programmed for implementation (already in funded programs/financially constrained plans) according to the State Transportation Improvement Program (STIP), regional transportation plans (RTPs) for all modes of travel, airport improvement plans, and intercity passenger rail plans.

Alignment Alternatives and Station Location Options

To facilitate this analysis, the study area was divided into six corridors within the study region:

- San Francisco to San Jose
- Oakland to San Jose

- San Jose to Central Valley
- East Bay to Central Valley
- San Francisco Bay Crossings
- Central Valley Alignment

These corridors connect different parts of the study region and are fundamentally different and distinct in terms of land use, urban and activity centers served (e.g., regional airports), connectivity with other transit services, terrain, and construction configuration (mix of at-grade, aerial structure, and tunnel sections). The HST alignment alternatives and station location options that were considered in each corridor of the study region and that were not eliminated through either screening or scoping are discussed below. These alignment alternatives and station location options all meet the project's stated purpose and need and objectives (shown in Table 1) to varying degrees and were therefore considered as reasonable and practical alternatives and options for detailed environmental evaluation. Assembled into network alternatives (see discussion infra), they represent a reasonable range of alternatives for evaluation under NEPA.

San Francisco to San Jose

Alignment Alternatives Carried Forward

- Caltrain Alignment (Shared-Use Four-Track): From San Francisco, this alignment alternative would follow south along the Caltrain rail alignment to Dumbarton and from there to San Jose. This alignment alternative assumes that the HST system would share tracks with Caltrain commuter trains. The entire alignment would be grade separated. Station location options would include a station in the lower level of the proposed new Transbay Transit Center in San Francisco or a station at 4th and King Streets, a station in Millbrae to serve San Francisco International Airport (SFO), and a station in either Redwood City or Palo Alto. The Caltrain shared-use alignment would take advantage of the existing publicly owned rail right-of-way and rail infrastructure and would be mostly at-grade. The current rail operator, Caltrain, supports the concept of a shared use commuter rail and HST corridor.

Station Location Options Carried Forward

- Transbay Transit Center: This potential station location would serve the Caltrain shared-use alignment as a downtown terminal station.
- 4th and King (Caltrain): This potential station location would serve the Caltrain shared-use four-track alignment as a downtown terminal station.
- Millbrae: This potential station would serve as a connection with SFO.
- Redwood City (Caltrain): This potential station location would provide accessibility and serve the population between San Jose and San Francisco.
- Palo Alto (Caltrain): This potential station location would provide accessibility and serve the population between San Jose and San Francisco.

Oakland to San Jose

Alignment Alternatives Carried Forward

- Niles Subdivision Line to I-880 (Niles/I-880): From Oakland, this alignment alternative would travel south following the UPRR's Niles Subdivision Line (i.e., Hayward Line) transition to the UPRR's Warm Springs Subdivision (Milpitas Line) at Niles Junction and then transition to the I-880. Station location options include Oakland, Oakland Airport and Union City (BART) or Fremont (Warm Springs) The alignment would be at-grade along the Niles Subdivision Line and on an aerial structure in the median of I-880, consistent with the objective of placing the HSR adjacent to or within existing transportation rights-of-way to minimize impacts. The I-880 HST portion would mostly be on an aerial configuration from Fremont to San Jose. This alignment would require the construction of columns and footings in the wide median of I-880.
- Niles Subdivision Line to I-880 to Trimble Road (Niles/I-880/Trimble Rd.): From Oakland, this alignment alternative would travel south following the UPRR's Niles Subdivision Line (i.e., Hayward Line), transition to the UPRR's Warm Springs Subdivision (Milpitas Line) at Niles Junction and then transition to I-880 and then to Trimble Road. Station location options include Oakland, Oakland Airport, and Union City (BART) or Fremont (Warm Springs) The alignment would be at-grade along the Niles Subdivision Line and on an aerial structure in the median of I-880, consistent with the objective of placing the HST adjacent to or within existing transportation rights-of-way to minimize impacts. The I-880 HST portion would mostly be on an aerial configuration from Fremont to San Jose. The Trimble Road segment would be on an aerial structure and in a tunnel (where adjacent to San Jose International Airport). This alignment would require the construction of columns and footings in the wide median of I-880.

Station Location Options Carried Forward

- West Oakland: This potential station location would serve Oakland the Niles/I-880 Alignment.
- 12th Street/City Center: This potential station location would serve Oakland from the Niles/I-880 Alignment
- Coliseum/Airport BART Station: This potential station location would serve the Oakland Airport from the Niles/I-880 Line.
- Union City (BART): This potential station location would serve the population centers between Oakland and San Jose from the Niles/ I-880 Line.
- Fremont (Warm Springs): This potential station location would serve the population centers between Oakland and San Jose from the Niles/ I-880 Line.

San Jose to Central Valley

Alignment Alternatives Carried Forward

- Caltrain/Pacheco/Henry Miller Avenue: This alignment alternative would extend south along the Caltrain/UPRR rail corridor through the Pacheco Pass and a portion of the Grasslands Ecological Area (GEA) along Henry Miller Road and then across the San Joaquin Valley. The alignment would be adjacent to or within the

railroad and highway rights-of-way and placed in tunnels over the Pacheco Pass to minimize project impacts. Station location options include the existing San Jose (Diridon) Station and Gilroy (near the existing Caltrain Station) or Morgan Hill (near the existing Caltrain Station).

- Caltrain/Pacheco/GEA North/Merced: This alignment alternative would extend south along the Caltrain/UPRR rail corridor through the Pacheco Pass, pass through the northern portion of the GEA and then across the San Joaquin Valley. Station location options include the existing San Jose (Diridon) Station and Morgan Hill (near the existing Caltrain Station) or Gilroy (near the existing Caltrain Station).

Station Location Options Carried Forward

- San Jose (Diridon): This potential station location would serve all alignments (Caltrain/Monterey Highway rights-of-way) out of San Jose.
- Morgan Hill (Caltrain): This potential station location would serve all the Pacheco Pass alignment alternatives.
- Gilroy (Caltrain): This potential station location would serve all the Pacheco Pass alignment alternatives.

East Bay to Central Valley

Alignment Alternatives Carried Forward

- UPRR: This alignment alternative would extend east via a relatively direct routing (mostly in tunnel) between Niles Junction and I-680 then use the UPRR alignment through Pleasanton and Livermore, before transitioning to the I-580 corridor through the Altamont Pass to Tracy. The HST alignment would be placed adjacent to or within transportation rights-of-way or in tunnel to minimize impacts. Station location options include the Pleasanton (Bernal/I-680) Station, Livermore (near downtown), or Livermore (Greenville Rd.) and Tracy (downtown) or Tracy (ACE),
- I-580/UPRR: This alignment alternative would extend east via a relatively direct routing (mostly in tunnel) between Niles Junction and I-680 then use the UPRR alignment through Pleasanton before transitioning to the I-580 corridor through Livermore and the Altamont Pass to Tracy. Station location options include the Pleasanton (Bernal/I-680) Station, Livermore (I-580), or Livermore (Greenville Rd.) and Tracy (downtown) or Tracy (ACE). The HST alignment would be placed adjacent to or within transportation rights-of-way or in tunnel to minimize impacts.
  .
- I-580/I-680/UPRR: This alignment alternative would extend east via a relatively direct routing (mostly in tunnel) between Niles Junction and I-680 then use the I-680 alignment before transitioning I-580 corridor (at the I-580/I-680 junction). Station location options include the Pleasanton (BART) Station, Livermore (I-580), or Livermore (Greenville Rd.) and Tracy (downtown) or Tracy (ACE). The HST alignment would be placed adjacent to or within transportation rights-of-way or in tunnel to minimize impacts.
- Patterson Pass/UPRR: This alignment alternative would extend east via a relatively direct routing (mostly in tunnel) between Niles Junction and I-680 then adjoin or use the UPRR alignment through Pleasanton and Livermore, before

transitioning to the I-580 corridor through the Patterson Pass between Livermore and Tracy. Station location options include the Pleasanton (Bernal/I-680) Station, Livermore (near downtown), and Tracy (downtown) or Tracy (ACE). The HST alignment would be placed adjacent to or within transportation rights-of-way or in tunnel to minimize impacts.

Station Location Options Carried Forward

- Pleasanton (1-680/Bernal Road): This potential station location would serve the Altamont I-580/UPRR alignment alternative and the Altamont UPRR alignment alternative.
- Pleasanton (BART): This potential station location would serve the Altamont I-580/I-680/UPRR alignment alternative.
- Livermore (Downtown): This potential station location would serve the Altamont UPRR alignment alternative.
- Livermore (I-580): This potential station location would serve the Altamont I-580/I-680/UPRR alignment alternative and the Altamont I-580/UPRR alignment alternative.
- Livermore (Greenville Road/UPRR): This potential station location would serve the Altamont UPRR alignment alternative.
- Livermore (Greenville Road/I-580): This potential station location would serve the Altamont I-580/I-680/UPRR alignment alternative and the Altamont I-580/UPRR alignment alternative.
- Tracy (Downtown): This potential station location would serve all Altamont Pass alignment alternatives.
- Tracy (ACE): This potential station location would serve all Altamont Pass alignment alternatives.

San Francisco Bay Crossings

Alignment Alternatives Carried Forward

- New Transbay Tube: This alignment alternative would connect the Oakland (West Oakland or 12th Street City Center) and San Francisco (Transbay Transit Center or 4th and King) HST stations via a new transbay tube, This alignment alternative could serve either Altamont Pass or Pacheco Pass alignment alternatives.
- Dumbarton Rail Crossing (Centerville): This alignment alternative would serve the Altamont Pass alignment alternatives and link the East Bay to the Peninsula in the vicinity of the existing Dumbarton Rail Bridge. Between Niles Junction and the Dumbarton Bridge, this alignment would use the Centerville rail alignment, Possible designs for this alignment include a new (low level or high level) Rail Bridge or a new transbay tube.
- Dumbarton Rail Crossing (Fremont Central Park): This alignment alternative would serve the Altamont Pass alignment alternatives and link the East Bay to the Peninsula in the vicinity of the existing Dumbarton Rail Bridge, Between Niles Junction and the Dumbarton Bridge, this alignment would use an existing utility alignment and a new alignment through the Don Edwards Natural Wildlife Refuge.

This alignment would require tunneling under Fremont Central Park. Possible designs for this alignment include use of an improved Dumbarton Rail Bridge (low level), a new high-level bridge, and a new transbay tube.

Station Location Options Carried Forward

- Union City (Shinn): This potential station would serve the population centers between Oakland and San Jose only for Altamont Pass (East Bay to Central Valley) alignment alternatives using the Dumbarton Rail Crossing (Centerville) connection to the San Francisco Peninsula.

Central Valley

Alignment Alternatives Carried Forward

- BNSF Rail Line: This alignment alternative would connect with either the Altamont or Pacheco Pass alignment alternatives. This north-south alignment would link the Bay Area to Central Valley population centers, Sacramento, and southern California, Station location options include Modesto (Briggsmore) and Merced (Downtown and Castle AFB).
- UPRR Rail Line: This alignment alternative would connect with either the Altamont or Pacheco Pass alignment alternatives. This north-south alignment would link the Bay Area to Central Valley population centers, Sacramento, and southern California. Station location options include Modesto (Downtown) and Merced (Downtown and Castle AFB).

Station Location Options Carried Forward

- Downtown Modesto: This potential station location would serve the Altamont Pass and Pacheco Pass alignment alternatives using the UPRR alignment alternative.
- Briggsmore (Amtrak): This potential station location would serve Altamont Pass and Pacheco Pass alignment alternatives using the BNSF alignment alternative.
- Downtown Merced: This potential station location would serve all Altamont Pass and Pacheco Pass alignment alternatives.
- Castle AFB: This potential station would serve all Altamont Pass and Pacheco Pass alignment alternatives.

Network Alternatives

To review and evaluate a HST system in the study region as a part of a statewide system, HST network alternatives were identified representing different ways to combine the HST alignment alternatives and station location options. Several operating scenarios for combinations of alignment alternatives and terminus stations were investigated. The network alternatives were developed to enable an evaluation and comparison of how various combinations of alignment alternatives would meet the project's purpose and need and how each would perform as an HST network (e.g., travel times between various station locations, anticipated ridership, operating and maintenance costs, energy consumption, and auto trip diversions). Representative network alternatives are discussed in Chapter 2 of the Program EIR/EIS and listed below.

Altamont Pass Network Alternatives

- San Francisco and San Jose Termini
- Oakland and San Jose Termini
- San Francisco, Oakland, and San Jose Termini
- San Jose Terminus
- San Francisco Terminus
- Oakland Terminus
- Union City Terminus
- San Francisco and San Jose – via SF Peninsula
- San Francisco, San Jose, and Oakland – with no San Francisco Bay Crossing
- Oakland and San Francisco – via Transbay Tube
- San Jose, Oakland, and San Francisco – via Transbay Tube

Pacheco Pass Network Alternatives

- San Francisco and San Jose Termini
- Oakland and San Jose Termini
- San Francisco, Oakland, and San Jose Termini
- San Jose Terminus
- San Jose, San Francisco, and Oakland – via Transbay Tube
- San Jose, Oakland, and San Francisco – via Transbay Tube

Pacheco Pass with Altamont Pass (Local Service) Network Alternatives

- San Francisco and San Jose Termini
- Oakland and San Jose Termini
- San Francisco, Oakland, and San Jose Termini (without Dumbarton Bridge)
- San Jose Terminus

6.3 Preferred Pacheco Pass Network Alternative, Preferred Alignment Alternatives and Station Location Options

Each network alternative was evaluated on the potential ability to help achieve the alignment objectives appearing in Table 1 of this document. The different system characteristics, service areas, connectivity, complex regional geographic and seismic characteristics, as well as environmental factors of the network alternatives presented complex factors and choices to be considered in making a decision. Informed by public review and comment on the Draft Program EIR/EIS, the Authority staff prepared an evaluation for consideration by the Authority board and FRA after the public comment period, which ended October 26, 2007. Chapter 8 of the Final Program EIR/EIS describes the preferred HST network and alignment alternatives and station options as well as specific, detailed evaluations of network alternatives that supported the identification of the preferred network alternative in greater detail than this document. In particular, section 8.3.4 contains a comparison of the Pacheco Pass and Altamont Pass Alternatives in terms of public input, ridership and revenue, capital and operating costs,

travel times/travel conditions, constructability issues and logistical constraints, and environmental impacts.

The Final Program EIR/EIS identified the preferred network alternative as the Pacheco Pass Network Alternative serving San Francisco and San Jose termini (Preferred Pacheco Pass Network Alternative). This preferred alternative includes the following alignment alternatives and station location options. Station locations and alignment alternatives are also described in more detail in Chapter 8 of the Final Program EIR/EIS.

San Francisco to San Jose

Alignment: Caltrain Corridor (Shared Use)

Preferred Station Locations:

- Downtown San Francisco Terminus: Transbay Transit Center
- San Francisco Airport Connector Station: Millbrae (SFO)
- Mid-Peninsula Station: Continue to investigate both Palo Alto and Redwood City as potential sites and work with local agencies and the Caltrain Joint Powers Board (JPB) to determine whether a mid-peninsula station site should be developed.

San Jose to Central Valley

Alignment: Pacheco Pass via Henry Miller Road (UPRR Connection)

Preferred Station Locations:

- Downtown San Jose Terminus: Diridon Station
- Southern Santa Clara County: Gilroy Station (Caltrain)

Central Valley

Alignment: UPRR N/S

- At the project level, continue to evaluate BNSF or some combination of UPRR and BNSF, because of uncertainty of negotiating with the UPRR and the BNSF for use of some of their right-of-way and continue investigation of alignments/linkages to a potential maintenance facility at Castle Air Force Base (AFB).

Preferred Station Locations:

- Modesto: Downtown Modesto
- Merced: Downtown Merced
- Reaffirm that no station would be located between Gilroy and Merced.

Maintenance Facilities:

No maintenance facility would be located at Los Banos. Castle AFB is identified as one of the options for future study for the location of an HST maintenance facility.

6.4 Environmentally Preferable Alternative

The identification of the Preferred Pacheco Pass Network Alternative with San Francisco and San Jose Termini, utilizing the UPRR N/S alignment in the Central Valley, as environmentally preferable over the other representative network alternatives involves a series of tradeoffs and balancing considerations.

In the 2005 ROD for the statewide program EIR/EIS, the Authority and FRA found that taking no action under the No Project Alternative would not meet the intercity travel needs projected for the future (2030 and beyond) as population continues to grow, and would fail to meet the purpose and objectives of the HST program. Considering the updated ridership forecasts developed for this Program EIR/EIS, the FRA and Authority reaffirmed that the HST system statewide, as well as within the Bay Area to Central Valley study region, offers environmental benefits in the areas of traffic, air quality, and energy use, whereas the No Project Alternative would result in increased traffic congestion, deteriorating air quality, and reduced transportation energy efficiency. The Program EIR/EIS No Project Alternative does not meet the purpose and need or project objectives.

Each of the 21 representative network alternatives presents different types and degrees of environmental impact. Each network alternative involves some adverse impacts in the areas of biological resources and wetlands, waterbodies (San Francisco Bay and lakes), noise and vibration, cultural resources, farmland, and parks and/or recreational resources. The basic choice of how to connect the Bay Area to the Central Valley (Pacheco, Altamont, or Pacheco with Altamont) involves environmental impacts in some locations; environmental impacts cannot be altogether avoided with any network alternative.

Each of the 21 representative network alternatives also has varying ability to meet the project purpose and objectives, and varying challenges in terms of feasibility, practicality, and constructability. The selection of a preferred overall network therefore involves the weighing of different types and amounts of environmental impacts in different regional locations, consideration of the ability of each network alternative to meet the purpose and need, and project objectives, and ability of the alternative to be feasibly constructed.

Given the stated purpose and objectives, the Authority and FRA find that the Pacheco Pass Network Alternative is the overall environmentally preferable alternative among the representative network alternatives that meet the project purpose and need by providing service to at least two major urban centers of the Bay Area without presenting significant constructability or feasibility concerns. Detailed analysis of each of the networks alternatives, including the Preferred Pacheco Pass Network Alternative, can be found in Chapter 8 of the Final Program EIR/EIS.

7. Summary of Statewide HST Environmental Benefits

The potential statewide environmental, transportation, land use, economic, and social beneficial effects of the statewide HST system and the Preferred Pacheco Pass Network Alternative are summarized below.

When implemented, the HST system would provide numerous transportation benefits throughout the state of California. The HST system would provide a safe, reliable mode of travel, providing quick, competitive travel times between California's major intercity markets, and link the major metropolitan areas of the state while delivering predictable, consistent travel times sustainable over time.

The HST system would improve connectivity and accessibility to other existing transit modes and airports. Travel to longer distance intercity markets by HST would be comparable to air transportation and less than one half as long as automobile travel times. Travel times for intermediate intercity trips would be faster than either air or automobile transportation, and the HST system would serve more parts of the state than air transportation by bringing frequent HST service to many parts of the state that are not well served by air transportation.

The HST system would be less susceptible to factors influencing reliability because it would operate as a predominantly separate transportation system. The HST system would be grade separated, eliminate travel delays and improve travel times and reliability. Traffic delays at existing at-grade rail crossing would be eliminated where the HST provides a grade separation. HST service and capacity could be expanded with minimal additional infrastructure.

Implementation of the statewide HST system would also significantly benefit the environment. The HST system could lead to a projected 2.3% statewide reduction in VMT on the highway system or 9.74 billion VMT annually. This would decrease air pollutants statewide by reducing pollution generated by automobile combustion engines. Carbon dioxide emissions would be reduced by 3.4 million tons (6.8 billion pounds) annually by 2030. The system would also lower total energy consumption by 5.8 million barrels of oil annually by 2030, as the HST system uses less energy to move passengers than either airplanes or automobiles.

In selecting HST corridors, the Authority has labored to utilize existing transportation corridors wherever feasible. Being within or adjacent to transportation corridors and rail lines would minimize the impacts on California's landscape, wetlands and waterbodies, parks, recreational areas, cultural resources and wildlife refuges to the greatest extent possible.

The statewide HST system would provide other land use benefits by acting as a catalyst for promotion and adoption of smart growth principles in communities near HST stations. The HST would be highly compatible with local and regional plans that support rail systems and TOD and offers opportunities for increased land use efficiency, including higher density development resulting in reduced rates of farmland loss. High density development accommodates more population and employment on less land. As such, the HST system would result in a slight decrease in urban area growth.

The statewide HST system would create economic benefits by providing revenue generated by the system and economic growth generated by construction and operation of the system. The HST system is anticipated to create 450,000 permanent jobs statewide and 160,000 construction related jobs statewide. The HST system could further improve competitiveness of state industries by providing a location advantage in areas in proximity to an HST station through improved accessibility to labor and

customer markets. Land use effects can also lead to increased stock of affordable housing, promotion of job opportunities, reduction in energy consumption, and improved cost-effectiveness of public infrastructure.

Social benefits would be created by improved, reliable intercity, interregional connectivity. Residents of California and the Central Valley would have improved travel options, and the HST would provide travel options for some people who would not otherwise make trips.

8. Summary of Potential Environmental Benefits and Adverse Impacts for Bay Area - Central Valley Study Area

Potential benefits and adverse environmental impacts in the Bay Area to Central Valley region resulting from the Preferred Pacheco Pass Network Alternative are identified in the Final Program EIR/EIS and are summarized in the following sections. Temporary and construction related impacts are addressed in each appropriate resource topic. The Program EIR/EIS considers the potential for environmental impact related to travel conditions, movement of goods, and emergency access. The Program EIR/EIS and the Authority's decision documents on it also discuss design practices and mitigation strategies to reduce adverse environmental impacts. The benefits of the HST system as a whole are also benefits of the Preferred Pacheco Pass Network Alternative in the Bay Area to Central Valley study region. The FRA found that the Preferred Pacheco Pass Network Alternative is environmentally preferable.

8.1 Traffic and Circulation

By providing another mode of intercity travel in the Bay Area to Central Valley region, the HST would improve reliability and increase mobility within the area's transportation system. The Preferred Pacheco Pass Network Alternative best serves the connection between northern and southern California with the greatest potential frequency and capacity, superior connectivity between the South Bay and Southern California, and fewer potential intermediate stops. The HST system would result in traffic improvement in areas where grade separation for the HST system would replace an at-grade crossing that was responsible for periodic local traffic delays. The Preferred Pacheco Pass Network Alternative would result in a reduction in vehicle miles traveled (annual) of about 1.75%, or 716 million VMT, in the Bay Area (Alameda, Contra Costa, San Francisco, San Mateo and Santa Clara Counties) and 8.0%, or 3.69 billion VMT, in the Central Valley (San Joaquin, Stanislaus, Merced, Madera, Fresno, Tulare, Kern and Kings Counties), creating improvements in highway congestion and travel delay.

However, the operation of the HST system would result in increased traffic around HST station locations and increased congestion on highway and roadway segments which would provide access to stations. Additionally, the construction of the HST system would result in short-term impacts of increased traffic in areas affected by the

construction process for the duration of the construction in that area. In a few areas, the HST system would result in closure, either temporary or permanent, of local roadways that in turn would result in increased traffic on nearby roads and longer travel routes for some travelers.

While localized increases in traffic and congestion near HST station areas and during construction are significant at the programmatic level of analysis, mitigation strategies have been identified that can reduce this impact (see page 2 in the MMRP - Appendix A). Adverse impacts related to parking or public transportation are not expected because mitigation strategies have been identified that can avoid these impacts.

8.2 Air Quality

The Preferred Pacheco Pass Network Alternative would result in air quality improvement in the Bay Area to Central Valley study region. The Preferred Pacheco Pass Network Alternative would result in a reduction in VMT (annual) of about 1.75%, or 716 million VMT, in the Bay Area (Alameda, Contra Costa, San Francisco, San Mateo and Santa Clara Counties) and 8.0%, or 3.69 billion VMT, in the Central Valley (San Joaquin, Stanislaus, Merced, Madera, Fresno, Tulare, Kern and Kings Counties). This VMT reduction is expected to relieve highway congestion and result in on-road mobile source emissions reductions within the San Francisco Bay Area and San Joaquin Valley air basins.

Within the Bay Area to Central Valley study region, the HST is expected to reduce the statewide emissions burdens associated with air travel from 0.7% for particulate matter to 3.4% for nitrogen oxides. Carbon dioxide plane emissions are predicted to decrease by approximately 44% on a statewide level. Emissions related to increased HST power demand are expected to increase statewide by 1.2% for criteria pollutants and by 1.8% for carbon dioxide due to increased electrical requirements of the HST system. If it is decided that HST would be run on 100% clean, zero-carbon emissions electricity, there would be no predicted increase in carbon dioxide levels due to the project's increased electrical requirements.

The HST system statewide and in the Bay Area to Central Valley study region would result in an overall decrease in criteria pollutant emissions. Additional air quality improvement would result from congestion relief afforded by the use of HST to the extent that: (1) congested highway traffic would be relieved on intercity highway segments, (2) grade separations for the HST system improve local traffic flow by removing traffic impediments that cause congestion and delays, and (3) public transportation use increases.

The HST system as a whole, and the Preferred Pacheco Pass Network Alternative in the Bay Area to Central Valley study region, would result in beneficial impacts related to greenhouse gas emissions and global climate change. While some increased carbon dioxide may enter the atmosphere due to construction and operation of the HST system statewide, or due to removal of carbon sequestering plants via agricultural land conversion under the Pacheco Pass Alternative, any increases are offset by the reduction of carbon dioxide emissions due to reduced automobile VMT and reduced

airplane travel. The HST system is not only consistent with, but a critical tool for achieving, the State of California mandate to reduce carbon dioxide emissions statewide (Assembly Bill 32). These benefits would be felt within the Bay Area to Central Valley study region.

Under the Preferred Pacheco Pass Network Alternative, areas around certain HST stations would result in permanent increases in traffic and congestion along with a related localized increase in vehicle-generated air pollution. At the program level these localized impacts are considered significant, because of uncertainty, since it is not possible to know the exact location, extent, and characteristics of increased traffic and congestion that will be generated around various HST station sites. While potential localized increases in vehicle-generated air pollution are considered significant at the program level, mitigation strategies have been identified (see pages 2 and 3 in the MMRP - Appendix A) that can reduce this impact to a less-than-significant level.

Construction impacts associated with the HST system within the Bay Area to Central Valley study region are likely to adversely affect air quality include emissions from various activities, such as the use of diesel equipment, soil disturbance, and congestion-related traffic and route changes, all of which are expected to generate temporary short-term localized increases in air pollution. While this impact is considered significant at the program level, mitigation strategies (see pages 2 and 3 in the MMRP - Appendix A) have been identified that can reduce this impact to a less-than-significant level.

8.3 Noise & Vibration

The HST could create long-term noise and vibration impacts along the alignment segments from train operations by creating intermittent increased noise along the Preferred Pacheco Pass Network Alternative. As a newly constructed system, the HST would be far quieter than typical passenger and freight trains. Added noise from the HST would be partially offset in areas with existing grade crossings where existing train associated noise would be reduced because mandatory grade separations would eliminate horn and crossing gate noise for all passing trains utilizing the right-of-way.

Significant noise impact from operations will not occur along the entire Preferred Pacheco Pass Network Alternative alignment. Rather, the impact would be localized, because certain areas would have no sensitive receptors, and because trains speeds are slower in some places leading to lower noise impact ratings. Construction of the HST could also cause short-term construction-related noise impacts. Noise impacts from construction of the project would be generated by heavy equipment used during major construction periods as close as 50 feet from existing structures along the HST alignment and around stations. While operational and construction-related noise impacts are considered significant at the program level, mitigation strategies (see page 3 in the MMRP - Appendix A) have been identified that can reduce this impact to a less than significant level.

The Preferred Pacheco Pass Network Alternative could cause an increase in ground-borne vibrations when the HST passes by an area. The ground-borne vibration impact would not occur along the entire length of the HST alignment due to underground or

tunnel portions and the lack of adjacent sensitive receptors in other areas. The Program EIR/EIS identified that schools, parkland, and residential populations located along the HST alignment may be affected (see Section 3.4 of the Program EIR/EIS). In areas that are sparsely populated there would be a low potential for vibration impacts. Construction activities can also cause some short-term ground-borne vibration. While operational and construction-related vibration impacts are considered significant at the program level, mitigation strategies (see page 4 in the MMRP - Appendix A) have been identified that can reduce this impact to a less than significant level.

8.4 Energy

The statewide HST system would be constructed in phases and is expected to draw power from the statewide electrical grid, which receives power from many sources. The HST system with the Preferred Pacheco Pass Network Alternative would result in an increase in demand on the statewide electricity supply by approximately 794 MW during peak electricity demand periods in 2030. This additional load would represent 0.96% of the statewide electricity demand estimated for 2030. With proper planning and design of the power distribution facilities for the HST system in relation to the overall state electrical grid, localized impacts from providing electricity to the HST system can be avoided. Electric power impacts are not expected because mitigation strategies have been identified (see page 4 in the MMRP - Appendix A) that can avoid these impacts.

Construction of the statewide HST system with the Preferred Pacheco Pass Network Alternative would result in one-time non-recoverable energy consumption costs that would be similar in scale to the energy consumption requirements of the other network alternatives, and would be in addition to energy consumed by the planned transportation improvements included in the No Project Alternative. While energy consumption from construction is considered significant at the program level, mitigation strategies have been identified (see page 4 in the MMRP - Appendix A) that can reduce this impact to a less than significant level.

The result of the construction of the HST system would be a new transportation mode that would reduce annual fuel consumption by 5.8 million barrels of oil as compared to the 2030 No Project Alternative.

8.5 Electromagnetic Fields and Electromagnetic Interference

The operation of the HST system with the Preferred Pacheco Pass Network Alternative could generate additional levels of exposure to electromagnetic fields (EMF) in close proximity to electric power systems. The level of exposure will depend on a number of factors that will vary depending on the final alignments and operations, including design of power supply systems and vehicles, to be decided at the project-level of design. The HST catenary and distribution systems will operate primarily at 60-Hz fields, which is considered an extremely low frequency (ELF). Because of their rapid decrease in strength with distance, EMFs in excess of background levels are likely to be experienced only very near the sources.

There is no scientific consensus that there are adverse effects of low-level EMF. Numerous studies have addressed, but failed to establish, any significant adverse health effects, and various industry, government and scientific organizations with expertise in electromagnetic fields technology have produced a range of voluntary standards that represent their best judgment of what levels are considered safe. The extremely low frequency EMF that would result from the operation of the HST system would be substantially below any of the standards examined by these experts. The EMFs may interfere with HST maintenance workers' implanted biomedical devices, but there is little potential to interfere with implanted biomedical devices of other workers, passengers or nearby residents. Consequently, based on the review of the scientific evidence, the increased levels of EMF as a result of the Preferred Pacheco Pass Network Alternative operation are less-than-significant at a programmatic, system-wide level, without mitigation and design practices/mitigation strategies have been identified (see page 4 in the MMRP - Appendix A) that can avoid or reduce EMF exposure.

The HST would generate incidental radiofrequency (RF) fields, and would also use wireless communications that generate radiofrequency fields. Radiofrequency fields would also be produced at the right of way by intermittent contact (unintentional arcing) between the pantograph power pickup and catenary wire. The Preferred Pacheco Pass Network Alternative would introduce additional electromagnetic interference at levels for which there are no established adverse impacts and RF regulations would be complied with. Design practices/mitigation have been identified that can avoid EMI (see Section 3.6 of the Program EIR/EIS and page 4 of the MMRP - Appendix A).

8.6 Land Use, Communities, Property and Environmental Justice

The Preferred Pacheco Pass Network Alternative would involve laying new track and installing electric power distribution facilities for the HST system and of providing multi-modal transit stations as part of the HST system. Maintenance, storage and cleaning facilities will be part of the HST system, and general potential locations for these facilities were identified to consider representative impacts of such facilities in the program analysis. Locations for these facilities will be determined in conjunction with future project-level studies and decisions on implementation phasing. There are no maintenance and storage facilities considered in the Los Banos area, or in the vicinity of the GEA, as part of the Final Program EIR/EIS, and there would be no HST station between Gilroy and Merced. The Merced (Castle AFB) site has been identified for further study, among other sites, for a location of a maintenance facility.

The Preferred Pacheco Pass Network Alternative has the advantage of fewer station stops through the high-speed trunk of the system between San Francisco or San Jose and Southern California. This would minimize the potential for urban sprawl and result in fewer community impacts. The Preferred Pacheco Pass Network Alternative would also enable the early implementation of the section of the HST system along Caltrain between San Francisco, San Jose, and Gilroy, providing increased accessibility and transportation options within the region.

In developing the alternatives, efforts were made to incorporate alignments and station locations that would be compatible with existing local land use plans and ordinances to

the extent feasible, and two thirds of the Preferred Pacheco Pass Network Alternative alignment would be in or along existing transportation corridors (existing railroad or highway rights-of -way) or in tunnel. Moreover, proposed station locations are proposed as multi-modal transit hubs. Each of these serve to reduce the extent of land acquisition needed for the Preferred Pacheco Pass Network Alternative. Within the Preferred Pacheco Pass Alignment Network, the HST could be incompatible in some areas, including those lying east of Gilroy where the alignment would veer away from the existing transportation corridor through agricultural land and recreational areas and through the GEA. The Authority will continue to apply design practices in future project-level environmental review that seek to minimize land use impacts in agricultural and recreational areas and through the GEA (see pages 5, 6, 14, and 15 of the MMRP - Appendix A).

In some areas, implementation of the Preferred Pacheco Pass Network Alternative could affect land uses by creating a new barrier dividing or disrupting existing communities. However, because the alignment along the San Francisco Peninsula would primarily be within an existing, active commuter and freight rail corridor (Caltrain), it would not constitute any new physical or psychological barriers that would divide, disrupt, or isolate neighborhoods, individuals, or community focal points in the corridor. Throughout much of the Central Valley, the HST alignment would also be adjacent to an existing transportation corridor where there would be little to no neighborhood cohesion impact on communities as a result of the alignment. In larger communities such as Stockton, Modesto, Merced, and Chowchilla, the existing UPRR rail line already divides the community and a parallel, at-grade set of HST tracks would therefore not generally be expected to result in an additional physical separation which exists between land uses on either side of the corridor. Construction of grade separations would have some localized property impacts between San Francisco and San Jose and at other locations; however, they would also have a beneficial effect on community cohesion by improving circulation between neighborhood areas. In addition, short term impacts of the HST system during construction include potential neighborhood disruption and division. This impact would be reduced by phasing the construction of segments of the system and by the use of in-line construction techniques where appropriate.

Using a study area of 0.25 mile (about 1200 feet) and information from the U.S. Census for the year 2000, the Final Program EIR/EIS identified areas along the Preferred Pacheco Pass Network Alternative likely to be adjacent to some low-income or minority populations that may be considered environmental justice communities. These will be areas for further study during project-level environmental analyses when more detailed and specific information will be developed for the HST alignments and designs (e.g., whether aerial, at-grade, or below grade). The number and location of people affected and the extent of impacts cannot be determined without the additional information to be provided in project-level studies. The statewide program EIR/EIS concluded that the overall system would not result in a disproportionate impact on minority or low-income populations. The Preferred Pacheco Pass Network Alternative would cross a wide variety of community types in the Bay Area to Central Valley, including rural, urban, and suburban, with various levels and mixes of development. The design practices and engineering criteria used in developing the HST system also serve to reduce impacts to people, including low-income and minority populations near HST facilities, by, among other things, placing the HST system in or along existing transportation corridors. Also,

the installation of grade separations will reduce existing horn noise and help maintain local access and community connections.

The identified mitigation strategies (see pages 5 and 6 of the MMRP - Appendix A) will substantially lessen or avoid land use impacts; however, sufficient information is not available at the program-level to conclude with certainty that mitigation will reduce this impact to a less-than-significant impact in all circumstances. This determination will be made during the project-level environmental review.

8.7 Agricultural Lands

The Preferred Pacheco Pass Network Alternative could convert approximately 1,128 acres of important farmland along the proposed alignments to non-agricultural uses (i.e., farmland listed as prime, statewide important, unique, and farmland of local importance on the Department of Conservation's Farmland Mapping and Monitoring Program [FMMP]). Mitigation strategies have been identified (see page 6 of the MMRP - Appendix A) that will substantially lessen this impact. For instance, the potential for being within existing transportation corridors can reduce the direct conversion of agricultural land to HST system uses to a negligible amount in some areas, such as along Henry Miller Road and along the UPRR alignment. In addition, mitigation in the form of conservation easements can provide permanent protection for agricultural and open space uses that will protect and promote the agricultural nature of selected easement lands in a manner not otherwise available. While some conversion of agricultural land will be necessary to implement the Preferred Pacheco Pass Network Alternative, mitigation strategies have been identified (see page 6 of the MMRP - Appendix A) that can reduce this impact to a less-than-significant level.

Implementation of the HST system along the Preferred Pacheco Pass Network Alternative could potentially cause farmland severance (division of one farmland parcel into two or more areas of operation by the placement of a barrier through the parcel) in some locations. Specifically, farmland severance could occur along the Pacheco alignment and on the western and eastern ends of the Henry Miller UPRR Connection alignment, where the alignment would not be within or adjacent to an existing transportation corridor. Due to the programmatic nature of this analysis, it is not possible to estimate the number of parcels or acres that could be affected by severance in the Program EIR/EIS. While mitigation strategies have been identified (see page 6 of the MMRP - Appendix A) that will substantially lessen this impact, it is unclear absent site-specific information that this impact can be mitigated to a less-than-significant level. This determination will be made during the project-level environmental review.

8.8 Aesthetics and Visual Resources

The construction and operation of the Preferred Pacheco Pass Network Alternative would alter existing scenic landscapes and cause impacts on visual resources related to the addition of infrastructure in, or removal of infrastructure from, the existing landscape. The infrastructure may include construction and improvements of the HST system, tunnels, fences, noise walls, elevated guideways, catenaries (support-pole systems for

power supply for trains), and stations. Visual impacts will have a higher sensitivity in areas of scenic open space and mountain crossings. The programmatic analysis of the visual impacts (see Section 3.9 of the Program EIR/EIS) included photo simulations of conceptual design of the facilities associated with the HST system for a set of types of representative landscapes for each segment of the proposed corridors, and concentrated on the locations where the plans show elevated structures, tunnel portals, or areas with extensive cut or fill.

Because the HST alignments would primarily be placed within or adjacent to existing transportation corridors and many of the stations would be co-located with existing facilities and in urban areas, the overall long-term visual impacts ranged from low to high, depending on site location. The alignment between San Francisco and San Jose would have an overall low visual impact as much of this alignment would be adjacent to the existing Caltrain tracks. There are locations where visual impacts could occur including where mature landscaping would be removed and where grade-separated overcrossings are proposed. Between San Jose and the Central Valley, the HST alignment would result in a low to medium visual impact primarily related to the crossing over SR-152, an eligible scenic highway, and I-5, a designated scenic highway, as well as being adjacent to the Los Banos Wildlife Area. Within the Central Valley, the Preferred Pacheco Pass Network Alternative would have a low visual impact.

Construction of the HST system would have short-term impacts on visual resources that vary with the type of alignment (at-grade, elevated, tunnel, etc.) selected.

While mitigation strategies have been identified (see pages 6 and 7 of the MMRP - Appendix A) to substantially avoid and lessen construction and operation impacts to aesthetics and visual resources, it is uncertain absent site-specific information that this impact can be mitigated to a less-than-significant level. This is of greatest concern in areas where changes in scenic open space and mountain crossing areas are anticipated. As part of the preliminary engineering and project-level environmental review, many of the impacts on aesthetics and visual resources can be avoided or substantially mitigated.

8.9 Public Utilities

Improvements associated with the proposed Preferred Pacheco Pass Network Alternative could cause conflicts with a pipeline or facility associated with a utility. This programmatic evaluation considered three of the most common major fixed facilities that may pose construction challenges as representative utility conflicts: electrical transmission lines, natural gas facilities, and wastewater treatment facilities. The Program EIR/EIS considered potential conflict incidents with natural gas pipelines and electrical transmission lines to be low or medium impact conflicts and less-than-significant because these utilities are generally relatively easy to avoid or relocate. Conflicts with fixed facilities such as electrical substations were considered high conflicts and significant.

The Preferred Pacheco Pass Network Alternative could result in approximately 75 conflicts with natural gas pipelines, 3 conflicts with electrical transmission lines, and 1

conflict with an electrical substation or power station. These conflicts include 30 natural gas pipelines (medium conflict) between San Francisco and San Jose; 3 electrical transmission lines (low conflict) and 22 natural gas pipelines (high conflict) between San Jose and the Central Valley; and 1 electrical substation or power station (high conflict) and 23 natural gas pipelines (medium conflict) in the Central Valley. The potential for conflicts with utilities along the Preferred Pacheco Pass Network Alternative, as a whole, are considered significant. At the program level, mitigation strategies have been identified (see page 7 of the MMRP - Appendix A) that can reduce this impact to a less-than-significant level.

8.10 Hazardous Materials and Wastes

Construction, operation, and maintenance of the Preferred Pacheco Pass Network Alternative could cause disturbance of existing, known hazardous waste sites or hazardous materials, in turn exposing workers and the general public to hazardous materials. Operation of the HST is not expected to generate hazardous waste. A potential hazardous waste impact is considered wherever the route of the HST alignment, station, or maintenance facility conflicts with a known contaminated site. These include those listed on the federal National Priorities List (NPL) (Superfund list), the State Priority List (SPL), and the California Integrated Waste Management Board's list of solid waste landfills (SWFL) in the State of California. The sites that pose the greatest concern are those with soil or groundwater contamination within or adjacent to the right-of-way for a proposed alignment or a station facility, and those with groundwater contamination near areas where excavation down to groundwater would be necessary.

The Preferred Pacheco Pass Network Alternative could result in approximately 79 conflicts with contaminated sites. These conflicts include 3 NPL sites and 30 SWLF sites between San Francisco and San Jose; 3 NPL sites and 22 SWLF sites between San Jose and the Central Valley; and 1 SPL site and 23 SWLF sites in the Central Valley. While these impacts are considered significant at the program level, mitigation strategies have been identified (see pages 7 and 8 of the MMRP - Appendix A) that can reduce the impacts to less-than-significant.

8.11 Cultural and Paleontological Resources

The Preferred Pacheco Pass Network Alternative could impact archaeological resources and traditional cultural properties and historic properties and resources by causing physical destruction or damage during construction or operation. Overall, the HST system has a low to high sensitivity for archaeological sites and historic properties that have the potential to be affected, depending upon site location. Construction of the HST alignment and stations has the potential to impact approximately 38 recorded archaeological resources that are located within the Area of Potential Effects (APE) including prehistoric and historic sites and burials. The HST also has the potential to impact approximately 134 previously recorded historic properties and resources including historic districts, structures, canals, bridges, and railroads.

The Preferred Pacheco Pass Network Alternative could also impact paleontological resources as a result of construction, including grading, cutting, tunneling, erecting pylons for elevated track, and due to station construction. While the majority of the HST alignment and stations would have low paleontological sensitivity, there are areas where there is the potential for high or undetermined sensitivity.

Mitigation strategies have been identified (see pages 8 and 9 of the MMRP - Appendix A) that will substantially lessen or avoid these impacts; however, sufficient information is not available at the program level to conclude with certainty that mitigation will reduce this impact to a less-than-significant level in all circumstances. This determination will be made during the project-level environmental review.

8.12 Geology and Soils

Seismic hazards evaluated within the Bay Area to Central Valley study region include ground shaking and ground failure. The Preferred Pacheco Pass Network Alternative could present risks to workers and public safety from the collapse or toppling of facilities, either during construction or after completion, caused by strong earthquakes. HST facilities could sustain damage due to secondary hazards (settlement) over soft or filled ground in the event of strong seismic activity.

The HST could present risks to workers and public safety due to ground rupture along active faults, either during construction or after completion. The HST could also present risks to workers and public safety due to the failure of natural or construction cut slopes or retention structures. The HST alignment could cross areas with hard, unfractured bedrock that will be difficult to excavate using methods other than blasting, which may pose a safety risk. Faulted materials that may be present can result in instability in the face of a tunnel area, another hazard. The HST could create the potential for migration of potentially explosive and/or toxic gases into subsurface facilities, such as tunnels or underground stations.

Seismic activity and preventative safety were paramount concerns in choosing the Preferred Pacheco Pass Alignment Network Alternative. The Preferred Pacheco Pass Network Alternative was chosen in part because it achieves the project purpose and objectives while minimizing the public safety concerns and technological challenges associated with known faults and other seismic hazards. While the above impacts associated with the Preferred Pacheco Pass Network Alternative are considered significant at the program level, mitigation strategies have been identified (see pages 9 and 10 of the MMRP - Appendix A) that can reduce these impacts to a less-than-significant level.

8.13 Hydrology and Water Quality Impacts

The Preferred Pacheco Pass Network Alternative best achieves the project purpose and objectives while minimizing environmental impacts, including those to water resources, while avoiding direct impacts on the San Francisco Bay.

However, given the scope of the project, the Preferred Pacheco Pass Network Alternative would encroach on 100-year floodplains within the San Jose to Central Valley study area. Direct encroachment into the floodplain by the HST system is anticipated to be approximately 449 acres and indirectly affect 1,372 acres. Floodplain encroachment may result in increased flood height from earthen berms or linear barriers to surface water flow.

The Preferred Pacheco Pass Network Alternative also could encroach on surface water resources. The direct encroachment onto streams would be approximately 19,531 linear feet, while encroachment onto lakes and waterbodies would be approximately 2.3 acres. Indirectly, the HST could affect over 100,000 linear feet of streams and 13.4 acres of waterbodies. The HST would be on structures over watercourses and waterbodies and impacts from aerial structures would be limited to column footings. The HST would also add impervious surface area, which can reduce water infiltration, contribute to runoff, and negatively affect surface water quality. The Preferred Pacheco Pass Network Alternative could cause erosion or be affected by erosive soils, which can negatively affect water quality, where the alignment options would extend to or along highly erodible slopes. Within the direct footprint of the Preferred Pacheco Pass Network Alternative there are approximately 72.5 acres of erodible soils, and 253 acres in the indirect study area.

The Preferred Pacheco Pass Network Alternative traverses at least 18 total maximum daily loads (TMDLs) impaired segments of water resources. The construction and operation of the HST is an unlikely source of most of the contaminants that impair the water resources, but some of the water resources are impaired for sediment and siltation, and construction may affect the sediment/silt loads. In addition, the sediment runoff from construction could potentially mobilize and release additional pesticides into some impaired waters.

Construction activities involving soil disturbance, excavation, cutting/filling, stockpiling, and grading activities could result in increased erosion and sedimentation to surface waters. Hazardous materials associated with construction equipment could also adversely affect water quality if spilled or stored improperly. In addition, construction in areas of high groundwater could require dewatering, with subsequent discharge to surface waters. This process could result in the release of sediment or other contaminants to surface waters. Water quality impacts from construction activities could violate water quality standards, exceed contaminant loadings in impaired waters, provide additional sources of polluted runoff, or otherwise degrade water quality.

During construction of at- and above-grade structures, tunnels and tunnel portals groundwater may be encountered, and dewatering may be necessary. In addition, construction and operation of the HST system components may affect groundwater recharge. Similar to surface waters, groundwater could be affected by construction activities. Construction in areas of high groundwater could require dewatering, with subsequent discharge to surface waters. This process could result in the release of sediment or other contaminants to surface waters. Construction activities such as excavation, trenching, or tunneling that occur in areas of high groundwater could affect groundwater supplies. The Preferred Pacheco Pass Network Alternative has the

potential to directly impact approximately 1,920 acres of groundwater and indirectly affect 5,664 acres.

While the above impacts are considered significant at the program level, mitigation strategies (see pages 10 and 11 in the MMRP - Appendix A) have been identified that can reduce these impacts to a less-than-significant level. Site specific information and mitigation efforts will be developed and analyzed during the Preliminary Engineering and project-level environmental review.

8.14 Biological Resources and Wetlands

For purposes of assessing the direct impacts to biological resources, an analysis was completed for the approximate footprint of the HST facilities (tracks, earthworks, structures, etc.), called the representative facility footprint, for all HST alternatives. This was defined to be 100 feet total width along the alignment both at-grade and on aerial structures. To capture the HST system's potential for indirect effects on species and habitats due to noise, light, or shadows, a larger area was evaluated. This larger area varied depending on the nature of the location. Sensitive habitat areas included a study envelope that was 2,000 feet in urban areas and 0.50 mile in rural areas and around station and facility areas in undeveloped areas, including biologically sensitive locations.

Sensitive vegetation communities are natural communities and wildlife habitat that are unique, of relatively limited distribution in a region, or of particularly high wildlife value. The Preferred Pacheco Pass Network Alternative could directly impact approximately 254 acres of sensitive vegetation out of the approximately 1,450 acres of land affected. The Preferred Pacheco Pass Network Alternative could also fragment existing habitats. Additionally, the Preferred Pacheco Pass Network Alternative could indirectly impact approximately 15,755 acres of sensitive vegetation out of the approximately 72,900 acres of land affected. The sensitive vegetation acreage is based on the buffer areas that are expected to exceed likely effects, which were designed to provide context to the impacts analysis.

Wildlife movement/migration corridors link together areas of suitable wildlife habitat that are otherwise separated by rugged terrain, changes in vegetation, or human disturbance. These corridors are important for species survival. The Preferred Pacheco Pass Network Alternative has the potential to affect wildlife movement/migration corridors where the alignment crosses wildlife movement corridors. In addition, fences that will be required for at-grade tracks will introduce a new barrier to animal movement. The actual impact will depend on the selection of final alignment and the final design of structures for the HST system. Specific impacts and mitigation measures will be evaluated and defined during the project level environmental review.

The Preferred Pacheco Pass Network Alternative has the potential to directly affect approximately 20,300 linear feet of non-wetland waters (lakes, rivers, streams, and other water bodies) and indirectly affect up to 100,000 linear feet of non-wetland waters.

The Preferred Pacheco Pass Network Alternative could directly impact 14.8 acres of wetlands. The study area for the HST system indicates there are 1,518 acres of wetlands in the study area that may be indirectly affected by the HST system.

The Preferred Pacheco Pass Network Alternative has the potential to affect fishery resources during construction due to the need to cross streams and rivers. Construction activities could increase sediment loads in stormwater during rain, or be a source of chemicals, both of which could be released into creeks and harm aquatic resources.

The Preferred Pacheco Pass Network Alternative could directly impact approximately 59 special-status plant species and 54 special-status wildlife species based on the representative facility footprint. Those species that are federally or state listed as threatened or endangered would be of special concern because of the protection afforded them under the federal Endangered Species Act and the California Endangered Species Act. Information for the study area indicates the possible presence of more than 130 special-status species that could be indirectly affected by the Preferred Pacheco Pass Network Alternative. Some of these species could be affected by the construction and the operation of the HST system.

The Preferred Pacheco Pass Network Alternative could directly impact protected habitat areas and areas identified for conservation including the California Department of Fish and Game (CDFG) Upper Cottonwood Creek Wildlife Area resulting in adverse impacts where the alignment is not in tunnel. The Henry Miller portion of the alignment would adversely impact a portion of the 240,000 acre GEA which contains a unique assemblage of migratory birds, sensitive species, wetlands, and habitat values.

While the mitigation strategies identified for each of these concerns (see pages 12 through 14 of the MMRP - Appendix A) will substantially lessen or avoid these impacts, sufficient information is not available at the program level to conclude with certainty that mitigation will reduce the impacts to a less-than-significant level in all circumstances. Each of the network alternatives analyzed in the Program EIR/EIS would have varying degrees of adverse impact on biological resources and wetland habitats. It should be noted that the mitigation strategies for impacts to protected habitats and conservation lands offer the added benefit of supporting conservation of wetlands and sensitive ecological areas and limiting urban encroachment in the vicinity of the HST through the GEA in a manner that would not be available through other foreseeable means. Both the USACE and the USEPA have concurred that the Preferred Pacheco Pass Network Alternative would most likely contain the LEDPA.

8.15 Public Parks, Recreation, and 4(f) Resources

The Preferred Pacheco Pass Network Alternative could result in impacts to parks and recreation resources, including publicly owned parks, wildlife and waterfowl refuges, historic sites of national, state or local significance, and other recreational resources covered by either section 4(f) of the Department of Transportation Act (49 U.S.C. § 303(c) or section 6(f) of the Land and Water Conservation Fund Act of 1965 (16 U.S.C. § 460l-8).

The Preferred Pacheco Pass Network Alternative could result in direct impacts to lands containing publicly owned parks and recreational resources by causing use of such lands for the placement of HST facilities, and could result in indirect impacts to these resources due to construction activities or HST system operations which adversely affect the use of publicly owned parks and recreational resources. In addition to addressing noise, biology, and air quality impacts in other sections of this ROD, the Program EIR/EIS identifies the park and recreational resources located within 900 feet of the centerline of HST alignments or facilities (see Section 3.16 of the Program EIR/EIS). Whether or not these identified properties would be impacted will be determined during project-level environmental review when site-specific design information is available.

The strategies of placing the proposed HST system in or along existing transportation corridors (existing railroad or highway rights of way) or in a tunnel and of requiring stations to be multi-modal transit hubs is deliberate, and serves to reduce the extent of land acquisition needed for the proposed HST system, minimizing the potential for the HST system impacts to parks and recreational resources. Nearly two thirds of the Preferred Pacheco Pass Network Alternative alignment is either within or adjacent to existing transportation corridors or in tunnel.

There are 51 Section 4(f) and 6(f) resources within 900 feet of the Preferred Pacheco Pass Network Alternative alignment, and 19 are within 150 feet of the HST system. At this program level it is not possible to know precisely the location, extent and particular characteristics of impacts to park resources. Due to this uncertainty, for the purposes of region-wide review at the programmatic level, this impact is considered significant, particularly for those resources within 150 feet. Site-specific plans and relevant mitigation measures will be developed and analyzed during project-level environmental review.

While mitigation strategies have been identified (see pages 14 and 15 of the MMRP - Appendix A) that would substantially lessen or avoid this impact, sufficient information is not available at this program level to conclude with certainty that mitigation will reduce this impact to a less-than-significant level in all circumstances.

Planning efforts would be undertaken as a part of the project-level documentation phase to further avoid and minimize harm to Section 4(f) and 6(f) resources impacted during implementation of the Preferred Pacheco Pass Network Alternative. Mitigation is anticipated to include measures that may be taken to reduce or eliminate potential adverse environmental impacts, such as beautification measures, replacement of land or structures or their equivalents on or near their existing site(s), tunneling, cut and cover, cut and fill, treatment of embankments, planting, screening, creating wildlife corridors, acquisition of land for preservation, installation of noise barriers, and establishment of pedestrian or bicycle paths. Other potential mitigation strategies could be identified during the project-level public review process. Project-level environmental documents will include Section 4(f) and 6(f) evaluations that will assess impacts and potential uses of protected properties and will support Section 4(f) and 6(f) determinations.

8.16 Cumulative Impacts

Implementation of the Preferred Pacheco Pass Network Alternative in consideration with closely related past, present, and reasonably foreseeable probable future projects could lead to a considerable contribution to the cumulative impacts related to:

- surface streets leading to and from proposed HST stations.
- air quality within the two air basins in the study area (in combination with the air quality impacts of other projects or improvements identified for the cumulative impact analysis and those projects considered in the state implementation plan for air quality);
- local adverse air quality impacts related to traffic near HST stations;
- noise and vibration;
- use of nonrenewable resources;
- land use compatibility;
- community and neighborhood cohesion and property loss;
- community/neighborhood impacts;
- conversion of agricultural land to non-agricultural use;
- severance of agricultural land;
- visual resources (particularly scenic resources, areas of historical interest, natural open space areas, and significant ecological areas);
- public utilities and future land use opportunities (because of right-of-way needs, extensive utility relocation, and property restrictions associated with construction of multiple linear facilities and other reasonably foreseeable future projects in the study area);
- cultural and paleontological resources;
- geology and soils related to slope stability in various proposed locations of cut-and-fill and areas susceptible to slope failure; and subsidence if other projects under construction in the area also needed to dewater from the same drainage basin;
- hydrology and water resources;
- sensitive biological resources and wetlands; and
- parklands and recreational resources.

While identified mitigation strategies will substantially lessen or avoid these effects, sufficient information is not available at the program-level to conclude with certainty that mitigation will reduce the HST system's contribution to cumulative effects in all circumstances. To assure that potential cumulative effects will be fully examined in the future, future project level studies will incorporate analyses of impacts on appropriate regional study areas beyond the area immediately affected by the Preferred Pacheco Pass Network Alternative. To assure that appropriate planning for HST station areas is

undertaken so as to avoid indirect effects associated with growth, station area development strategies are described in Chapter 6 of the Final Program EIR/EIS and are included in the MMRP.

8.17 Growth-Inducing Effects

Transportation investments can lead to reduced travel time or cost, improved accessibility to regions or parts of regions, and reduced accidents or air pollution. These effects contribute to economic growth by allowing time and money previously spent on travel to be used for other purposes, attracting businesses and residents to places with increased accessibility or improved quality of life, and reducing overall costs to society. The population and employment growth that result from economic growth comprise the growth-inducing effects of transportation investments such as the HST system. This growth can contribute additional effects on human and natural resources beyond those directly attributable to the changes in the transportation system, which the Program EIR/EIS refers to as growth-related indirect impacts. The Program EIR/EIS presented an analysis of growth effects in the Bay Area to Central Valley study region that may result from the implementation of the HST system.

- *Population Effects*. Statewide population is expected to grow by about 33% between 2005 and 2030 under the No Project Alternative. Compared to the No Project Alternative, population under the Preferred Pacheco Pass Network Alternative (statewide system) is projected grow by approximately an additional 1.4%. Within the 11 county core study area, population is expected to grow by 44% between 2005 and 2030 under the No Project Alternative and an additional 1.6% with the HST system. Compared to the No Project Alternative, the population growth rate equates to an additional 502,000 people with HST. The population growth with HST represents the increased accessibility provided by the transportation investment. An investment in HST is projected to lead to greater economic growth within the state and core study area than the No Project Alternative.
- *Employment Effects*. Statewide employment is expected to increase by about 37% between 2002 and 2030 under the No Project Alternative. Compared to the No Project Alternative, statewide employment growth is projected to be roughly 1.5% higher under the Preferred Pacheco Pass Network Alternative (statewide system). Within the 11 county core study area, employment is expected to grow by 37% between 2005 and 2030 under the No Project Alternative and an additional 2% with the HST system. Compared to the No Project Alternative, the employment growth rate equates to an additional 320,000 jobs with HST. Job growth with HST is expected in the FIRE (Finance, Insurance and Real Estate), services, TCU (transportation, communications, and utilities), wholesale trade, and retail trade categories. This is further broken out to job growth in the TCU and trade sectors in the Central Valley and in San Diego, and in the FIRE and services sectors in the “rest of California.” The FIRE and services sectors tend to be the most compatible for location in higher density settings, such as near potential HST sites where offices and retail development could be expected.

- *Urbanized and Non-urbanized Areas*. Urbanized areas in the core study area are expected to grow by about 40% between 2002 and 2030 under the No Project Alternative. This growth would represent an increase of about 400,000 acres over today's 1.0 million acres within the core analysis counties. Compared to urbanized area growth under the No Project Alternative, urbanized area growth is expected to be 0.9% (9,000 acres) higher under the Preferred Pacheco Pass Network Alternative. As with the population and employment growth, the level of difference for urbanized area size is small compared to the overall level of growth represented by the No Project Alternative relative to the 2002 existing conditions. Noticeable differences in these general patterns can be seen for Madera and Merced Counties, both of which are projected to have sizable urbanization increases with the HST system compared to the No Project Alternative.

- *Location of Growth*. The Program EIR/EIS provided county-level population growth rates for the No Project Alternative and the Preferred Pacheco Pass Network Alternative (statewide system). The results show that with the HST system, incremental population growth is highest in Madera County, followed by Merced County, San Diego County, and the Southern San Joaquin Valley; incremental growth rates are lowest in Southern California (except San Diego County) and areas from San Joaquin County northward. Incremental employment growth with HST is highest in Madera and Merced Counties, followed by Fresno and Stanislaus Counties and the Southern San Joaquin Valley. The incremental job growth in the Northern Central Valley region with the HST system is oriented much more heavily toward FIRE and services (about 62% of total), with trade, and TCU accounting for about 27% of incremental growth. This is the largest shift in the nature of employment for any region and suggests that the HST system could be a strong influence in attracting higher-wage jobs to the Central Valley. Taken together, these results suggest that additional population growth under the HST system is driven by internal job growth due to the initiation of HST service, rather than due to long-term population shifts from the Bay Area and Southern California based on long-distance commuting.

In summary, the Preferred Pacheco Pass Network Alternative would stimulate additional growth relative to the No Project Alternative in many Central Valley counties between Sacramento and Fresno. The incremental employment effect is much larger than the incremental population effect in all Central Valley counties, suggesting that the HST system might be more effective at distributing employment throughout the state. Also, this result suggests that the Preferred Pacheco Pass Network Alternative would not stimulate large shifts in residential location from the Bay Area into the Central Valley.

- *Effect of Authority Station Area Development Policies*. When making decisions regarding both the final selection of station locations and the timing of station development, the Authority would consider the extent to which appropriate Station Area Plans and development principles have been adopted by local authorities. In addition to potential benefits from minimizing land consumption needs for new growth, dense development near HST stations will concentrate activity in areas conveniently located near stations. This would increase the

utilization of the HST system, generating additional HST ridership and revenue to benefit the entire state. Reducing the land needed for new growth should reduce pressure for new development on nearby habitat areas and agricultural lands.

Denser development allowances would also enhance joint development opportunities at and near the station, which in turn could increase the likelihood of private financial participation in construction related to the HST system. A dense development pattern can better support a comprehensive and extensive local transit and shuttle system, bike and pedestrian paths, and related amenities that can serve the local communities as well as provide access and egress to HST stations. The Authority's adopted policies would ensure that implementation of the HST in California would maximize station area development that serves the local community and economy while increasing HST ridership. HST station area development principles draw upon TOD strategies that have been successfully applied to focus compact growth within walking distance of rail stations and other transit facilities. Applying TOD measures around HST stations is a strategy that works for large, dense urban areas, as well as smaller central cities and suburban areas. TOD can produce a variety of other local and regional benefits by encouraging walkable, bikeable compact and infill development. Local governments would play a significant role in implementing station area development by adopting plans, policies, zoning provisions, and incentives for higher densities, and by approving a mix of urban land uses. Almost all TOD measures adopted by public agencies involve some form of overlay zoning that designates a station area for development intensification, mixed land uses, and improvements to the pedestrian/bicycle environment. TOD measures are generally applied to areas within one-half mile of transit stations, and this principal would be followed for HST stations.

The responsibility and powers needed to focus growth and station area development guidelines in the areas around high-speed stations are likely to reside primarily with local government. The primary ways in which the Authority can help ensure that the HST system becomes an instrument for encouraging maximizing implementation of station area development principles include:

- Select station locations that are multi-modal transportation hubs with a preference for traditional city centers.
- Adopt HST station area development policies and principles that require TOD, and promote value-capture at and around station areas as a condition for selecting a HST station site.
- Provide incentives for local governments where potential HST stations may be located to prepare and adopt Station Area Plans and to amend City and County General Plans that incorporate station area development principles in the vicinity of HST stations.

Using the mitigation strategies identified in the MMRP (Appendix A), the Authority will work with local governments and local planning processes on these issues.

Indirect Effects Related to Growth from the HST Alternative

The Preferred Pacheco Pass Network Alternative may have a positive (i.e., result in an increase), but small, statewide effect on population and employment growth compared to the No Project Alternative. At the sub-state level, San Joaquin Valley counties are projected to experience population and employment growth rates that are noticeably higher than the statewide average. Despite the relatively small magnitude of the expected statewide growth, the growth could contribute to indirect impacts on the human and natural environment. Many of these indirect, growth-related impacts derive from increased urbanization needed to accommodate the additional population and employment. In 2030, the total size of urbanized areas in the study area would be virtually the same under the proposed Preferred Pacheco Pass Network Alternative as under the No Project Alternative, although the HST system will lead to increased urbanization in Fresno, Madera, Merced, and Santa Clara Counties. Much of the potential incremental growth associated with the HST system is likely to be focused around HST stations because these locations would receive the highest accessibility benefit with HST service.

The following summarizes the analysis in the Final Program EIR/EIS:

- No indirect, growth-related impacts from implementing the HST system are expected to the following resource areas: noise and vibration; exposure to EMF or EMI; public utilities; exposure to hazardous materials or wastes; cultural resources; geology and soils; and public parks and recreation. Indirect aesthetic impacts from induced growth under the Preferred Pacheco Pass Network Alternative are considered speculative at the programmatic level.
- Overall traffic conditions are expected to improve with the HST system, despite the estimated 1.2% increase in study area population and employment under the Preferred Pacheco Pass Network Alternative. Some increase in local traffic around urban HST stations, consistent with this increased growth, is expected to be concentrated.
- Air quality is expected to improve with the HST system, however, the increased population and employment growth may contribute to increased mobile-source air pollutants due to increased traffic around stations.
- There are no significant differences in energy consumption expected statewide between the Preferred Pacheco Pass Network Alternative and the No Project Alternative when considering growth. However, the HST system could result in less overall demand for transportation energy, despite the expected small increase in growth with the HST system. The potential increased density in the vicinity of proposed HST station sites would limit the amount of energy required for construction of and access to future infrastructure projects, reduce demand for large-volume transportation-related infrastructure projects, and result in savings in building-related energy use. The projected population and employment distributive effect of the project could create the need for some change in the incremental development of overall energy and electricity generation and/or transmission capacity among regions and potentially require development of more incremental production and/or transmission capacity.

- Socioeconomic changes from growth under the Preferred Pacheco Pass Network Alternative are expected to be small, and therefore indirect land use compatibility impacts from induced growth are also expected to be small. Growth associated with the HST system would be distributed across various communities, would be reflected in infill development and increased development densities around stations, and is not expected to result in a significant increase in demand for municipal services. Planning for such services is within the purview of local and regional agencies and expected growth in the future would be within typical planning horizons for such services.
- Growth under the Preferred Pacheco Pass Network Alternative is expected to impact 6,000 acres, or about 3%, more of important farmland within the 11 county study area than the No Project Alternative due to urbanization. Within the study area, projected farmland losses beyond the No Project Alternative would include 3,500 acres of prime farmland, 800 acres of farmland of statewide importance, 1,300 acres of unique farmland, and 500 acres of farmland of local importance.
- Growth under the Preferred Pacheco Pass Network Alternative is expected to impact about 22 miles more of waterways within the 11 county study area than the No Project Alternative, or about 2% more. The largest percentage of this increase is expected to occur in Merced and Fresno counties.
- Growth under the Preferred Pacheco Pass Network Alternative has the potential to affect up to 2,600 acres more of land which may contain some threatened and endangered species habitat within the 11 county study area than the No Project Alternative. The largest percentage increase is expected to occur in the Bay Area, about 4% or 1,300 acres. Growth with the project has the potential to affect about 72 acres more of areas containing wetlands than the No Project Alternative, or less than 1% more. The largest acreage and percentage increase, 49 acres, is projected to occur in the Bay Area due to future urbanization.
- At the program level it is not possible to predict the specific location(s) where the increment of future growth related to the Preferred Pacheco Pass Network Alternative may occur or is likely to occur in order to recommend mitigation strategies to other agencies; nor is it within the purview of the Authority to adopt such strategies. Additionally, the size, scope and attributes of specific projects that may be proposed in the future cannot be predicted, nor can the outcome of public agency approval processes and the ultimate configuration of any approved projects be predicted. However, in addition to the general and specific plans adopted by local governments which address community and growth expectations, the general requirements of CEQA, the Endangered Species Act, other measures required by the Department of Fish and Game and the permit requirements of other regulatory agencies can be expected to apply to both public and private projects in the future and to require avoidance and minimization strategies to reduce potentially significant impacts to environmental resources. These strategies can be expected to substantially reduce and avoid adverse environmental impacts to these resources.

9. Measures to Minimize Harm

The Authority has committed to use all feasible and practicable means, including design practices and mitigation strategies, to avoid or minimize adverse effects on the environment that would result from the implementation of the Preferred Pacheco Pass Network Alternative. (California High Speed Rail Authority Resolution No. 08-01.) To minimize potential future harm from implementation of the proposed project, future project-level environmental analysis and documentation will review mitigation strategies described in the Authority's adopted MMRP and prescribe appropriate design practices and mitigation measures. FRA adopts the design practices and mitigation strategies in the MMRP included as Appendix A to minimize harm at the program level.

Chapter 3 of the Final Program EIR/EIS describes program-level mitigation strategies to minimize or mitigate adverse environmental impacts. The monitoring and enforcement program is to apply this plan during the project-level environmental compliance process. Some mitigation strategies may cause other adverse environmental impacts at the same time that they mitigate impacts addressed in this Program EIR/EIS. Future tiered project-level environmental reviews will determine appropriate site-specific mitigation measures.

9.1 Design Practices

The Authority would employ design practices identified in the Final Program EIR/EIS as the Preferred Pacheco Pass Network Alternative is developed further in the project-level environmental review, final design and construction stages. These practices will be applied to avoid and minimize potential adverse environmental impacts. Design practices are listed below.

- Existing transportation corridors would be used. Nearly 70% of the adopted preferred HST alignments are either within or adjacent to a major existing transportation corridor (existing railroad or highway right-of-way).
- Tracks that are fully grade separated from all roadways would be used.
- Multi-modal transportation hubs would be used.
- Some of the preferred alignments would be in a tunnel or trench section, which would reduce noise, community intrusion, biological and visual impacts.
- Electric power, high-quality track interface, and smaller, lighter and more aerodynamic trainsets would be used, which would result in less noise than existing commuter and freight trains because HST do not have the rumble associated with diesel engines and use a design that greatly minimizes track noise.
- TOD and smart growth land use policies would be used. Station area development principles that would be applied at the project-level for each HST station and the areas around the stations would include:
    - Higher density development.

  - A mix of land uses (retail, office, hotels, entertainment, residential, etc.) and housing types to meet the needs of the local community.
  - A grid street pattern and compact pedestrian-oriented design that promotes walking, bicycle and transit access.
  - Context-sensitive building design that considers the continuity of the building sizes and coordinates the street-level and upper-level architectural detailing, roof forms, and rhythm of windows and doors.
  - Limits on the amount and location of development-related parking, with a preference that parking be placed in structures.
- Portions of the system would be in tunnel or on aerial structure, which would avoid and/or minimize impacts to surface water resources.
- Measures to avoid water infiltration would be taken.
- Underpasses or overpasses or other appropriate passageways would be designed to avoid, minimize and/or mitigate any potential impacts to wildlife movement.
- In-line construction would be used for sensitive areas.

10. Relationship to Other Plans

The No Project Alternative included planned and programmed transportation improvements in fiscally constrained plans.

The purpose of the proposed HST system includes “interfaces between the HST system and major commercial airports, mass transit and the highway network”. Planned commuter rail improvements in the study region are related and would connect to the proposed HST system. These plans and projects were considered in the development of the HST alignment alternatives and station location options.

San Francisco Bay Area Regional Rail 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 provided 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]). Additionally, RM2 calls for the analysis of alternative California HST alignments between the Central Valley and the Bay Area, which were used to inform the Program EIR/EIS. These two RM2 study elements were integrated to provide a fully comprehensive San Francisco Bay Area Regional Rail Plan. The MTC, BART, Caltrain, and the Authority, along with a coalition of rail passenger and freight operators, prepared the comprehensive Regional Rail Plan. As required by RM2, MTC adopted the Regional Rail Plan in September 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 included a detailed analysis of potential HST routes between the Bay Area and the Central Valley consistent with the Authority's environmental review of the proposed rail lines. Overall, the plan looked at improvements and extensions of railroad, rapid transit, and high-speed rail services for the near term (5–10 years), intermediate term (10–25 years), and long term (beyond 25 years).

Capitol Corridor Rail Service. The Capitol Corridor is planning to implement a 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 which 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.

With the recent passage of Proposition 1B, a series of projects that jointly benefit both freight and passenger rail are identified. The projects may include a revised Alameda Creek crossing in the Niles Junction area which will allow transfer of freight rail traffic to and from the Altamont Pass from the Oakland Port in a more expeditious route than is done currently running freight through Fremont. This improvement coupled with improvements at a junction point in South Hayward will allow passenger trains (Capitol Corridor and the planned Dumbarton Rail service) to avoid freight conflicts for a portion of the route between Oakland and San Jose. Double tracking is also planned north of the South Hayward point which will provide for additional track capacity for freight and passenger trains. A project planned for the route is to upgrade or replace the bridge crossing between Martinez and Benicia to avoid the conflicts created when waterborne vessels require the current bridge to be lifted.

Caltrain Corridor Commuter Rail Service. The Caltrain Joint Powers Board (JPB) forecasts a robust increase in Caltrain ridership driven by population increase, work force increase, and convenience and economic influences. The first 5 years of the Caltrain capital program focuses on a program called the State of Good Repair. This program concentrates on optimizing the current system's performance, including improvements to the signaling and communications systems, replacing old bridges, improving the approach speeds and flexibility at the San Francisco terminus, and eliminating the last of the hold-out stations. The product of this portion of the program is an optimal condition of the current system which will enable larger programs with minimal impact to performance.

Altamont Commuter Express Service. The San Joaquin Regional Rail Commission, which owns and operates the Altamont Commuter Express (ACE), operates four daily roundtrips, Monday–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 (Livermore [2], Pleasanton, and Fremont), and in Santa Clara County (Santa Clara [2] 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 5-year period, ACE will be implementing capital projects that improve reliability and increase speeds in the Stockton to Fremont section of the corridor.

ACE is completing two planning/implementation studies. The ACE Corridor Analysis Study, focused on identifying improvements to ACE Service, which includes the potential purchase of a separate agency-owned corridor for the ACE service and short haul freight between the Port of Oakland and the Central Valley, and providing a better connection to BART. The Expansion Opportunities Analysis is looking at the expansion opportunities for commuter rail service for Merced to Sacramento, Stockton to Oakland (Delta Route), and Los Banos to Tracy.

Dumbarton Rail Project. The March 2004 voter approval of RM2 included funding to reconstruct the out-of-service Dumbarton rail line between Southern Alameda County and the San Francisco Peninsula. The reconstructed rail bridge across the San Francisco Bay would be the key component in the establishment of the commuter rail service between the Union City BART station and the Caltrain line on the peninsula.

New trackway connections would also need to be constructed in the vicinity of the Union City BART station to provide the transfer connection. Service would begin at Union City in the morning and would carry commuters to the west bay via Union Pacific tracks in Fremont and Newark, continuing on the publicly owned and reconstructed Dumbarton segment. Rail equipment comparable to current Caltrain rolling stock is expected to be employed.

The reconstructed Dumbarton segment includes embankment, trestle structure, and two swing bridges; most of the segment is single track with limited passing sidings. New stations would be built in Menlo Park and Newark as well as at the Intermodal Station at Union City. The connections of the Dumbarton Line to Caltrain in Redwood City would also be improved as part of the project. The project is currently being considered for phased implementation due to funding constraints and the inability to reach a track sharing agreement with the Union Pacific Railroad. The initial phase would include the reconstruction of the publicly owned right of way between Newark and Redwood City. Rail service would operate from a Newark station across the reconstructed bridge to Redwood City and Caltrain. A second component of the project, the Union City Intermodal Station, would also be constructed and utilized by the Capital Corridor service.

Environmental studies are now under preparation; preliminary engineering is also underway to refine the estimated cost for rehabilitating the bay-crossing structures. Local land use plans, both adopted or under preparation, support TOD at the project station locations.

11. Compliance with Other Federal Regulations

11.1 Section 4(f) and 6(f) Approvals

Section 3.16 of the final Program EIR/EIS contains an analysis of Section 4(f) and 6(f) resources, including publicly owned parklands, recreation lands, wildlife and waterfowl refuges, and historic sites. At the program level of analysis, the Authority and FRA have described the existing Section 4(f) and 6(f) resources within the Bay Area to Central Valley region and identified the potential uses of and potential impacts on Section 4(f) and 6(f) resources for each alignment alternative. Findings under sections 4(f) [49 U.S.C. § 303(c)] and 6(f) [16 U.S.C. § 460l-8] will be prepared as part of future project level environmental review when site-specific information about the HST system and location alternatives are known.

11.2 Section 106 of the National Historic Preservation Act

The National Historic Preservation Act (NHPA) [16 USC § 470 et seq.] established a national program to preserve the country's historical and cultural resources. Section 106 of the NHPA requires federal agencies to consider the effects of their actions on historic properties and provide the President's Advisory Council on Historic Preservation an opportunity to comment on a proposed action before it is implemented. Regulations for implementing the Section 106 process are provided in 36 CFR § 800. As allowed under 36 CFR § 800.4(b)(2), a phased approach to identification of historic properties can be used when the proposed undertaking involves corridors. As part of the statewide program EIR/EIS document (November 2005), the FRA initiated consultation with the State Historic Preservation Office (SHPO) under Section 106 in November 2002. SHPO concurred with a phased identification effort for historic properties as provided for in 36 CFR § 800.4 (b)(2). This phased identification effort continued into Bay Area to Central Valley HST Program EIR/EIS.

As indicated by the results of the Program EIR/EIS, the FRA and the Authority have determined that historic properties likely exist along the Preferred Pacheco Pass Network Alternative through background research, consultation, and abbreviated field reconnaissance. Once alignment alternatives have been refined at the project level, full identification efforts may proceed. Under Section 106, the procedures would include identifying resources with the potential to be affected, evaluating their significance under NRHP, identifying any substantial adverse effects, and then evaluating potential mitigation.

11.3 Section 404 of the Clean Water Act

As noted above, the USEPA and USACE have participated in the tiered environmental process, including the development of both the Draft and Final Program EIR/EIS. In accordance with the MOU between FRA and USEPA for this environmental review, USEPA and USACE were consulted concerning the selection of the preferred corridor and route most likely to yield the LEDPA. The USEPA and USACE have concurred that

the Preferred Pacheco Pass Network Alternative is most likely to contain the LEDPA. Future project-level environmental review will include further consultation with USEPA and USACE regarding the Clean Water Act leading to USACE permit applications.

11.4 Endangered Species Act

Preparation of the Program EIR/EIS involved informal consultation and information sharing with the U.S. Fish and Wildlife Service (USFWS) of the U.S. Department of Interior (DOI). Project-level environmental review would involve consultation with USFWS, as needed, for potential impacts on federally listed plant and wildlife species, including the preparation of a biological assessment or assessments, and biological opinions for each phase of project implementation. Formal consultation under Section 7 of the Endangered Species Act for project study areas of concern would accomplish the following steps identified by DOI: 1) identifying the conservation needs of each listed species with the potential to be impacted by the proposal; 2) identifying the threats to each listed species' conservation related to the proposed action; 3) identifying species conservation or management units and the threats affecting those units; 4) identifying species' conservation goals framed within the context of the HST program; and 5) developing conservation/management unit strategies. The FRA and the Authority would prepare Biological Assessments to address the affected conservation/management units identified.

12. Comments Received on the Final Program EIR/EIS

Written and oral comments on the Final Program EIR/EIS were received and addressed by the Authority as part of their decisions on the Preferred Pacheco Pass Network Alternative, and are included in Appendix B. Substantive comments made in letters written to the FRA are addressed below.

12.1 U.S. Environmental Protection Agency

The USEPA submitted comments on the Final Program EIR/EIS. The USEPA encourages continued regulatory and resource agency coordination during the Tier-2 project-level analysis of the Preferred Pacheco Pass Network Alternative to inform design choices that are most protective of the natural environment.

<u>Integration of Clean Water Act and NEPA Requirements</u>
The USEPA submitted recommendations for future Preferred Pacheco Pass Network Alternative project-level Tier 2 analysis related to wetlands and other waters and requested that this future analysis be focused on a more accurate estimate of potential impacts and opportunities for reducing impacts to waters from the project. It was also recommended that interagency coordination among resource and regulatory agencies occur as part of this future analysis. The USEPA has stated that they are available to discuss the mitigation framework for the project.

Direct and indirect impacts identified in the Final Program EIR/EIS will be further minimized through project design features. The Pacheco Pass Network Alternative would include tunnels and elevated structures to minimize impacts on streams, water bodies, wetlands, wildlife movement corridors, and sensitive species and habitat. The alignment along Henry Miller Road, for example, would extend approximately 3 miles on elevated structure, which could potentially reduce total direct and indirect impacts on wetlands. More detail both in project refinement and specific on-the-ground information would be developed in the Tier 2 process that would allow for greater estimate of impacts and avoidance. The FRA and Authority will continue coordination with all agencies and organizations involved to identify specific issues and develop solutions that avoid, minimize, and mitigate potential impacts. The FRA and Authority also have committed to investigating site-specific location and design alternatives, including avoidance and minimization alternatives, during the Tier 2, project-level environmental review. This includes evaluating design alternatives to the north and south of the current proposed Henry Miller alignment alternative.

The Authority also made a commitment to acquire agricultural, conservation and/or open space easements encompassing at least 10,000 acres and generally located along or in the vicinity of the GEA to mitigate for impacts. This measure would reduce impacts to and support conservation of wetlands and sensitive ecological areas, as well as limit urban encroachment in the vicinity of the HST through the GEA and other areas. The focus for these easements would be in areas undergoing development pressures, such as the areas around Los Banos and Volta, and/or areas that would be most appropriate for ecological conservation or restoration. The eventual locations and total acreage for these easements would be determined in conjunction with the Tier 2 project-level environmental analysis and decisions addressing the Gilroy to Merced portion of the HST system and in consultation with the CDFG, the USFWS, and the Grassland Water District.

Growth-related Impact Analysis

The USEPA reiterated comments it made on the Draft Program EIR/EIS regarding potential growth-related impacts associated with station locations. The USEPA recommended that the FRA's ROD include additional information about growth inducing impacts by county with upper and lower potential ranges of impacts illustrating the role of station selection in the amount of growth that may be induced. The USEPA further recommended that mitigation measures be adopted to address an offset growth inducement of the high speed train, including a growth mitigation plan.

Chapter 5 of the Final Program EIR/EIS and Standard Response 4 describe the potential for the HST system to induce growth and to create secondary impacts to the environment associated with urbanization. Section 5.5 discusses relative differences in impacts depending on the alignment alternatives and station locations, and uses Stanislaus County to illustrate the urbanization differences between a downtown station (Modesto) and a suburban station (Amtrak Briggsmore). The illustration, which is based on analysis in the Statewide HST Program EIR/EIS, is intended to underscore the fact that locating stations in downtown core areas will lead to fewer urbanization effects than locating stations in suburban areas.

This *relative* difference in growth-inducing effects between a downtown and a suburban station location should not be construed as a description of the absolute impacts of either station location. As explained in the responses to comments in the Final Program EIR/EIS, it is not possible to associate specific levels of population/employment growth, urbanization, and indirect impacts with individual stations. Individual stations draw ridership from a broad catchment area that does not necessarily follow county boundaries, which form the basis for the growth inducement and secondary impact analysis. The relationships considered in the growth inducing impacts analysis are simply too numerous and complex to state that a particular station will lead to a particular amount of growth. The EIR/EIS therefore offered a qualitative assessment of potential differences between the alignment alternatives and noted those counties expected to experience the highest level of growth with the HST.

Both NEPA and CEQA require that an EIS or EIR discuss a project's impacts, including the potential for a project to induce urban growth. The Final Program EIR/EIS offers the public and decision makers information about the potential for the HST to fuel population and economic growth in the Bay Area to Central Valley study region, including the potential magnitude, location, and nature of that growth. The EIR/EIS also characterizes the potential indirect effects of HST-induced growth by resource area and discusses how these effects will be evaluated more specifically with project-level studies.

The analysis concludes that growth will be higher with the representative Altamont Network Alternative than with the representative Pacheco Network Alternative,,as would community impacts and wetlands impacts. For both networks, the greatest magnitude of secondary impacts will occur in Madera and Merced counties. Alignment and station locations that serve existing urban and community centers, rather than less-developed outlying areas, would be expected to result in lower ecological and natural resources impacts, but higher community and social impacts, both positive and negative. And the extent of secondary impacts will be highly dependent on local land use plans and policies.

The Final Program EIR/EIS includes numerous mitigation strategies designed to avoid and minimize the physical environmental impacts of the HST system. These mitigation strategies include conservation easements to permanently protect farmlands (at least 3500 acres), easements to protect and preserve open space and the unique biological resources of the GEA (10,000 acres), and measures to promote dense urban growth around HST stations that will serve as transportation hubs. These mitigation strategies will also address any secondary effects of urbanization and ensure that they are less than significant. The Authority will work with local governments, which are the entities that make local land use decisions about the extent and location of urban growth within their jurisdictions, to establish policies and principles that promote TOD, provide incentives for smart growth and infill development around stations, and limit urban expansion into new areas.

<u>Design, Mitigation, and Coordination Measures Deferred to Future Project-Level Analyses</u>

The USEPA commended the Authority and FRA for identifying multiple measures for future project-level analyses and appreciated the compilation of mitigation measures in

one location. They further recommend that the MMRP be included with the FRA's ROD. The FRA has included the MMRP as Appendix A to the ROD.

12.2 Union Pacific Railroad, Scott D. Moore

Mr. Moore submitted a letter received on July 7, 2008 in response to the publication of the notice of the Final Program EIR/EIS. The letter discusses the limited railroad rights-of-way to meet future freight transportation needs of the state and that the San Jose to Gilroy rights-of-way is narrow and bounded by a major arterial highway and the UPRR cannot give up an exclusive right-of-way to HST. Mr. Moore claims that a loss of 50 feet of the UPRR right-of-way along the Central Valley line would render future freight rail expansion impossible and disrupt rail-served businesses and prevent serving new industries from locating on one or both sides of the rail. The UPRR does not own the right-of-way for the Caltrain corridor between San Francisco and San Jose but has a freight easement. Imposing two exclusive tracks for HST would end the UPRR's ability to provide freight service to customers, including the Port of San Francisco. The UPRR also has the same issue between Sylmar and Los Angeles. Mr. Moore asks the Authority Board not to jeopardize UPRR's ability to provide such freight service or to assume the HST will have no impact. The UPRR urges the Board to carefully consider corridor routes that do not utilize the UPRR's rights-of-way.

To minimize potential environmental impacts from the HST system, the Authority's objective has been to maximize the use of existing transportation corridors and rights-of-way for the HST system. Consistent with this objective, extensive portions of the alignment alternatives were described and analyzed as if they were placed within or adjacent to existing rail or highway rights-of-way, rather than on new alignment. Evaluations for the previous statewide HST system program EIR and for the current Final Program EIR/EIS prepared for the Bay Area to Central Valley have consistently shown a potential for fewer significant environmental impacts along existing transportation facilities than on new alignments through both developed and undeveloped areas.

At the same time that the Authority has attempted to minimize environmental impacts by locating alignment alternatives within or adjacent to existing transportation rights-of-way, the EIR does not assume or rely on the availability of existing transportation rights-of-way for its analysis. Figures 2.3-6, 2.3-7, and 2.3-8 in the Final Program EIR depict typical cross sections for HST facilities at grade, on an elevated structure, and where twin tunnels might be necessary. These figures show maximum proposed rights-of-way of 100 feet, 50 feet, or 120 feet for these facilities, respectively. At the programmatic level, this EIR has analyzed the impacts of constructing and operating the HST system along the proposed alignment alternatives conservatively, by evaluating direct and indirect impacts within a wide band that exceeds the maximum proposed HST right-of-way, whether in an existing transportation right-of-way or adjacent to it. For example, for biological impacts, the EIR defines the study area for direct biological impacts as 50 feet on either side of the alignment, and for indirect impacts as 1,000 feet in urban areas and 0.25 mile in rural areas on each side of the alignment. At the project level, when detailed field conditions, resource data, and site-specific facility design information become available, certain impacts disclosed in the Program EIR are expected to be far

less in those circumstances when the actual final footprint of HST track can be located within existing rights-of-way, rather than adjacent to them.

The Program EIR/EIS does not assume use of the UPRR right-of-way between San Jose and Gilroy. In the Central Valley, the assumption was predominately that the alignment would be adjacent to the UPRR right-of-way. Between San Francisco and San Jose, the configuration assumed shared operations with Caltrain express services, but would not share tracks and would not impact freight operations. A considerable amount of aerial structure is assumed to be needed within or adjacent to the UPRR to avoid impacts to industry along the railroad. This will be looked at in more detail at the project level.

12.3 California Department of Fish and Game—Central Region, W.E. Loudermilk

The CDFG submitted comments on the Final Program EIR/EIS on July 7, 2008. The CDFG continues to have concerns related to potential impacts that may occur from the project on CDFG-owned or managed lands, wildlife movement, threatened and endangered species and sensitive habitats. The CDFG claims that the Program EIR/EIS does not contain the information needed for the Authority and FRA to make an informed decision on selection of a preferred alignment. The CDFG indicates that the Program EIR/EIS does not allow the Trustee Agencies and other reviewers the information necessary to compare differing impacts of each proposed alignment to specific species, habitats, and wildlife movement areas so that an informed decision can be made.

As a programmatic document, the FRA's and Authority's Program EIR/EIS did not analyze detailed, site-specific impacts of future projects to construct sections of the HST system. For this reason, in selecting alignments and station locations, the Authority did not select, nor is the FRA concurring in, a precise footprint for improvements, but rather a conceptual corridor alignment subject to further refinement. Future tiered project-level environmental documents will assess the impacts of constructing and implementing individual HST projects for sections of the HST system and will examine specific project location alternatives for the selected corridor alignment and alternative station sites for the selected location options, utilizing design practices and mitigation strategies described in the EIR/EIS and the Authority's decision documents to avoid and minimize impacts to the greatest extent possible including impacts to local, state, and federally-owned or managed lands, specific species, habitats, and wildlife movement areas among others.

The CDFG raises the following concerns related to responses to comments included in the Final Program EIR/EIS:

S006-3 – It is unclear to the CDFG how the HST would improve the ability of residents and tourists to access the wildlife areas as noted in Response S006-3 since HST would have no affect on accessibility between the Bay Area and Los Banos. The CDFG believes that the HST would not increase public access to wildlife areas but result in a decrease in public access and recreational opportunities by limiting hunting, especially in the Upper Cottonwood Creek Wildlife Area (UCCWA).

The entire response for S006-3, in the Final Program EIR/EIS, stated that the HST would also have beneficial effects in terms of adding to conservation efforts. In further responses to CDFG, in the Final Program EIR/EIS, in the MMRP (Appendix A, pages 12-14), and in the CEQA Findings (July 8, 2008), the Authority commits to acquire agricultural, conservation, and/or open space easements to mitigate potential impacts in and around the GEA, which is in the vicinity of the UCCWA. This was further identified to be at least 10,000 acres in agricultural, conservation and/or open space easements in the vicinity of GEA. In addition, the Authority has committed to acquire least 3,500 acres in conservation or other easements for farmland protection, an additional benefit to wildlife. These commitments would make for larger protected areas and potentially larger areas for the public to access and depending on the decisions of local land managers could provide expanded access for hunters. Impacts from the HST on recreational opportunities and hunting at all CDFG-owned or managed lands will be looked at in more detail at the project level.

S006-4 – CDFG identified that the UCCWA along with other potential impacts to CDFG-owned or managed lands were not included in the Draft Program EIR/EIS. The CDFG noted that the Authority and FRA did not recirculate the Draft Program EIR/EIS as recommended by the CDFG.

The Authority and FRA disagree that the Draft Program EIR/EIS needed to be recirculated. The Program EIR/EIS provides sufficient information to make findings regarding the potential environmental impacts of various alignment alternatives and station location options and make meaningful comparisons, thus allowing for identification of a preferred alternative and selection of conceptual corridor alignments and station location options.

The CDFG recognizes that the use of tunnels would reduce biological impacts on the UCCWA, but notes that a tunnel crossing the entire UCCWA would be more effective. The CDFG also notes that a wildlife movement and vehicle strike impact analysis will be required. They also note that an above-ground HST in the western half of the UCCWA could severely limit public hunting and effectively reduce the hunted area of UCCWA by at least half. CDFG states that hunting would not be allowed to continue at its current level on this portion of their property due to public safety and liability issues.

The alignments presented in the Final Program EIR/EIS are representative and conceptual, and although shown in concept to allow analysis of impacts, variations will be considered in and near sensitive areas such as the UCCWA as part of project-level analysis to minimize impacts, after which decisions will be made as to final placement of alignments. The Authority will undertake detailed biological studies as part of the project-level analysis that include wildlife movement, animal strikes, and hunting to determine impacts and appropriate mitigations.

S006-5 – CDFG states that neither the response in the Final Program EIR/EIS to their comment nor the Final Program EIR/EIS address the fact that the HST would be crossing half of the GEA at-grade. The CDFG notes that the Authority and FRA have made no determination as to the placement and number of wildlife crossings so their effectiveness cannot be determined. CDFG does not understand the response that the HST would not further fragment the GEA since the tracks would need to have a barrier

on either side. The CDFG further notes that Henry Miller Road is not a major roadway and is mainly used for local and seasonal farming traffic and that it is incorrect to give it equal weight in discussions of animal movement impacts as compared to the HST system.

Final Program EIR/EIS response S006-5 indicated that of the portion of the GEA crossed by the HST, half of that would be on elevated structure over some of the more sensitive areas along Henry Miller Road. The Authority will undertake detailed biological studies as part of the project-level analysis to determine wildlife movement corridors and the potential locations for crossings. Mitigation measures in the Final Program EIR/EIS and in the MMRP (Appendix A, pages 12-14) identify several times that appropriately sized and placed crossings (underpasses/bridges and /or culverts) will be constructed as part of the project to facilitate wildlife movement. The Authority and FRA will continue to work with the CDFG and other resource agencies as part of all biological analysis and mitigation development. The Authority has committed to elevate the HST alignment through the GEA area along a three-mile portion of Henry Miller Road to minimize impacts on sensitive areas, including wetlands and habitat.

12.4 Stuart M. Flashman

Mr. Flashman, on behalf of the Planning and Conservation League, TRANSDEF, and the California Rail Foundation, submitted a letter dated June 2, 2008 in response to the publication of the notice of the Final Program EIR/EIS (A second letter to the Authority dated July 8, 2008 is addressed in Appendix B). The issues raised by Mr. Flashman are in addition to his comments on the Draft Program EIR/EIS (Comment Letter O007 dated October 25, 2007). Mr. Flashman references a letter received by the Authority from the UPRR dated May 13, 2008 and raises the issue of the HST being within the right-of-way of the UPRR. Mr. Flashman states that the Altamont and Pacheco alternatives analyzed in the Final Program EIR/EIS are predicated on the use of the UPRR right-of-way for significant portions. He further states that the UPRR's opposition to use of its right-of-way likely makes infeasible major portions of the alignments, and he requests that new alignments be analyzed. Mr. Flashman also states that the UPRR's opposition will require reassessment of major portions of the routing between San Francisco and Los Angeles that were addressed in the previous statewide program EIR/EIS, including the Palmdale area. He also states that the environmental analysis for these previously approved portions of the alignment be reopened to address the changed circumstances before those portions can proceed to project-level decisions.

Mr. Flashman claims that since changes in circumstances, not considered in the Final Program EIR/EIS and which the public has not had the opportunity to comment on, the Final Program EIR/EIS needs to be withdrawn and a revised Draft Program EIR/EIS be prepared and circulated.

FRA and Authority staff disagree with the characterization of the right-of-way issues in this comment letter or the letter's suggestion that the Final Program EIR/EIS needs to be revised and recirculated.

To minimize potential environmental impacts from the HST system, the Authority's objective has been to maximize the use of existing transportation corridors and rights-of-way for the HST system. Consistent with this objective, extensive portions of the alignment alternatives were described and analyzed as if they were placed within or adjacent to existing rail or highway rights-of-way, rather than on new alignment. Evaluations for the previous statewide HST system program EIR/EIS and for the Bay Area to Central Valley Final Program EIR/EIS have consistently shown a potential for fewer significant environmental impacts along existing transportation facilities than on new alignments through both developed and undeveloped areas.

At the same time that the Authority has attempted to minimize environmental impacts by locating alignment alternatives within or adjacent to existing transportation rights-of-way, the Program EIR/EIS does not assume or rely on the availability of existing transportation rights-of-way for its analysis. Figures 2.3-6, 2.3-7, and 2.3-8 in the Final Program EIR/EIS depict typical cross sections for HST facilities at grade, on an elevated structure, and where twin tunnels might be necessary. These figures show maximum proposed rights-of-way of 100 feet, 50 feet, or 120 feet for these facilities, respectively. At the programmatic level, the Program EIR/EIS has analyzed the impacts of constructing and operating the HST system along the proposed alignment alternatives conservatively, by evaluating direct and indirect impacts within a wide band that exceeds the maximum proposed HST right-of-way, whether in an existing transportation right-of-way or adjacent to it. For example, for biological impacts, the Program EIR/EIS defines the study area for direct biological impacts as 50 feet on either side of the alignment, and for indirect impacts as 1,000 feet in urban areas and 0.25 mile in rural areas on each side of the alignment. At the project level, when detailed field conditions, resource data, and site-specific facility design information become available, certain impacts disclosed in the Program EIR/EIS are expected to be far less in those circumstances when the actual final footprint of HST track can be located within existing rights-of-way, rather than adjacent to them.

Recirculation is required under the CEQA when there is "significant new information" that arises prior to certification of a final EIR. "Significant new information" is limited to circumstances involving:

(1) A new significant environmental impact would result from the project or from a new mitigation measure proposed to be implemented.
(2) A substantial increase in the severity of an environmental impact would result unless mitigation measures are adopted that reduce the impact to a level of insignificance.
(3) A feasible project alternative or mitigation measure considerably different from others previously analyzed would clearly lessen the environmental impacts of the project, but the project's proponents decline to adopt it.
(4) The draft EIR was so fundamentally and basically inadequate and conclusory in nature that meaningful public review and comment were precluded. (*Mountain Lion Coalition v. Fish and Game Com.* (1989) 214 Cal.App.3d 1043)

(CEQA Guidelines, § 15088.5; see also Pub. Resources Code, § 21092.1)

Because the environmental analysis in the Final Program EIR/EIS is not dependent on the availability of any railroad right-of-way, the analysis remains accurate even in light of the May 2008 letter from UPRR to the Authority. A revision and recirculation of the Bay Area to Central Valley Program EIR/EIS is therefore not necessary.

Also refer to Section 12.2, above, regarding an additional response to a follow-up letter from UPRR to the Authority dated July 7, 2008.

12.5 Juliana Michael

Juliana Michael submitted a letter on the Final Program EIR/EIS to FRA dated June 30, 2008. Ms. Michael identified a number of additional statewide needs for the HST system. Of these, she identifies that the HST would relieve dependence on petroleum-based transportation, reduce atmospheric heat and greenhouse gases, improve travel efficiency and diversification of energy use, help reduce travel delay costs related to congestion, and disperse land use pressures to save more open space and farm land areas.

Ms. Michael also identifies that clean electric power for the HST could be generated in 10 different ways including: solar photovoltaic, geothermal heat, hydro-electric power, ocean wave capture, solar mirror concentrator cauldrons, natural gas, low emission coal-fired plants near a source of environmentally sensitive selective-cut logging, wind generation in the Coast Range, and nuclear power plants.

Ms. Michael also would like for the trains to include radar technology as a safety warning system for on track impediments.

The FRA would like to thank Ms. Michael for her input on more focused needs and ideas related to energy supply. The FRA will consider this input in future project-level environmental review.

13. Corrections to the Final Program EIR/EIS

Prior to the CEQA certification process, Authority staff review of certain calculations used to estimate reductions in air pollutant emissions and energy consumption projected to result with operation of the HST system resulted in the discovery of an error in stated air quality and energy benefits and the need for the corrections. An Addendum/Errata, included in this record of decision as Appendix C, was prepared and made generally available in June 2008, that revises the discussion of air quality and energy benefits associated with the HST alternative as presented in the Final Program EIR/EIS. These minor technical corrections are appropriately addressed in the Addendum/Errata as part of the Final Program EIR/EIS. The corrections do not constitute changes in the proposed HST system, and therefore do not result in new or increased adverse environmental impacts or any changes to the discussion of adverse environmental impacts from the HST system. Additionally, the corrections do not result in any changes in the circumstances under which the HST system will be pursued that would require

changes in the proposed HST system, and do not make feasible any alternatives or mitigation strategies that were considered infeasible. These corrections do not trigger the need to prepare a supplement, per the requirements of the CEQ's NEPA regulations (40 CFR 1502.9[c][1]). Finally, the changes are equivalent for the representative Network Alternatives and therefore have no bearing on the identification or selection of a Preferred Alternative.

14. Factors Considered in Making This Decision

The purpose of the Bay Area to Central Valley HST is to provide a reliable high-speed electrified train system that links the major Bay Area cities to the Central Valley, Sacramento, and Southern California, and that delivers predictable and consistent travel times. Further objectives are to provide interfaces between the HST system and major commercial airports, mass transit, and the highway network and to relieve capacity constraints of the existing transportation system in a manner sensitive to and protective of the Bay Area to Central Valley region's and California's unique natural resources.

The Final Program EIR/EIS and Section 5 Purpose and Need, above, outline the objectives that the Authority has adopted, including, "maximize intermodal transportation opportunities by locating stations to connect with local transit, airports, and highways" and states that the Authority's statutory mandate is to plan, build, and operate a HST system that is "coordinated with the state's existing transportation network, particularly intercity rail and bus lines, commuter rail lines, urban rail transit lines, highways, and airports."

In the 2005 ROD for the statewide program EIR/EIS, the Authority and FRA found that taking no action under the No Project Alternative would not meet the intercity travel needs projected for the future (2030 and beyond) as population continues to grow, and would fail to meet the purpose and objectives of the HST program. Considering the updated ridership forecasts developed for this Program EIR/EIS, the FRA and Authority reaffirmed that the HST system statewide, as well as within the Bay Area to Central Valley study region, offers environmental benefits in the areas of traffic, air quality, and energy use, whereas the No Project Alternative would result in increased traffic congestion, deteriorating air quality, and reduced transportation energy efficiency. The Program EIR/EIS No Project Alternative does not meet the project purpose or project objectives.

Overall, implementing the HST system in the Bay Area to Central Valley study region would greatly increase the capacity for intercity and commuter travel and reduce existing automobile traffic in specific travel corridors. Full grade-separation along Bay Area rail corridors used by the HST would improve local traffic flow and reduce air pollution at existing rail crossings. The more extensive the HST system implemented in the Bay Area, the greater the travel condition benefits, including increased connectivity to other transit systems, increased convenience, increased reliability, and improved travel times. In particular, more direct connections to the region's airports provide increased connectivity for air transportation system riders.

Recognizing the benefits described above, as well as other attributes, the cities of San Francisco, Oakland, and San Jose all strongly support direct HST service to their respective downtowns. This support was expressed in comments on the Draft Program EIR/EIS, and is consistent with comments/input provided by these cities over the ten years since the Authority was created. MTC, the regional transportation planning and programming agency for the Bay Area, supports direct HST service to the downtowns of each of these three major Bay Area urban centers.

The network alternatives described in the Final Program EIR/EIS present information about overall effects of combinations of HST alignment alternatives and station location options to implement the HST system in the study region. Alignment or station site-specific impacts and effects will be discussed in subsequent project phase reviews.

The network alternatives fall among the three basic approaches for linking the Bay Area and Central Valley: Altamont Pass (11 network alternatives); Pacheco Pass (six network alternatives); and Pacheco Pass with Altamont Pass (local service) (four network alternatives). The network alternatives vary in the degree they serve urban areas/centers and international airports. All but one would provide direct HST service to (i.e., include a HST station within) one and up to three of the major urban centers in the Bay Area—San Francisco, San Jose, and Oakland. Some of the network alternatives would provide service to one or more of the three Bay Area international airports at San Francisco, Oakland, and San Jose. Connectivity and enhancement of other transit systems (e.g. ACE, Caltrain, Capitol Corridor, BART, and Valley Transportation Authority) also vary greatly among the network alternatives.

A number of network alternatives clearly do not meet the purpose and need for the HST system. For instance, the Altamont Pass network alternative that terminates in Union City fails since it does not provide direct HST service to San Francisco, Oakland, or San Jose (the major Bay Area cities) nor does it provide interface with the major commercial airports. Also failing are a Pacheco Pass network alternative that terminates in San Jose and three Altamont Pass network alternatives that only serve one of the three major urban areas/centers. These four alternatives directly provide HST service to at most only one major Bay Area city and one of the region's major commercial airports. Detailed evaluation of each network alternative appears in the Final Program EIR/EIS Chapter 7.

The Final Program EIR/EIS considered representative Altamont Pass network alternatives that encompass the range of combinations of HST alignment alternatives and station location options to implement the HST system via the Altamont Pass. While there are constructability issues and logistical constraints for all HST alternatives, the construction related issues and logistical constraints associated with the Altamont Pass alternatives are greater than those for the Pacheco Pass.

All Altamont Pass alternatives have considerable constructability issues through the right-of-way constrained Tri-Valley area (Livermore and Pleasanton) and tunneling/seismic issues in the Pleasanton Ridge/Niles Canyon area. Additionally, all Altamont Pass alignment alternatives have tunneling/seismic issues (Calaveras Fault) in the Pleasanton Ridge as well as seismic issues in the East Bay (Hayward Fault). For direct service to San Francisco, the most promising Altamont Pass alternatives require a

new San Francisco Bay crossing at Dumbarton, which must also go through the Don Edwards San Francisco Bay National Wildlife Refuge and the City of Fremont (which opposes construction of the east-west link through Fremont). Furthermore, for the Altamont Pass alternative serving Oakland, the MTC concluded that "development of an East Bay option with direct service to San Jose and Oakland would include significant right-of-way risk gaining an agreement from UPRR to provide access to Oakland." For the Altamont Pass East Bay link to San Jose, Caltrans District 4 has commented that use of the I-880 median would result in significant construction stage impacts between Fremont and San Jose.

The Final Program EIR/EIS considered representative Pacheco Pass with Altamont Pass (local service) network alternatives that encompass the range of different ways to combine HST alignment alternatives and station location options to implement the HST system via the Pacheco Pass and Altamont Pass. These combined network alternatives do not compare well against either single pass (Pacheco Pass or Altamont Pass) network alternatives for HST service. These network alternatives resulted in similar ridership and revenue forecasts, (with less revenue than comparable Pacheco Pass network alternatives), while having considerably higher capital costs ($4.4–6.0 billion more for comparable terminus station locations). Although the Pacheco Pass with Altamont Pass (local service) alternatives would increase connectivity and accessibility by potentially providing direct HST service to additional markets, these alternatives would have considerably higher environmental impacts, construction issues, and logistical constraints than Altamont or Pacheco Pass alternatives. The USEPA concluded that the Pacheco Pass with Altamont Pass (local service) network alternatives are not likely to contain the LEDPA.

The Final Program EIR/EIS considered representative Pacheco Pass network alternatives that encompass the range of different ways to combine HST alignment alternatives and station location options to implement the HST system via the Pacheco Pass. The Pacheco Pass alternatives with the greatest environmental impacts and greatest construction issues are the two alternatives that include a new transbay tube across San Francisco Bay. Pacheco Pass network alternatives that extend up the East Bay present logistical constraints that render them infeasible due to right-of-way constraints and duplicate investment between Oakland and San Jose, risk of reaching agreement with UPRR along the Niles Subdivision, potential Environmental Justice concerns through existing urbanized areas in the East Bay, and right-of-way constraints within I-880 south of Fremont that could result in a long process with Caltrans. The Oakland and San Jose termini alternative along the East Bay would be less capable of meeting the project purpose and need and project objectives because it would not provide direct HST service to SFO (northern California's major hub airport), the San Francisco Peninsula (Caltrain Corridor), and downtown San Francisco, the major transit, business, and tourism center of the region. The network alternative that serves San Francisco, Oakland, and San Jose without a new bay crossing provides the highest level of connectivity and accessibility to the Bay Area of the Pacheco Pass network alternatives, but would have higher environmental impacts due to the added length and would generate considerably less revenue due to the splitting of HST services between the San Francisco Peninsula and the East Bay.

The evaluation of the Final Program EIR/EIS concludes that the Pacheco Pass network alternative serving San Francisco and San Jose termini is more effective in meeting the project purpose and need. This network alternative would provide HST direct service to downtown San Francisco, SFO, and the San Francisco Peninsula while minimizing potential environmental impacts and acquisition/logistical constraints by maximizing use of existing rail right-of-way through shared-use with improved Caltrain commuter services. The HST is complimentary to Caltrain and would share tracks with express Caltrain commuter rail services. In addition, this alternative provides direct service to northern California's major hub airport at SFO and major transit, business, and tourism center at downtown San Francisco, and would enable the early implementation of the HST/Caltrain section between San Francisco, San Jose, and Gilroy. A number of local and regional agencies, including the MTC, support HST to San Francisco via San Jose and the San Francisco Peninsula. In addition to meeting the program objectives, this network alternative would also provide environmental benefits in the form of increased efficiency in energy use for transportation, decreased energy consumption [e.g., oil fuels consumption], improved air quality and reduction of greenhouse gases, improved travel conditions (including mobility, safety, reliability, travel times, and connectivity and accessibility) and reduced VMT for intercity trips. The FRA and Authority also identified that this network alternative has the benefit of minimizing land consumption needs, by promoting dense development near HST stations, and providing permanent protection for agricultural lands, open space, and wildlife habitat through mitigation in the form of conservation easements that would not be available otherwise. Given the environmental benefits it would provide and relative potential for adverse environmental impact, the Pacheco Pass network alternative serving San Francisco and San Jose termini is the environmentally preferable alternative.

15. Decision

Concluding the Bay Area and Central Valley HST Program EIR/EIS, the FRA makes the following decisions:

1. To select the Pacheco Pass Network Alternative with San Francisco and San Jose Termini and to reject the No Project Alternative, the Altamont Pass Network Alternatives, and the Pacheco Pass with Altamont Pass (Local Service) Network Alternatives; and
2. To adopt the design practices and mitigation strategies described in the MMRP (Appendix A) to minimize harm from the selected alternative; and
3. To eliminate certain conceptual HST alignments and station options evaluated in the Program EIR/EIS from further consideration; and
4. To select for further consideration in the tiered project environmental reviews to be prepared subsequent to the Program EIR/EIS, the preferred conceptual corridor, alignment, and station options for the HST as described in the Final Program EIR/EIS.

The Bay Area to Central Valley HST Program EIR/EIS is the second part of programmatic analysis in the tiered environmental review process and the FRA, in

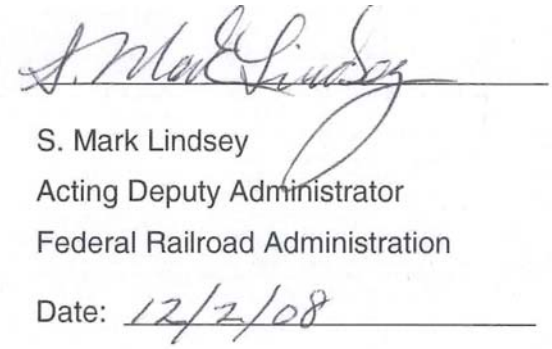
cooperation with the Authority, is making initial and basic decisions on the proposed HST system between the Bay Area and Central Valley. The Program EIR/EIS considers the comprehensive nature and scope of the proposed HST system, at the conceptual stage of planning and decision-making, including potential route and station locations. FRA's decisions select conceptual corridors and station locations for further analysis.

The Authority considered and made similar decisions when certifying the Final Program EIR/EIS under CEQA on July 9, 2008. As appropriate, the Authority may also pursue preservation of right-of-way in selected corridors and at station locations through protective advance acquisition consistent with the Federal Uniform Relocations Assistance and Real Property Acquisitions Policies Act and Federal and State law.

Subsequent future tiers involving project-level environmental review will examine a range of HST project alternatives in specific detail as sections of the proposed HST system are advanced within corridors selected in the Program EIR/EIS. Within these reviews, the no action alternative will be examined as well. Project-level reviews will fully describe site-specific design and land acquisition as well as environmental impacts, and mitigation measures to address those impacts. The FRA and the Authority will assess the site characteristics, size, nature, and timing of proposed specific projects to determine whether the impacts are potentially significant and whether impacts can be avoided or mitigated. Mitigation strategies will be considered in relation to potential impacts and mitigation measures advanced where appropriate.

Because the Program EIR/EIS does not assess future actions to implement an HST system at specific locations, this decision does not determine site specific-impacts or specific mitigation measures appropriate for mitigating those impacts. Conversely, the Program EIR/EIS identifies design practices and mitigation strategies, which are an array of actions that can be applied at the project-level to avoid, minimize, or mitigate the types of environmental impacts anticipated as a result of implementation of the HST system, but does not analyze them in relation to specific project sites. To minimize potential future environmental harm from cumulative implementation of the proposed HST system, the FRA adopts the design practices and mitigation strategies in the MMRP included as Appendix A.

Implementing the HST system in the Bay Area to Central Valley study region would result in significant environmental impacts. The decision of how to implement the HST system in the Bay Area to Central Valley study region therefore involves a balancing consideration of how the alternatives meet the project purpose with the different types and degrees of environmental impacts in different locations. The Preferred Pacheco Pass Network Alternative would contribute to achieving the distinct benefits of the HST system as a whole, including improved transportation and reduced congestion, improved air quality, energy savings, and greater opportunities for smart-growth land use planning. At the same time, the Preferred Pacheco Pass Network Alternative has less adverse impacts on the environment overall and is environmentally preferable. The FRA therefore finds that the transportation, environmental, land use, economic, and social benefits of the Preferred Pacheco Pass Network Alternative outweigh the adverse environmental impacts that will remain after adoption and application of all mitigation strategies listed in this document.



S. Mark Lindsey
Acting Deputy Administrator
Federal Railroad Administration
Date: 12/2/08

Attachments:

Appendix A – Mitigation Monitoring and Reporting Plan

Appendix B – Summary of and Brief Response to Comments on the Final Bay Area to Central Valley High-Speed Train Program EIR/EIS

Appendix C – Addendum/Errata to Final Program EIR/EIS for the Bay Area to Central Valley Portion of the California HST System