CALIFORNIA ENVIRONMENTAL QUALITY ACT

FINDINGS OF FACT

and

STATEMENT OF OVERRIDING CONSIDERATIONS

for the

CALIFORNIA HIGH-SPEED TRAIN SYSTEM

California High-Speed Rail Authority

November 2005

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I.
INTRODUCTION

The California High-Speed Rail Authority (the "Authority") and the Federal Railroad Administration (the "FRA") prepared a joint programmatic environmental impact report/environmental impact statement ("EIR/EIS") to analyze the impacts of approving a high-speed train system ("HST" system) for California. 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 these findings fulfill the Authority's responsibilities in considering the Final EIR/EIS as an EIR for purposes of CEQA.

CEQA provides that no public agency shall approve a project or program as proposed, if it would result in significant environmental effects as identified in an EIR, but must instead adopt and incorporate feasible mitigation to avoid and reduce such effects and adopt appropriate findings. In section 21081 of the Public Resources Code, CEQA provides as follows:

> Pursuant to the policy stated in Sections 21002 and 21002.1, no public agency shall approve or carry out a project for which an environmental impact report has been certified which identifies one or more significant effects on the environment that would occur if the project is approved or carried out unless both of the following occur:
>
> (a) The public agency makes one or more of the following findings with respect to each significant effect:
>
> (1) Changes or alterations have been required in, or incorporated into, the project which mitigate or avoid the significant effects on the environment.
>
> (2) Those changes or alterations are within the responsibility and jurisdiction of another public agency and have been, or can and should be, adopted by that other agency.
>
> (3) Specific economic, legal, social, technological, or other considerations, including considerations for the provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or project alternatives identified in the environmental impact report.
>
> (b) With respect to significant effects which were subject to a finding under paragraph (3) of subdivision (a), the public agency finds that specific overriding economic, legal, social, technological, or other benefits of the project outweigh the significant effects on the environment.

These findings include a description of the proposed HST system being approved, an explanation of the programmatic nature of this EIR/EIS, findings concerning potentially significant environmental impacts and mitigation strategies to address such impacts, a discussion of cumulative and growth-inducing impacts, and a statement of overriding considerations.

II.
PROJECT DESCRIPTION

Background

A series of planning and feasibility studies, as well as the Authority's Business Plan, which was adopted in 2000, were prepared in California before the Authority and the FRA began the preparation of the Program EIR/EIS for a proposed California high speed train (HST) system. These previous studies and the Authority's Business Plan informed the description of the proposed HST system for study in the Program EIR/EIS. The Authority was authorized and formed in 1996, pursuant to legislation making it responsible for the planning, construction and operation of a high speed passenger train service/network for California which is integrated with the state's existing transit and rail network, and authorizing it to, among other things, select a high speed rail system, as well as proposed routes and proposed station sites. (Pub. Utilities Code, §§ 185030, 185032, 185034.) "High speed rail" is defined by statute to mean "intercity passenger rail service that utilizes and alignment and technology that makes it capable of sustained speeds of 200 miles per hour or greater." (Pub. Utilities Code, § 185012(c).)

The Authority's Business Plan describes an economically viable HST system for California, envisioning a system over 700-miles long with electrically propelled trains capable of speeds in excess of 200 mph (322 kph) on a mostly dedicated system of fully grade-separated, access-controlled tracks and with state-of-the-art safety, signaling, communication and automated train control systems. The system would connect and serve the major metropolitan areas of California, and would significantly increase the state's transportation capacity, carrying a projected minimum of 42 million passengers annually. The Business Plan recommended corridors, comprised of routes, potential alignments and potential station locations for further study. Having examined existing transportation facilities for intercity travel, state and local plans, the state's future intercity transportation needs, and the financial feasibility of a proposed HST system, the Authority's Business Plan concluded that a high speed train system would be a smart investment for California.

Proposed HST System

At the beginning of the EIR/EIS process, 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 (for NEPA) and the project objectives (for CEQA). The purpose and primary objective 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 and objective of the system is to provide an interface with commercial airports, public transit services, and the highway network and relieve capacity constraints of the existing transportation network as increases in intercity travel demand in

California occurs, in a manner sensitive to and protective of California's unique natural resources.

To implement the Legislature's direction that a proposed HST system be coordinated with the state's existing transportation network, and to further describe a proposed HST system that would be economically viable, the Authority adopted policies and objectives for the HST system, which are listed in the Final Program EIR/EIS [1-4] and include among them the following:

- maximize intermodal transportation opportunities
- preserve environmental quality by reducing emission and VMT [vehicle miles traveled] for intercity trips
- maximize use of existing transportation corridors and rights-of-way, as feasible
- meet a portion of intercity travel demand; increase capacity for intercity mobility
- develop a practical and economically viable transportation system that can be implemented in phases by the year 2020

The Authority also set forth performance criteria for the proposed HST system that would meet the time and service quality goals necessary for an economically viable system and consistent with the Legislature's definition of a high speed rail service. To further guide the definition of HST system corridors, additional engineering criteria and parameters were described for the proposed HST system analyzed in the Program EIR/EIS. These criteria include general design parameters and requirements for shared use corridors, that is locations where the proposed HST service may share infrastructure with non-HST services. The Authority also set forth criteria for tunnels within the HST system, which would chiefly be within the northern or southern mountain crossing corridors, and criteria for potential intermediate and terminus station sites.

Preferred Program Alternative - HST System

The following HST system description is programmatic in nature and provides a broad planning and conceptual outline of the proposed train system. These findings provide a brief description of the component parts of the proposed HST system and the corridors for its location, which is based on the detailed information contained in the Final EIR/EIS and other reports included or referenced in the Final EIR/EIS.

The proposed HST system is a system over 700-miles long with electric propulsion and steel-wheeled trains capable of speeds in excess of 200 mph (322 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. The preferred corridors of the proposed HST system are largely within or adjacent to existing transportation facilities or rights of way. These corridors connect and serve the state's major metropolitan areas, and provide linkage with public transit services and the state's major commercial airports using multi-modal hub stations. The preferred HST system includes shared use corridors on the San Francisco Peninsula (Caltrain) and in southern California from Union Station in Los Angeles to Anaheim and Irvine. The preferred HST system also includes design practices to minimize impacts to resources, HST station development principles to foster smart growth, increase land use efficiency and minimize impacts to resources, and mitigation strategies to avoid and reduce environmental impacts. These practices, strategies and policies are described below in the discussion of impacts to resources.

The basic physical components of the proposed system include the trains and various structures. The trains are considered to include trainsets, communications, signal and train control systems. The various structures that will make up part of the HST system include tracks and supporting structures, HST stations, and the electrical power system and facilities. These features may be briefly described as follows:

- Tracks and supporting structures include steel tracks for an HST system over 700 miles long, aerial structures and tunnels, grade separation and access-control features (fences, berms, signals, etc.)

- The electric propulsion and distribution system consisting of a 2x25KV overhead catenary system of poles and wires, as well as electric supply and booster stations

- HST multi-modal stations, intermediate and terminus, at thirty identified potential locations, that will generally include platforms, passenger facilities, baggage facilities, connections with public transit services, parking, and landscaping

- Cleaning, maintenance and storage facilities for the trains, at locations generally identified as facilities for light cleaning and maintenance located near termini in northern and southern California and facilities for heavy cleaning and maintenance located in the Central Valley.

The corridors proposed for the location of the preferred HST system are areas containing proposed alignments and identified potential multi-modal station sites. The corridors are conceptually described and represent routes for an over 700-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. The preferred alignment and station locations are described briefly in the Summary in the Final Program EIR/EIS (section S.7) and depicted in the Final Program EIR/EIS.

The preferred alignment and station locations are described in detail in Chapter 6A of the Final Program EIR/EIS and can be briefly described by reference to five regional segments of the HST system as described below. All the potential HST stations would be multi-modal transportation hubs.

Bay Area to Merced:

San Francisco to San Jose: Caltrain Corridor with potential stations at Transbay Terminal as the northern terminus, Millbrae to connect to SFO, and either Redwood City or Palo Alto.

Oakland to San Jose: Hayward Line railroad right-of-way to Interstate Highway I-880 with potential stations at a northern terminus in downtown Oakland, at the Coliseum Bay Area Rapid Transit (BART) station, Union City station in Alameda County, and a downtown San Jose terminus at Diridon Station.

San Jose to Merced (Northern Mountain Crossing): A broad corridor containing a number of feasible route options has been identified for further study. The corridor is roughly bounded by (and includes) the Pacheco Pass (SR 152) to the south, the Altamont Pass (I-580) to the north, the BNSF rail corridor to the east and the Caltrain rail corridor to the west, excluding alignment options through Henry Coe State Park and station options at Los Banos. The future additional study will also further consider the above Bay Area to Merced alignment and station locations.

Sacramento to Bakersfield:

Sacramento to Stockton: Union Pacific or California Traction (CCT) alignment option with potential stations at Downtown Sacramento and Downtown Stockton.

Stockton to Merced: Burlington Northern Santa Fe (BNSF) alignment option with potential stations at Modesto (Amtrak Briggsmore) and Merced (Castle Air Force Base or Downtown Merced.

Merced to Fresno: BNSF alignment with a potential station at Downtown Fresno.

Fresno to Bakersfield: BNSF alignment option with a potential station at Downtown Bakersfield (Truxton), an additional study of an alignment option to serve a potential Visalia station.

Bakersfield to Los Angeles (Southern Mountain Crossing):

Bakersfield to Sylmar: SR 58/Soledad Canyon Corridor (Antelope Valley) with a potential station at Palmdale and at the Sylmar Metrolink station.

Sylmar to Los Angeles: MTA/Metrolink is the preferred option between Sylmar and Los Angeles with a potential station at Burbank Metrolink Media City station in downtown Burbank and at Los Angeles Union Station (LAUS), in downtown Los Angeles. The MTA/Metrolink between Burbank and Los Angeles refers to a relatively wide corridor within which alignment variations will be studied at the project level.

Los Angeles to San Diego via the Inland Empire:

Los Angeles to March Air Reserve Base: UPRR Riverside/UPRR Colton Line alignment with potential stations at East San Gabriel Valley (City of Industry), Ontario Airport, and Riverside (UC Riverside).

March Air Reserve Base to Mira Mesa: I-215/I-15 alignment with potential stations at Temecula Valley (Murrieta) and Escondido.

Mira Mesa to San Diego: Carroll Canyon or Miramar Road alignment option with potential stations at University City and Downtown San Diego (Santa Fe Depot).

Los Angeles to Orange County:

Los Angeles to Anaheim/Irvine: Los Angeles to San Diego rail corridor (LOSSAN) to Anaheim/Irvine with potential stations at Norwalk, Anaheim Transportation Center, and Irvine Transportation Center.

III.
PROGRAMMATIC EIR/EIS

The Programmatic Nature of the Environmental Impact Report for the proposed California High-Speed Train System

In legislation creating the California High-Speed Rail Authority, the Legislature made a finding that it in order to have a comprehensive network of high-speed intercity rail by the year 2020, it was necessary to prepare a high-speed intercity rail plan similar to California's former freeway plan. The Authority, in consultation with the Federal Railroad Administration (FRA), determined that the appropriate initial CEQA document for the proposed HST system would be a programmatic EIR/EIS, considering the comprehensive nature and scope of the HST system, and the conceptual stage of planning and decision-making. The programmatic level of environmental review would allow for the broadest disclosure of impacts, and improve the opportunity for the Authority and the public to consider alternatives to an HST system, and different conceptually defined corridors and station options. Identifying and analyzing a proposed HST system at the very early conceptual planning stage also provides the Authority with the best opportunity to develop design practices and mitigation strategies to avoid and minimize identified impacts. (CEQA Guidelines, § 15168, subd. (b).) This Programmatic EIR/EIS, or "program EIR" as used in CEQA, will be used to tier more detailed environmental documents to assess site-specific impacts of reasonable and foreseeable alignment and station options in segments of the system that are ready for implementation.

The degree of specificity required in an EIR corresponds to the degree of specificity involved in the underlying activity that is described in the EIR. "An EIR on a project such as the adoption or amendment of a comprehensive zoning ordinance or a local general plan should focus on the secondary effects that can be expected to follow from the adoption, or amendment, but the EIR need not be as detailed as an EIR on the specific construction projects that might follow." (CEQA Guidelines, § 15146; see also *Rio Vista Farm Bureau Center v. County of Solano* (1992) 5 Cal.App.4th 351, 371.)

Based on the direction in the CEQA Guidelines, this Program EIR presents information at a broad planning level of detail. The overall and long-term environmental consequences of building and operating the HST system over the next 20-year time span are described. The analysis of environmental effects at a generalized level provides the Authority with sufficient information to make the basic policy decisions being considered:

(1) whether to continue to pursue an HST system (as described in section II)

(2) which of the conceptual corridors, alignments, and stations options evaluated in the EIR/EIS can be eliminated from further consideration, and which will be studied further in tiered EIRs.

In particular, the programmatic EIR/EIS is useful because it allows the Authority to address the broad environmental consequences associated with a determination of whether to proceed with an HST system or not, prior to engaging in more detailed, and expensive, environmental analysis for segments of the HST system and addressing particular locations with specificity.

The *alternatives* examined in the EIR/EIS represent basic approaches to intercity travel to relieve increasing congestion and capacity constraints. Included within each of these alternatives are a multitude of potential activities for which details are not yet known, and about which individual decisions remain to be made. The detailed impacts analysis necessary to make decisions about future site-specific actions to implement the HST System Alternative will be provided in tiered environmental documents.

The *thresholds of significance* for most of the environmental resources discussed in the EIR/EIS impacts analysis are based on the CEQA Appendix G Environmental Checklist questions and are described in qualitative terms. The thresholds are intended to identify potentially significant impacts at a programmatic level. For future analyses, the measure of significance will vary depending on the nature and type of the proposed action, the site characteristics where the actions take place, and how they affect the existing conditions at the time of the proposed actions.

The programmatic *impacts analysis* focuses on the potential direct and indirect impacts associated with building and operating an HST system along the conceptual corridors discussed in the EIR. The anticipated environmental impacts are identified based on methodologies specific to the particular resource area. Information sources included existing data and studies, such as GIS maps and data bases. No field studies were performed for this program-level analysis beyond limited site visits, and the buffer area used for the analysis was many times larger than the actual right-of-way in most instances. (See EIR, p. 7-2.)

Because this program-level EIR/EIS does not assess the impacts of future actions to implement an HST system at specific locations, it cannot predict with certainty which impacts will occur and which more detailed project-specific mitigation measures will be appropriate for mitigating those impacts. Consequently, the EIR/EIS identifies *mitigation strategies*, which are an array of actions that can be used to avoid or minimize the types of environmental impacts anticipated as a result of implementation of the HST system. These mitigation strategies provide the basis to tailor more specific mitigation measures that can be applied to and refined for specific projects, and for purposes of CEQA, they serve as mitigation measures at a programmatic level. The Authority's expectation is that these mitigation strategies are, and will be, adequate to address the identified environmental impacts. In some areas additional measures were suggested by comments, and although they may not have been adopted at the program level, they will be further considered at the project level. Some mitigation strategies may cause other adverse environmental impacts at the same time that they mitigate impacts addressed in this Program EIR/EIS. At this programmatic level of analysis, it is impractical to analyze the specific impacts of mitigation measures or the measures that may be needed to mitigate those secondary impacts. During review of site-specific project proposals, the additional impacts created by the application of mitigation strategies, if any, will be analyzed, and further measures added as necessary to avoid or reduce those impacts.

This Program EIR/EIS is structured to be used as a tiering document. Individual environmental reviews of second-tier projects to implement the HST system can incorporate by reference and use relevant provisions of the Program EIR/EIS as a basis from which to supplement this analysis and refine the level of detail. Tiering will assist the Authority in focusing on issues that are ripe for decision at each stage of environmental review and to exclude from consideration issues that have already been decided or that are not ready for decision. Second-tier documents will be prepared to concentrate on issues specific to the individual project being implemented and site(s) chosen for the action before construction can be initiated. The environmental review and initial studies for site-specific, second-tier projects can incorporate by reference the discussions in the program EIR, and "concentrate on the environmental effects which (a) are capable of being mitigated, or (b) were not analyzed as significant effects on the environment in the prior environmental impact report." (Pub. Resources Code Section 21068.5)

At the project-level of environmental review, the Authority will assess the site characteristics, size, nature, and timing of proposed actions to determine whether the impacts of the specific projects are potentially significant or can be avoided or mitigated to a less-than significant level. However, since it is not possible to precisely assess the site-specific impacts or precisely measure the potential for mitigation to avoid or reduce project-level impacts as part of this programmatic analysis, and due to this uncertainty the Program EIR/EIS treats some of these impacts as potentially significant at a programmatic level. Where it is anticipated that feasible mitigation measures may not be available to avoid or reduce these impacts to a less-than-significant level, based on currently available information, this Program EIR/EIS document treats these impacts at the programmatic level as potentially significant and unavoidable, even where this conclusion is not certain. Future review in tiered environmental documents will be needed to determine the impacts of specific actions and appropriate mitigation for site-specific actions.

Where a second-tier project involves impacts that are addressed in the Program EIR/EIS, the Authority will use the mitigation strategies adopted in these findings as a basis to formulate project-level mitigation measures and enforcement programs. Because all the potential actions and impacts for tiered projects to implement an HST system cannot be anticipated at a programmatic level, the Authority will select those strategies applicable to the impacts associated with the specific location and type of action and refine them into mitigation measures. In addition, the Authority will add additional mitigation measures as necessary, and will monitor the effectiveness of mitigation used for second-tier projects.

IV.
FINDINGS ON SPECIFIC IMPACTS AND MITIGATION STRATEGIES

Chapter 3 of the Program EIR/EIS sets forth the environmental effects of the HST Alternative that would be potentially significant or significant in the absence of mitigation strategies. These impacts are set forth below, along with mitigation strategies that the Authority adopts, that will avoid or substantially lessen those potentially significant or significant impacts. As environmental studies for actual project implementation go forward, these mitigation strategies will be refined into actual mitigation measures. These findings recognize that the strategies are not an exclusive list of mitigation, and that additional mitigation measures may be added at the project-level. In addition, as mitigation is developed at the project-level, some mitigation included herein as programmatic mitigation strategies may be found to be the responsibility of other public agencies instead of, or in addition to, the Authority.

Also set forth in these findings are those impacts that the Authority finds cannot with certainty be avoided or reduced to a less-than-significant level even with the adoption of all feasible mitigation strategies proposed in this EIR. In adopting these findings and mitigation strategies, the Authority also adopts a Statement of Overriding Considerations setting forth the economic, social, and other benefits of the HST Alternative that will render these impacts acceptable.

The Authority is not required to make findings or adopt mitigation strategies or policies as part of this decision for impacts that are less than significant. For some resource areas, however, the Authority is choosing to include findings to provide context and rationale about the less-than-significant impact conclusion at the programmatic level. In addition, while the Program EIR/EIS includes a discussion of certain issues necessary to satisfy the National Environmental Policy Act, these issues do not necessarily represent environmental impacts for which findings are required under CEQA. The Authority has determined that the following areas discussed in the Program EIR/EIS do not require findings:

- travel considerations
- mineral resources
- movement of goods
- emergency access

Additionally, the following listed areas are discussed in the findings to provide additional information and context, although the Authority has concluded that these impacts will be less than significant even without the adoption of mitigation strategies:

- public transit
- parking
- EMI/EMF
- public utilities
- severance impacts to agricultural lands

3.1 Traffic and Circulation

Impact 1. Traffic and Circulation

The HST system would add capacity to the state's transportation infrastructure which would result in a volume to capacity ratio improvement (V/C) and would relieve congestion on certain intercity highways linking major metropolitan areas of the state to the extent that trips taken by HST would otherwise have used highways. By providing another mode of intercity travel in California the HST would also improve reliability and increase mobility within the state's transportation system as a whole. The HST system would result in traffic improvement in areas where grade separation for the HST system would replace an at-grade crossing which was responsible for periodic local traffic delays.

Despite some expected improvement in highway conditions in areas to be served by the HST system, the level of service (LOS) on local roadways in many of these areas is currently poor (ratios of more than 1.0 on average for each of the five regions) and would remain so even with the HST system. 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.

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.

The Authority finds that the localized increases in traffic and congestion near HST station areas and during construction are significant at the programmatic level of analysis. The following mitigation strategies can be refined and applied at the project-specific level and will reduce this impact:

1. Require that HST system stations serve as multi-modal transportation hubs providing easy connection to local/regional bus, rail and transit services, as well as providing bicycle and pedestrian access.
2. Require the HST system to be grade-separated from all roadways to allow vehicular traffic to flow without impediment from the HST system.
3. Work with local and regional agencies to develop and implement transit-oriented development strategies, as described in chapter 6B, around HST stations.
4. Work with local and regional agencies to identify, plan, coordinate, and implement traffic flow improvements around HST station locations during project-level planning. Such improvements may include:
    a. a construction phasing and traffic management plan for construction periods

b. improving capacity of local streets with upgrades in geometrics such as providing standards roadway lane widths, traffic controls, bicycle lanes, shoulders and sidewalks
c. modifications at intersections, such as signalization and/or capacity improvements (widening for additional left-turn and/or through lanes), and turn prohibitions
d. signal coordination and optimization (including retiming and rephasing)
e. designation of one-way street patterns near some station locations
f. truck route designations
g. coordination with Caltrans regarding nearby highway facilities

5. Work with public transportation providers to coordinate services and to increase service and/or add routes, as necessary, to serve the HST station areas.

6. Avoid parking impacts by developing and coordinating implementation at the project-level of parking improvement strategies consistent with local policies, including shared parking, off-site parking with shuttles, parking and curbside use restrictions, parking permit plans for neighborhoods near HST stations, and other parking management strategies.

The Authority finds that the foregoing strategies will reduce this impact to a less-than-significant level, although the specific measures to be applied at each location are to be determined at the project-level for areas expected to experience traffic congestion due to the HST system and are to be implemented in coordination with local and regional land use and transportation authorities, and in consultation with Caltrans as appropriate.

Impact 2. Transit/Public Transportation

The EIR's treatment of traffic impacts included analysis of public transportation services in the vicinity of proposed HST system station locations and concluded that the proposed HST system would not result in adverse impacts on public transportation services. HST stations would be multi-modal hubs which would provide for connectivity with other services. The HSRA will consult and coordinate with public transit service providers regarding feeder services to HST stations during project-level studies.

The Authority finds this impact less than significant viewed on a system-wide basis. The Authority intends to work with public transportation providers to provide coordination of services so as to enhance use of such services along with use of the HST system.

Impact 3. Parking

The EIR analysis of traffic included consideration of parking near the locations of proposed HST stations. HST stations are assumed to include parking at a level consistent with local plans and policies and adequate for the increment of parking demand attributable to HST service at a multi-modal hub, also taking into account conditions at specific locations during project-level studies.

Coordination and integration of the HST system with public transportation services will reduce demand for parking, and result in shared parking in some areas for public transportation services.

The Authority finds this impact less than significant viewed on a system-wide basis. During project-level studies, environmental analyses will provide more detailed review of parking demand and parking to be included with proposed HST stations, plus identify coordination needed with local/regional public transportation providers. To assure parking impacts will be avoided the Authority will develop and coordinate implementation at the project level of parking improvement strategies consistent with local policies, including share parking, off-site parking with shuttles, and parking and curbside use restrictions parking permit plans for neighborhoods near HST stations. (See Traffic and Circulation, Impact 1, mitigation strategies, 6.).

3.3 Air Quality

Impact 1. Localized Air Quality Impacts due to Congestion/Traffic near HST Stations

The HST system would result in air quality improvement across the state in areas served by the HST system. The use of the HST system by passengers who would otherwise drive results in a reduction of vehicle miles traveled and thus, a reduction in air pollution generated by automobile combustion engines. The HST system would be powered by electricity which is expected to be provided by the state's electrical grid. Taking into account both reductions in vehicle miles and the amount of air pollution generated by producing electricity to power the HST system (considering this pollution as an average based on power plants supplying the state's electrical grid), the HST system would result in a net air quality improvement. Design practices included in the HST system include the use of energy efficient trains and power distribution systems. Air quality improvement would also result from congestion relief afforded by the use of HST to the extent (1) that congested highway traffic would be relieved on intercity highway segments, (2) that grade separations for the HST system improve local traffic flow by removing traffic impediments that cause congestion and delays, and (3) that public transportation use increases. With the HST system, however, around certain HST stations an increase in traffic and congestion is expected along with a related localized increase in vehicle-generated air pollution. At the program level this localized impact is 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.

The Authority finds that the following mitigation strategies can be refined and applied at the project-level and will reduce this impact:

1. Assure that HST stations are multi-modal hubs and include appropriate parking(see the mitigation strategies for Traffic and Circulation, Impact 1.).
2. Coordinate with local and regional public transportation providers to increase opportunities for connection between the HST system and other public transportation services.

3. Work with local and regional agencies to implement local street and roadway improvements, including various traffic flow improvements and congestion management techniques, and parking management strategies to reduce localized pollution from traffic related to the HST system (see the mitigation strategies for Traffic and Circulation, Impact 1.)

The Authority finds the mitigations strategies listed above will reduce this impact to a less than significant level.

Impact 2. Short-term Air Quality Impacts due to Construction

Construction impacts associated with the HST system 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. This impact is considered significant at the program level.

The Authority finds that the following mitigation strategies can be refined and applied at the project-level and will reduce this impact:

1. Water all active construction areas at least twice daily.
2. Require that all trucks hauling soil, sand, and other loose materials be covered or maintain at least two feet of freeboard.
3. Pave, apply water three times daily, or apply non-toxic soil stabilizers on all unpaved access roads, parking areas and staging areas at active construction sites.
4. Sweep daily (with water sweepers) all paved access roads, parking areas and staging areas at active construction sites.
5. Sweep nearby streets daily (with water sweepers) if visible soil materials from HST system construction are carried onto adjacent public streets.
6. Hydroseed or apply non-toxic soil stabilizers to inactive construction areas (previously graded areas inactive for ten days or more).
7. Enclose, cover, water twice daily or apply non-toxic soil binders to exposed stockpiles of dirt, sand, etc.
8. Limit traffic speeds on unpaved roads to 15 mph
9. Install sand bags or other erosion control measures to prevent silt runoff to public roads.
10. Replant vegetation in disturbed areas as quickly as possible.
11. Use alternative fuels for construction equipment when feasible.
12. Minimize equipment idling time.
13. Maintain properly tuned equipment.

The Authority finds that the above mitigation strategies will reduce this impact to a less than significant level.

3.4 Noise

Impact 1 Increased Noise from Train Operations and Construction

The EIR evaluated noise and vibration impacts in a study area of 1000 feet from the centerline of the alignment options. The HST could create long-term noise impacts along the alignment segments from train operations by creating intermittent increased noise. As a new noise source the HST system would be far quieter than typical passenger and freight trains. The HST segments have noise impact ratings ranked as low, medium, and high. Construction of the HST could also cause short-term construction-related noise impacts. Considering CEQA Appendix G and the FRA's noise impact criteria as a basis for thresholds of significance, this impact is considered significant when viewed on a system-wide basis. The significant noise impact from operations will not occur along the entire HST system alignment. Rather, the impact would be localized, because certain areas along the proposed HST system alignment have no sensitive receptors, and because trains speeds are slower in some places leading to lower noise impact ratings.

The following mitigation strategies can be refined and applied at the project-specific level and will reduce this impact:

1. Grade separations to eliminate grade crossing related noise.
2. Noise barriers, such as sound walls, trenches or earth berms, where there are severe noise impacts.
3. Require noise reduction in HST equipment design and track structures design
4. Use of enclosures or walls to surround noisy construction equipment, and installation of mufflers on engines; substitution of quieter equipment or construction methods, minimizing time of operation and locate equipment farther from sensitive receptors.
5. Where not already included, consider placing alignment sections in tunnel or trenches or behind berms where possible and where other measures are not available to reduce significant noise impacts.
6. Suspend construction between 7:00 pm and 7:00 am and/or on weekends or holidays in residential areas where there are severe noise impacts.
7. In managing construction noise take into account local sound control and noise level rules, regulations and ordinances.
8. Ensure that each internal combustion engine would be equipped with a muffler of a type recommended by the manufacturer.
9. Specify the use of the quietest available construction equipment where appropriate and feasible
10. Turn off construction equipment during prolonged periods of non-use .

11. Require contractors to maintain all equipment and to train their equipment operators.
12. Locate noisy stationary equipment away from noise sensitive receptors.

The Authority finds that the foregoing mitigation strategies will reduce this impact to a less-than-significant level.

Impact 2 Exposure to Ground-borne Vibration

Ground-borne vibration from trains is the fluctuating motion experienced by people on the ground and in buildings near railroad tracks. Vibration can create impacts to adjacent buildings, and therefore adjacent buildings were considered as receptors for the EIR's analysis. The HST system 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 system alignment. Rather, the EIR identified 10-60 miles of the HST alignment that could be subject to vibration impacts. Construction activities can also cause some short-term ground-borne vibration. Considering CEQA Guidelines Appendix G as a basis for thresholds of significance, this impact on some adjacent buildings is considered significant when viewed on a system-wide basis.

The following mitigation strategies can be refined and applied at the project-specific level and will reduce this impact:

1. Specify the use of train and track technologies that minimize ground vibration such as state of the art suspensions, resilient track pads, tie pads, ballast mats or floating slabs.
2. Phase construction activity, use low impact construction techniques and avoid use of vibrating construction equipment where possible to avoid vibration construction impacts.

The Authority finds that the foregoing mitigation strategies will reduce this impact to a less-than-significant level.

3.5 Energy

Impact 1. Increased Energy Use and Electricity Demand with the HST System

The HST System would result in decreased vehicle miles traveled (VMT) for intercity trips in the areas served by the HST System and a decrease in overall energy consumed for intercity trips. The energy savings would be larger than those shown in the EIR/EIS to the extent that the HST System would relieve congestion on intercity highway links, since congestion contributes to increases in fuel consumed per mile by vehicles on the highway. The HST would result in an increase in energy consumption by 9% over existing conditions, an increase which would be smaller and would grow more slowly than the increase in energy consumption that would be associated with either the 2020 No Project Alternative or the Modal Alternative. The HST System would result in decreased overall per capita energy consumption for intercity travel. With the HST System overall direct energy use for intercity travel would be equivalent to 5.2 million barrels of oil less per year than the 2020 No Project Alternative, which would represent a 22 % energy savings. The HST System would have a beneficial effect on overall statewide transportation-related energy use, considering overall energy as a combination of both energy from petroleum fuels and electrical energy.

The 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 would result in an increase in demand on the statewide electricity supply that could reach 480 MW or 0.6% of projected statewide electricity demand in 2020. 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. At the program level, this impact is considered significant due to the uncertainty of future projections of energy demand and generation capacity to 2020.

The Authority finds that the following mitigation strategies can be refined and applied at the project-level and will reduce this impact:

1. HST stations will be multi-modal hubs providing linkage for various transportation modes, which will contribute to increased efficiency of energy use for intercity trips and by commuters, and the stations will be required to be constructed to meet Title 24 California Code of Regulations energyefficiency standards.
2. Design practices will require that the electrically powered HST technology be energy efficient, include regenerative braking to reduce energy consumption, and minimize grade changes in steep terrain to reduce energy consumption
3. Design practices will require that localized impacts be avoided through planning and design of the power distribution system for the HST System
4. Locate HST maintenance and storage facilities within proximity to major stations/termini.

The Authority finds that the above mitigation strategies will reduce this impact to a less than significant level.

Impact 2. Energy Use During Construction of the HST System

Construction of the HST System would result in one-time non-recoverable energy consumption costs that would be similar in scale to the energy consumption requirements that would be needed for the Modal Alternative, and would be in addition to energy consumed by the planned transportation improvements included in the No Project Alternative. The result of the construction of the HST system would be a new transportation mode that would reduce fuel consumption as compared to the 2020 No Project Alternative. At the program level this impact is considered significant due to the uncertainty of future projections of energy demand and generation capacity to 2020.

The Authority finds that the following mitigation strategies can be refined and applied at the project-level and will reduce this impact:

1. Develop and implement a construction energy conservation plan.
2. Use energy efficient construction equipment and vehicles.
3. Locate construction material production facilities on-site or in proximity to project construction sites.
4. Develop and implement a program encouraging construction workers to carpool or use public transportation for travel to and from construction sites.

The Authority finds that the above mitigation strategies will reduce this impact to a less than significant level.

3.6 Electromagnetic Fields and Electromagnetic Interference

Impact 1 Exposure of electromagnetic fields to HST system workers, passengers, and nearby residents, schools and other facilities.

Electromagnetic fields (EMFs) are produced by, among other things, the generation, transmission, and use of electric power. The electromagnetic fields result from the flow of current through wires or electrical devices, and the strength of the magnetic fields depends on equipment design and level of current. The health effects of long-term exposure to low frequency magnetic fields remain unresolved, although the California Department of Health Services in a 2002 study found no evidence to substantiate a relationship between extremely low frequency magnetic fields and cancer or other diseases. Neither the federal government nor the State of California has established regulatory limits for EMF exposure, and there are no established standards or levels of exposure that are known to be either safe or harmful.

The operation of the HST system could generate additional levels of exposure to electromagnetic fields. The level of exposure will depend on a number of factors that will vary depending on the alignments and operations, including design of power supply systems and vehicles, to be decided at the project-level of design.

Depending on the configuration of the source, the strength of an EMF decreases in proportion to distance or distance squared, or even more rapidly. EMFs are measured in terms of their frequency. 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 relatively near 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 result from the operation of the HST system is substantially below any of the standards examined by these experts. Consequently, based on the Authority's review of the scientific evidence, and considering the CEQA Appendix G thresholds of significance for effects on human beings, the Authority has determined that that the increased level of EMF as a result of the HST system operation will be less-than-significant at a programmatic, system-wide level.

The following design practices and mitigation strategies can be refined and applied at the project-specific level and will avoid or reduce EMF exposure:

1. Use standard design practices for overhead catenary power supply systems and vehicles, including appropriate materials, location and spacing of facilities and power supply systems to minimize exposure to receptors over distance, and shielding with vegetation and other screening materials.
2. Design overhead catenary system, substations, and transmission lines to reduce the electromagnetic fields to a practical minimum.

The Authority finds that the above avoidance strategies are to be included in the HST system.

Impact 2 Electromagnetic Interference with Electronic and Electrical Devices.

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 Federal Communications Commission (FCC) has adopted regulations that apply to intentional radiators such as the proposed HST wireless systems. 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.

The HST Alternative would introduce additional electromagnetic interference at levels for which there are no established adverse impacts. Extensive studies have failed to establish any specific levels of additional EMI/EMF exposures which result in adverse health effects, and considering the Appendix G thresholds of significance for effects on human beings, this EIR does not treat this impact as significant at the programmatic level.

The following design practices and mitigation strategies can be refined and applied at the project-specific level and will avoid or reduce EMF exposure.

1. Design the overhead catenary system, substations, and transmission lines to reduce electromagnetic interference to a practical minimum
2. Design the project component to minimize arcing and radiation of radiofrequency energy.
3. Choose devices generating radiofrequency with a high degree of electromagnetic compatibility.
4. Where appropriate, add electronic filters to attenuate radiofrequency interference.
5. Relocate receiving antennas and use antenna models with greater directional gain where appropriate, particularly for sensitive receptors near the HST system.
6. Comply with the FCC regulations for intentional radiators, such as the proposed HST wireless systems.
7. Establish safety criteria and procedures and personnel practices to avoid exposing employees with implantable medical devices to EMF levels that may cause interference with such implanted biomedical devices.

The Authority finds that the above avoidance strategies are to be included in the HST system.

3.7 Land Use Impacts

Impact 1 Incompatibility with Land Uses and Disruption to Communities

The EIR examined the impact of placing a new HST system next to existing and planned land uses using GIS databases, along with local and regional planning documents. This includes the impacts of 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 in order consider the 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. The strategies of placing the proposed HST system in or along existing transportation corridors (existing railroad or highway rights of way) and requiring stations to be multi-modal transit hubs serve to reduce the extent of land acquisition needed for the proposed new HST system, and serve to limit the extent to which adjacent land uses would be inconsistent or incompatible with the HST system. Nearly 70% of the preferred HST system corridor alignments identified in the Final EIR are either within or adjacent to existing transportation corridors.

In the EIR/EIS land use compatibility of the HST system with adjacent uses was ranked low, medium or high, with compatibility being inversely related to the sensitivity of the land use to the HST system (e.g, business, commercial and industrial areas would have high compatibility, while single family residential areas and habitat preservation areas would have low compatibility with the HST system). The HST system would be compatible with policies to support multi-modal transportation and use of public transportation, and the HSRA would work closely with local and regional agencies to implement the system.

In many areas the HST system would improve an existing transportation corridor with grade separation, and thus would improve local access and traffic patterns, and not serve as a community divider or barrier. In other areas, however, the installation of the HST system could affect land uses by creating a new barrier dividing or disrupting existing communities. This is considered a significant impact at the program level.

The following strategies can be refined and applied at the project-specific level and will reduce this impact:

1. Continue to apply design practices to minimize property needed for the HST system and to stay within or adjacent to existing transportation corridors to the extent feasible.
2. Work with local governments to consider local plans and local access needs, and to apply design practices to limit disruption to communities.
3. Work with local governments to establish requirements for station area plans and opportunities for transit oriented development.
4. Work with local governments to enhance multi-modal connections for HST stations.
5. Coordinate with cities and counties to ensure that HST facilities would be consistent with land use planning processes and zoning ordinances.
6. Provide opportunities for community involvement early in project-level studies.
7. Hold design workshops in affected neighborhoods to develop understanding of vehicle, bicycle, and pedestrian linkages in order to preserve those linkages through use of grade-separated crossings and other measures.
8. Ensure that connectivity is maintained across the rail corridor (pedestrian/bicycle and vehicular crossings) where necessary to maintain neighborhood integrity.
9. Develop facility, landscape and public art design standards for HST corridors that reflect the character of adjacent affected neighborhoods.
10. Maintain high level of visual quality of HST facilities in neighborhood areas by implementing such measures as visual buffers, trees and other landscaping, architectural design and public artwork.

The Authority finds that the mitigation strategies described above will substantially lessen or avoid this impact; 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. The Authority finds that this impact is also within the purview of local government agencies to address with local planning and additional mitigation measures, but at the program level, such additional measures and the process for their implementation cannot be determined. Therefore, for purposes of this programmatic EIR, the impact is considered significant and unavoidable.

Impact 2 Impacts to Neighborhoods During Construction

In addition to the above noted potential impacts of the HST system resulting in a new barrier or dividing some established communities, 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. Due to uncertainty at the program level, this impact is considered significant.

The following mitigation strategies, along with mitigation identified for construction impacts on other resources (e.g., air quality, noise) can be refined and applied at the project-specific level and will reduce this impact:

1. Develop a traffic management plan to reduce barrier effects during construction.
2. To the extent feasible maintain connectivity during construction.

The Authority finds that the mitigation strategies described above will substantially lessen or avoid this impact; 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. Therefore, for purposes of this programmatic EIR, the impact is considered significant and unavoidable.

3.8 Agricultural Lands

Impact 1 Conversion of Prime, Statewide Important, and Unique Farmlands, and Farmlands of Local Importance, to Project Uses

The conversion of farmland is the change in the use of important farmland (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)) to non-agricultural uses. The HST could convert approximately 2445 acres of important farmland along the proposed alignment under the "least potential impact" scenario to HST uses. This scenario measured alignment combinations that would result in the least potential impact on agricultural lands per region.

The HST could convert approximately 3860 acres of important farmland along the proposed alignment under the "greatest potential impact" scenario to HST uses. This scenario measures alignment combinations that would result in the greatest potential impact on agricultural lands per region. The number of farmland acres anticipated to be converted with the Preferred HST System Alternative would fall between the acreage estimates for the "least" and the "greatest" potential impact scenarios.

Considering CEQA Appendix G as a basis for thresholds of significance, this impact is considered significant when viewed on a system-wide basis.

The following mitigation strategies can be refined and applied at the project-specific level and will reduce this impact:

1. Avoid farmland whenever feasible during the conceptual design stage of the project.
2. Reduce the potential for impacts by sharing existing rail rights-of-way where feasible or by aligning HST features immediately adjacent to existing rail rights-of-way.
3. Reduce the potential for impacts by reducing the HST right-of-way width to 50 feet in constrained areas.
4. Increase protection of existing important farmlands by securing easements or participating in mitigation banks.
5. Coordinate with and support the California Farmland Conservancy Program to secure conservation easements on farmland in geographic areas where the HST project creates impacts.
6. Coordinate with private agricultural land trusts, local programs, mitigation banks, and Resource Conservation Districts to identify additional measures to limit important farmland conversion or provide further protection to existing important farmland.

The Authority finds that while the mitigation strategies described above will substantially lessen this impact, it is unclear absent site-specific information that this impact can be mitigated to a less-than-significant level over the entire HST system. Therefore, for purposes of this programmatic EIR, the impact is considered significant and unavoidable.

Impact 2 Severance of Prime, Statewide Important, and Unique Farmlands, and Farmlands of Local Importance, to Project Uses

Farmland severance is the division of one farmland parcel into two or more areas of operation by the placement of a barrier through the parcel. The HST would cause some farmland severance in the Sacramento to Bakersfield region. It is not possible at the programmatic level of analysis to estimate the number of parcels or acres that could be affected by severance, and will not be possible until the HST system alignments are more refined. This impact could arise where the HST alignment options considered in the EIR would bypass urban areas on new corridors traveling mainly north-northwest to south-southwest, thereby diagonally dividing a number of north-south oriented farming parcels. Considering CEQA Appendix G as a basis for thresholds of significance, the impact is considered significant when viewed on a system-wide basis. The potential for this impact has been reduced because few bypass options have been identified for further study in the preferred alignment and station locations listed in the Final EIR

The following mitigation strategies can be refined and applied at the project-specific level and will reduce this impact:

1. Avoid farmland whenever feasible during the conceptual design stage of the project
2. Minimize severance of agricultural land by constructing underpasses and overpasses at reasonable intervals to provide property access

3. Work with landowners during final design of the system to enable adequate property access
4. Provide appropriate severance payments to landowners.

The Authority finds that the mitigation strategies described above will reduce this impact to a less-than-significant level over the entire HST system. The Authority concludes that these severance impacts are primarily economic rather than environmental. Where severance impacts could lead to significant environmental impacts at the project level of review, they will be analyzed and appropriate mitigation will be considered.

3.9 Aesthetics and Visual Resources

The construction and operation of the HST system 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 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.

Considering the Appendix G thresholds of significance for aesthetics and visual impacts, the impacts as a result of construction and operation of the HST system are considered significant when viewed on a system-wide basis.

The following mitigation strategies can be refined and applied at the project-specific level and will reduce this impact:

1. At the project-level, design proposed facilities that are attractive in their own right and that would integrate well into landscape contexts, so as to reduce potential view blockage, contrast with existing landscape settings, light and shadow effects, and other potential visual impacts.
2. Design bridges and elevated guideways with graceful lines and minimal apparent bulk and shading effects.
3. Design elevated guideways, stations, and parking structures with sensitivity to the context, using exterior materials, colors, textures, and design details that are compatible with patterns in the surrounding natural and built environment, and that minimize the contrast of the structures with their surroundings.
4. Use neutral colors and dulled finishes that minimize reflectivity for catenary support structures, and design them to fit the context of the specific locale.

5. Use aesthetically appropriate fencing along rights-of-way, including decorative fencing, where appropriate, and use dark and non-reflective colors for fencing to reduce visual contrast.
6. Where at-grade or depressed route segments pass through or along the edge of residential areas or heavily traveled roadways, install landscape treatments along the edge of the right-of-way to provide partial screening and to visually integrate the right-of-way into the residential context.
7. Use the minimum amount of night lighting consistent with that necessary for operations and safety.
8. Use shielded and hooded outdoor lighting directed to the area where the lighting is required, and use sensors and timers for lights not required to be on all the time.
9. Design stations to minimize potential shadow impacts on adjacent pedestrian areas, parks, and residential areas, and site all structures in a way that minimizes shadow effects on sensitive portions of the surrounding area.
10. Seed and plant areas outside the operating rail trackbed that are disturbed by cut, fill or grading to blend with surrounding vegetated areas, where the land will support plants. Use native vegetation in appropriate locations and densities.
11. Use strategic plantings of fast-growing trees to provide partial or full screening of elevated guideways where they are close to residential areas, parks, and public open spaces.
12. Where elevated guideways are located down the median strips or along the edge of freeways or major roadways, use appropriate landscaping of the area under the guideway to provide a high level of visual interest. Landscaping in these area should use attractive shrubs and groundcovers, and emphasize the use of low-growing species to minimize any additional shadow effects or blockage of views.
13. Plan hours of construction operations and locate staging sites to minimize impacts to adjacent residents and businesses.

The Authority finds that while the mitigation strategies described above will substantially lessen 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 over the entire HST system. This is of greatest concern in areas where changes in scenic open space and mountain crossing areas are anticipated. As part of the site-specific design, many of the impacts on aesthetics and visual resources can be avoided or substantially mitigated. However, because of the size of the project and the variety of types of terrain it affects, the Authority does not have sufficient evidence to make that determination on a program-wide basis at this stage of design. Therefore, for purposes of this programmatic EIR, this impact is considered significant and unavoidable.

3.10 Public Utilities

Improvements associated with the proposed HST system could cause conflicts between a proposed alignment or station for the HST system and a pipeline or facility associated with a utility, including crossings. Because utilities are so prevalent throughout the study area, the analysis could not practically assess each potential conflict. This evaluation considered three of the most common major facilities that may pose construction challenges as representative utility conflicts: electrical transmission lines, natural gas facilities, and wastewater treatment facilities. For purposes of this programmatic analysis, the alternative alignments and related facilities were overlaid over the available utility maps for the locations of infrastructure for these three utilities. The analysis divided the potential conflicts into two broad categories: those considered high-impact conflicts, which were those with fixed facilities such as electrical substations, power plants, and wastewater treatment facilities; and those considered low-impact conflicts, such as pipelines and transmission lines, which are easier to avoid by modifying the HST system route or by relocating the utility lines.

The HST system could result in up to 21 potential fixed-facility conflicts (high-impact conflicts), and up to 821 conflicts with utility transmission or pipelines (low-impact conflicts). These low-impact conflicts are not considered significant because they could generally be avoided, minimized, or mitigated by routing either the public utility or the HST system around, over, or under the facility. Where necessary, they can be relocated. Using current construction practices, these relocations would not pose significant adverse environmental impacts.

Considering the CEQA Appendix G thresholds of significance for public utilities and service systems, the conflicts of the HST system alternative with fixed facilities are considered significant when viewed on a system-wide basis, and less-than-significant for conflicts with low-impact conflicts.

The following mitigation strategies can be refined and applied at the project-specific level, and will avoid or reduce this impacts.

1. Make adjustments to the HST system alignments and vertical profiles to avoid crossing or using major utility right-of-way or fixed facilities during engineering design.
2. If avoidance is not feasible, in consultation and coordination with the utility owner, relocate or protect in place transmission lines, substations, and any other affected facilities.
3. For acquisition projects which result in utility relocation, follow the uniformity and equitable treatment policies, and comply with the requirements, of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 for all property necessary for the proposed HST system.

The Authority finds that the mitigation strategies described above will avoid or reduce impacts of the HST system alternative to utilities to a less-than-significant level.

3.11 Hazardous Materials and Wastes

Construction and operation of the HST system could cause impacts to existing hazardous materials or waste sites. For this programmatic analysis, a potential hazardous waste impact is considered wherever the route of a proposed alignment or location of an HST station or maintenance facility conflicts with a known contaminated site. For this analysis of potential impacts, the assessment was limited to hazardous materials sites and hazardous waste sites listed on the federal National Priorities List (Superfund list), the State Priority List, and the California Integrated Waste Management Board's list of solid waste landfills 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.

Considering the Appendix G thresholds of significance for hazardous materials, the impacts to the public or the environment as a result of construction or operation of the HST system are considered significant at the programmatic level.

The following mitigation strategies can be refined and applied at the project-specific level and will avoid or reduce this impact:

1. Investigate soils and groundwater for contamination and prepare environmental site assessments when necessary.
2. Design realignment of the HST corridors to avoid identified sites.
3. Relocate HST associated facilities such as stations to avoid identified sites.
4. Remediate identified hazardous materials and hazardous waste contamination.
5. Prior to demolition of buildings for project construction, survey for lead-based paint and asbestos-containing materials.
6. Follow BMP's for testing, treating, and disposing of water, and acquire necessary permits from the regional water quality control board, if ground dewatering is required.
7. When indicated by project level environmental site assessments, perform Phase II environmental site assessments in conformance with the ASTM Standards related to the Phase II Environmental Site Assessment Process to identify specific mitigation measures.
8. Prepare a Site Management Program/Contingency Plan prior to construction to address known and potential hazardous material issues, including
    a. Measures to address management of contaminated soil and groundwater;
    b. Site-specific Health and Safety Plan (HASP), including measures to protect construction workers and general public; and
    c. Procedures to protect workers and the general public in the event that unknown contamination or buried hazards are encountered.

9. As part of the second-tier environmental review, consider impacts to the environment on sites identified on the Cortese list (Government Code section 65962.4) at that time.

The Authority finds that the mitigation strategies described above will avoid or reduce impacts to the public and the environment as a result of construction or operation of the HST system to a less-than-significant level.

3.12 Cultural and Paleontological Resources

The EIR analyzed the occurrence of cultural and paleontological resources within an "Area of Potential Effect" or "APE." The APE was defined as: (1) 500 feet on each side of the centerline of proposed new rail routes where additional right-of-way could be needed; (2) 100 feet on each side of the centerline for routes along existing highways and railroad rights-of-way; and (1) 100 feet around station locations. For paleontological resources, the APE was defined as 100 feet on each side of the centerline of proposed rail routes and station locations in both urban and nonurban areas. For each resource type, the HST system was ranked as having low, medium, or high occurrence of the resource within the APE.

Impact 1 Impacts to Archaeological Resources and Traditional Cultural Properties

The HST could impact archaeological resources and traditional cultural properties by causing physical destruction or damage during construction. Archaeological resources include both prehistoric and historic sites. The EIR estimated the number of archaeological sites per linear mile identified in the APE for each corridor segment, and divided it by the total length of the corridor segment to reach an average number of sites per mile to obtain a rating of sensitivity for archaeological resources. The HST system has medium to high sensitivity for archaeological sites that have the potential to be impacted, which ranges from .26 to .75 sites per mile (medium) to .76 or more sites per mile (high). Considering CEQA Appendix G as a basis for thresholds of significance, this impact is considered significant when viewed on a system-wide basis.

The following mitigation strategies can be refined and applied at the project-specific level and will reduce this impact:

1. Avoid the impact, or when avoidance cannot be accommodated, minimize the scale of the impact.
2. Incorporate the site into parks or open space.
3. Provide data recovery for the archaeological resources, which may include excavation of an adequate sample of the site contents so that research questions applicable to the site can be addressed.
4. Develop procedures for fieldwork, identification, evaluation, and determination of potential effects to archaeological resources in consultation with SHPO and Native American tribes. Procedures may include on-site monitoring when sites

are known or suspected of containing Native American human remains and be reflected in Memoranda of Agreement with appropriate bodies.

5. Coordinate and consult with tribal representatives.

The Authority finds that the mitigation strategies described above will substantially lessen or avoid this impact; 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. Accordingly, the Authority finds this impact remains significant at the programmatic level.

Impact 2 Impacts to Historic Properties/Resources

The HST could impact historic properties and resources by causing physical destruction or damage. The EIR estimated the linear miles of development that occurred during each historic period to determine the sensitivity of a particular segment for historic resources and properties. The HST system has medium and high sensitivity for historic resources and properties along the various segments, which is defined as 26%-75% of the corridor passing through areas of historic development (medium) and 76% to 100% of the corridor passing through areas of historic development (high). Considering CEQA Appendix G as a basis for thresholds of significance, this impact is considered significant when viewed on a system-wide basis.

The following mitigation strategies can be refined and applied at the project-specific level and will reduce this impact:

1. Avoid the impact through project design. Prepare and utilize a treatment plan for protection of historic properties/resources that would describe methods to preserve, stabilize, shore/underpin, and monitor buildings, structures, and objects.
2. Avoid high vibration construction techniques in sensitive areas.
3. Record and document cultural resources that would be adversely affected by the project to the standards of the Historic American Building Survey or Historic American Engineering Record.
4. Develop design guidelines to ensure sympathetic, compatible, and appropriate designs for new construction.
5. Consult with architectural historians or historical architects to advise on appropriate architectural treatment of the structural design of proposed new structures. Prepare interpretive and/or educational materials and programs regarding the affected historic properties/resources. Materials may include: a popular report, documentary videos, booklets, and interpretive signage.
6. Make interpretive information available to state and local agencies, such as salvage items, historic drawings, interpretive drawings, current and historic photographs, models, and oral histories. Also assist with archiving and digitizing the documentation of the cultural resources affected, and disseminating material to the appropriate repositories.
7. Relocate and rehabilitate historic properties/resources that would otherwise be demolished because of the project.

8. Monitor project construction to ensure it conforms to design guidelines and any other treatment procedures agreed to by the parties consulting pursuant to Section 106 of the National Historic Preservation Act. Repair inadvertent damage to historic properties/resources in accordance with the Secretary of the Interior's Standards for Treatment of Historic Properties.
9. Salvage selected decorative or architectural elements of the adversely affected historic properties/resources, and retain and incorporate salvaged items into new construction where possible. If reuse is not possible, make salvaged items available for use in interpretive displays near the affected resources or in an appropriate museum.
10. Implement an agreement with appropriate bodies specifying procedures for addressing historic resources which may be affected by the HST system.

The Authority finds that the mitigation strategies described above will substantially lessen or avoid this impact; 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. Accordingly, the Authority finds this impact remains significant at the programmatic level after the application of mitigation strategies.

Impact 3 Impacts to Paleontological Resources

The HST could impact paleontogical resources as a result of construction, including grading, cutting, tunneling, erecting pylons for elevated track, and due to station construction. The EIR identified the areas within the paleontological resources APE as having high, low, or undetermined sensitivity for paleontological resources based on the number of recorded resource localities and formations, as well as professional assessments of the significance of recovered resources from exposed rock units and the likelihood of recovering additional resources. The HST segments have both undetermined and high sensitivity. Considering CEQA Appendix G as a basis for thresholds of significance, the impact is considered significant when viewed on a system-wide basis.

The following mitigation strategies can be refined and applied at the project-specific level and will reduce this impact:

1. Educate workers.
2. Recover fossils identified during the field reconnaissance.
3. Monitor construction.
4. Develop protocols for handling fossils discovered during construction, such as temporary diversion of construction equipment so that the fossils could be recovered, identified, and prepared for dating, interpreting, and preserving at an established, permanent, accredited research facility.

The Authority finds that the mitigation strategies described above will substantially lessen or avoid this impact; 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. Accordingly, the Authority finds this impact remains significant at the programmatic level.

3.13 Geology and Soils

Impact 1 Seismic Hazards

Seismic hazards evaluated for this EIR include ground shaking and ground failure. The HST could cause risks to workers and public safety due to the collapse or toppling of facilities, either during construction or after completion, due to strong earthquakes. The HST also could create risks to public safety from automobile accidents or the interruption of automobile circulation, if strong earthquakes cause a derailment. HST facilities could sustain damage due to secondary hazards (settlement) over soft or filled ground. Considering CEQA Appendix G as a basis for thresholds of significance, this impact is considered significant when viewed on a system-wide basis.

The following mitigation strategies can be refined and applied at the project-specific level and will reduce this impact:

1. Design structures to withstand anticipated ground motion, using design options such as redundancy and ductility.
2. Prevent liquefaction and resulting structural damage and traffic hazards using: (a) ground modification techniques such as soil densification; and (b) structural design, such as deep foundations.
3. Utilize motion sensing instruments to provide ground motion data and a control system to temporarily shut down HST operations during or after an earthquake to reduce risks.
4. Design and engineer all structures for earthquake activity using CalTrans Seismic design Criteria.
5. Design and install foundations resistant to soil liquefaction and settlement.
6. Identify potential serpentinite bedrock disturbance areas and implement a safety plan.
7. Apply Section 19 requirements from the most current CalTrans Standard Specifications to ensure geotechnically stable slopes are planned and created.
8. Install passive or active gas venting systems and gas collection systems in areas where subsurface gases are identified.
9. Remove corrosive soil and use corrosion protected materials in infrastructure.
10. Address erosive soils through soil removal and replacement, geosynthetics, vegetation, and or rip/rap, where warranted.
11. Remove or moisture condition shrink/swell soils.
12. Utilize stone columns, grouting, and deep dynamic compaction in areas of potential liquefaction.
13. Utilize buttress berms, flattened slopes, drains, and/or tie-backs in areas of slope instability.

14. Avoid settlement through preloading, use of stone columns, deep dynamic compaction, grouting, and/or special foundation designs.

The Authority finds that the foregoing mitigation strategies will reduce this impact to a less-than-significant level.

Impact 2 Surface Rupture Hazards

The HST could cause risks to workers and public safety due to ground rupture along active faults, either during construction or after completion. The HST also could create secondary public safety risks caused by damage to highways or airports, or interruption of these transportation services, in the event of train derailment caused by ground rupture along active faults. Considering CEQA Appendix G as a basis for thresholds of significance, this impact is considered significant when viewed on a system-wide basis.

The following mitigation strategies can be refined and applied at the project-specific level and will reduce this impact:

1. Install early warning systems triggered by strong ground motion associated with ground rupture, such as linear monitoring systems (i.e., time domain reflectometers) along major highways and rail lines within the zone of potential rupture to provide early warnings and allow for temporary control of rail and automobile traffic to avoid and reduce risks.
2. Continue to modify alignments to avoid crossing known or mapped active faults within tunnels.
3. Avoid active faults to the extent possible. Where avoidance is not possible, cross active faults at grade and perpendicular to the fault line.

The Authority finds that the foregoing mitigation strategies will reduce this impact to a less-than-significant level.

Impact 3 Slope Instability

The HST could cause risks to workers and public safety due to the failure of natural or construction cut slopes or retention structures. Considering CEQA Appendix G as a basis for thresholds of significance, this impact is considered significant when viewed on a system-wide basis.

The following mitigation strategies can be refined and applied at the project-specific level and will reduce this impact:

1. Install temporary and permanent slope reinforcement and protection, based on geotechnical investigations, and review of proposed earthwork and foundation excavation plans.
2. Conduct geotechnical inspections during construction to verify that no new, unanticipated conditions are encountered

3. Incorporate slope monitoring in final design.

The Authority finds that the foregoing mitigation strategies will reduce this impact to a less-than-significant level.

Impact 4 Difficulty in Excavation

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. Considering CEQA Appendix G as a basis for thresholds of significance, this impact is considered significant when viewed on a system-wide basis.

The following mitigation strategies can be refined and applied at the project-specific level and will reduce this impact:

1. Identify areas of potentially difficult excavation to ensure safe practices.
2. Focus future geotechnical engineering and geologic investigations in areas of potentially difficult excavation.
3. Monitor conditions during and after construction.
4. Employ tunnel excavation and lining techniques to ensure safety.

The Authority finds that the foregoing mitigation strategies will reduce this impact to a less-than-significant level.

Impact 5 Hazards Related to Oil and Gas Fields

The HST could create the potential for migration of potentially explosive and/or toxic gases into subsurface facilities, such as tunnels or underground stations. Considering CEQA Appendix G as a basis for thresholds of significance, this impact is considered significant when viewed on a system-wide basis.

The following mitigation strategies can be refined and applied at the project-specific level and will reduce this impact:

1. Follow federal and state Occupational Safety and Health Administration regulatory requirements for excavations.
2. Consult with other agencies such as the Department of Conservation's Division of Oil and Gas, or the Department of Toxic Substances Control regarding known areas of concern.
3. Use safe and explosion-proof equipment during construction.
4. Test for gases regularly.
5. Install monitoring systems and alarms in underground construction areas and facilities where subsurface gases are present.
6. Install gas barrier systems.

The Authority finds that the foregoing mitigation strategies will reduce this impact to a less-than-significant level.

3.14 Hydrology and Water Quality Impacts

Impact 1 Impacts on Floodplains

The HST system could encroach on floodplains in each segment. For purposes of the EIR analysis, the floodplain area of impact was estimated to include the area within 100 feet on each side of the alignment centerline. Encroachment into the flood plain by the HST system is anticipated to be between 1865 and 3873 acres system wide. Floodplain encroachment may result in increased flood height from earthen berms or linear barriers to surface water flow. Considering CEQA Guidelines Appendix G as a basis for thresholds of significance, the impact is considered significant when viewed on a system-wide basis.

The following mitigation strategies can be refined and applied at the project-specific level and will reduce this impact:

1. Avoid or minimize construction of facilities within floodplains where feasible.
2. Minimize the footprint of facilities within the floodplain, through design changes or the use of aerial structures.
3. Restore the floodplain to be equivalent to its prior function in instances where the floodplain is impacted by construction.

The Authority finds that the mitigation strategies described above will reduce this impact to a less-than-significant level.

Impact 2 Impacts on Surface Waters

The HST system could encroach on surface water resources. For purposes of EIR analysis, the area of impact for streams and lakes was estimated to include an area including the representative facility footprint, defined as within 50 feet on each side of the centerline. For the representative footprint, encroachment onto streams would be approximately in the range of 22,600 to 32,400 linear feet, while encroachment onto lakes would be approximately 7 to 27 acres. The HST would also add impervious surface area, which can reduce water infiltration, contribute to runoff, and negatively affect surface water quality. The HST could cause erosion, which can negatively affect water quality, where the alignment options would extend to or along the coast along highly erodable slopes. Considering CEQA Appendix G as a basis for thresholds of significance, these impacts are considered significant when viewed on a system-wide basis.

The following mitigation strategies can be refined and applied at the project-specific level and will reduce this impact:

1. Use construction methods and facility designs to minimize the potential encroachments onto surface water resources.
2. Minimize sediment transport caused by construction by following best management practices (BMPs) as part of National Pollutant Discharge Elimination System (NPDES) and Storm Water Pollution Prevention Plan requirements that will be included in construction permits. BMPs may include measures such as:
   a. providing permeable surfaces where feasible;
   b. retaining and treating stormwater onsite using catch basins and filtering wet basins;
   c. minimizing the contact of construction materials, equipment, and maintenance supplies with stormwater;
   d. reducing erosion through soil stabilization, watering for dust control, installing perimeter silt fences, placing rice straw bales, and installing sediment basins;
   e. maintaining water quality by using infiltration systems, detention systems, retention systems, constructed wetland systems, filtration systems, biofiltration/bioretention systems, grass buffer strips, ponding areas, organic mulch layers, planting soil beds, sand beds, and vegetated systems such as swales and grass filter strips that are designed to convey and treat either fallow flow (swales) or sheetflow (filter strips) runoff.
3. Use methods such as habitat restoration, reconstruction of [habitat] onsite, and habitat replacement offsite to minimize surface water quality impacts.
4. Comply with mitigation measures included in permits issued under sections 404 and 401 of the federal Clean Water Act.
5. Comply with requirements in the Storm Water Pollution Prevention Plan to reduce pollutants in storm water discharges and the potential for erosion and sedimentation.
6. Comply with requirements of section 10 of the federal Rivers and Harbors Act for work required around a water body designated as navigable and applicable permit requirements.
7. Comply with the requirements of a state Streambed Alteration Agreement for work along the banks of various surface water bodies.
8. Implement a spill prevention and emergency response plan to handle potential fuel or other spills.
9. Where feasible, avoid significant development of facilities in areas that may have substantial erosion risk, including areas with erosive soils or steep slopes.

The Authority finds that the mitigation strategies described above will reduce this impact to a less-than-significant level.

Impact 3 Impacts on Groundwater

The HST system may encounter groundwater during construction of at- and above-grade structures, tunnels and tunnel portals, and dewatering may be necessary. In addition, construction and operation of the HST system components may affect groundwater recharge.

Considering CEQA Guidelines Appendix G as a basis for thresholds of significance, the impact is considered significant when viewed on a system-wide basis.

The following mitigation strategies can be refined and applied at the project-specific level and will reduce this impact:

1. Minimize development of facilities in areas that may have substantial groundwater discharge or affect recharge.
2. Apply for, obtain, and comply with conditions of applicable waste discharge requirements as part of project-level review.
3. Develop facility designs that are elevated, or at a minimum are permeable, and would not affect recharge potential where construction is required in areas of potentially substantial groundwater discharge or recharge.
4. Apply for and obtain a Storm Water Pollution Prevention Plan for grading, with Best Management Practices that would control release of contaminants nears areas of surface water or groundwater recharge. Best Management Practices may include constraining fueling and other sensitive activities to alternative locations, providing drip plans under some equipment, and providing daily checks of vehicle condition.
5. Use and retain native materials with high infiltration potential at the ground surface in areas that are critical to infiltration for groundwater recharge.

The Authority finds that the mitigation strategies described above will reduce this impact to a less-than-significant level.

3.15 Biological Resources and Wetlands

For purposes of assessing the HST system's direct impacts to biological resources, a GIS analysis was completed for the approximate footprint of the facilities, called the representative facility footprint. This was defined to be 50 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 .50 mile on either side of the alignment centerline, or a 1-mile wide corridor. In urbanized areas, the study envelope was 1000 feet on either side of the alignment centerline.

Impact 1 Impacts to Sensitive Habitat and Sensitive Vegetation Communities

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 HST system could directly impact 1201 to 1568 acres of habitat. The HST system could also fragment existing habitats. The study area for the HST system indicates that there is between 9773 to 17,619 acres of sensitive vegetation, which may be indirectly affected by the HST system. The sensitive vegetation acreage range is based on the buffer areas included in the HST study area, which were designed to provide context to the impacts analysis, and are likely to be much larger than the actual indirect effect. Considering Appendix G as a basis for thresholds of significance, the impact is considered significant when viewed on a system-wide basis.

The following mitigation strategies can be refined and applied at the project-specific level and will reduce this impact:

1. Utilize existing transportation corridors and rail lines to minimize potential impacts.
2. Use large diameter tunnels as part of the design to limit surface access needs in tunnels for ventilation or evacuation, as a method to avoid or limit impacts to vegetation and habitat above tunnels.
3. Use in-line construction (i.e., use new rail infrastructure as it is built) to transport equipment to/from the construction site and to transport excavated material away from the construction to appropriate re-use or disposal sites to minimize impacts from construction access roads on vegetation/habitat.
4. Accomplish necessary geologic exploration in sensitive areas by using helicopters to transport drilling equipment and for site restoration to minimize surface disruption.
5. Use and reuse excavated materials within the confines of the project.
6. Participate in or contribute to existing or proposed conservation banks or natural management areas, including possible acquisition, preservation, or restoration of habitats.
7. Revegetate/restore impacted areas, with a preference for on-site mitigation over off-site, and with a preference for off-site mitigation within the same watershed or in close proximity to the impact where feasible.
8. Comply with the Biological Resources Management Plan(s) developed or identified during project-level studies, as reviewed by the USFWS, CDFG, and USACE.
9. Conduct pre-construction focused biological surveys.
10. Conduct biological construction monitoring.
11. Undertake plant relocation, seed collection, plant propagation, and outplanting at suitable mitigation sites.
12. Prevent the spread of weeds during construction and operation by identifying areas with existing weed problems and measures to control traffic moving out of those areas such as cleaning construction vehicles or limiting the movement of fill.

The Authority finds that the mitigation strategies described above will substantially lessen or avoid this impact; 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. Accordingly, the Authority finds this impact remains significant at the programmatic level after the application of mitigation strategies.

Impact 2 Impacts to Wildlife Movement Corridors

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 HST system 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. Considering CEQA Guidelines Appendix G as a basis for thresholds of significance, the impact is considered significant when viewed on a systemwide basis.

The following mitigation strategies can be refined and applied at the project-specific level and will reduce this impact:

1. Construct wildlife underpasses, bridges, and/or large culverts, to facilitate known wildlife movement corridors.
2. Ensure that wildlife crossings are of a design, shape, and size to be sufficiently attractive to encourage wildlife use.
3. Provide appropriate vegetation to wildlife overcrossings and undercrossings to afford cover and meet other species requirements.
4. Establish functional corridors to provide connectivity to protected land zoned for uses that provide wildlife permeability.
5. Design protective measures for wildlife movement corridors using the following process in consultation with resource agencies:
    a. Identify the habitat areas the corridor is designed to connect
    b. Select several species of interest from the species present in the area
    c. Evaluate the relevant needs of each selected species
    d. For each potential corridor, evaluate how the area will accommodate movement by each species of interest
    e. Draw the corridors on a map
    f. Design a monitoring program
6. Utilize existing transportation corridors and rail lines to minimize potential impacts.
7. Use aerial structures or tunnels to allow for unhindered crossing by wildlife.

The Authority finds that the mitigation strategies described above will substantially lessen or avoid this impact; 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. Accordingly, the Authority finds this impact remains significant at the programmatic level after the application of mitigation strategies.

Impact 3 Impacts to Non-wetland Jurisdictional Waters

Within the larger study envelope for the HST system (1-mile wide corridor in sensitive areas) there are up to 1.2 million linear feet of non-wetland jurisdictional waters (lakes, rivers, streams, and other water bodies). The HST system has the potential to directly or indirectly affect some of these resources. Considering Appendix G as a basis for thresholds of significance, the impact is considered significant when viewed on a systemwide basis.

The following mitigation strategies can be refined and applied at the project level and will reduce this impact:

1. Utilize existing transportation corridors and rail lines to minimize potential impacts.
2. Return degraded habitat to pre-existing conditions.
3. Create new habitat by converting non-wetland habitats into wetland or other aquatic habitat.
4. Enhance existing habitats by increasing one or more functions through activities such as plantings or non-native vegetation eradication.
5. Provide for passive revegetation by allowing a disturbed area to revegetate naturally.
6. Purchase credits in an existing wetlands or aquatic habitat mitigation bank.
7. Provide in-lieu fee payments to an agency or other entity who will provide aquatic habitat conservation or restoration.
8. Prefer on-site mitigation over off-site mitigation, and for off-site mitigation prefer that located within the same watershed or as close in proximity to the area of impact as possible.

The Authority finds that the mitigation strategies described above will substantially lessen or avoid this impact; 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. Accordingly, the Authority finds this impact remains significant at the programmatic level.

Impact 4 Impacts to Wetlands

The HST system could directly impact 30-89 acres of wetlands. The study area for the HST system indicates there is between 3996 and 18,356 acres of wetlands in the study area, which may be indirectly effected by the HST system. Considering Appendix G as a basis for thresholds of significance, the impact is considered significant when viewed on a system-wide basis.

The following mitigation strategies can be refined and applied at the project level and will reduce this impact:

1. Utilize existing transportation corridors and rail lines to minimize potential impacts.
2. Return degraded habitat to pre-existing conditions.
3. Create new habitat by converting non-wetland habitats into wetland or other aquatic habitat.
4. Enhance existing habitats by increasing one or more functions through activities such as plantings or non-native vegetation eradication.
5. Provide for passive revegetation by allowing a disturbed area to revegetate naturally.
6. Purchase credits in an existing wetlands or aquatic habitat mitigation bank.
7. Provide in-lieu fee payments to an agency or other entity who will provide aquatic habitat conservation or restoration.
8. Develop and implement measures to address the “no net loss” policy for wetlands.

9. Prefer on-site mitigation over off-site mitigation, and for off-site mitigation prefer that located within the same watershed or as close in proximity to the area of impact as possible.

The Authority finds that the mitigation strategies described above will substantially lessen or avoid this impact; 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. Accordingly, the Authority finds this impact remains significant at the programmatic level after the application of mitigation strategies.

Impact 5 Impacts to Marine and Anadromous Fishery Resources

The HST system 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. Considering CEQA Guidelines Appendix G as a basis for thresholds of significance, the impact is considered significant when viewed on a system-wide basis.

The following mitigation strategies can be refined and applied at the project-specific level and will reduce this impact:

1. Utilize existing transportation corridors and rail lines to minimize potential impacts.
2. Comply with the terms of a Streambed Alteration Agreement for work along banks of surface water bodies.
3. Implement a spill prevention and emergency response plan to handle potential fule or other spills.
4. Incorporate bio-filtration swales to intercept runoff.
5. Where feasible, avoid significant development of facilities in areas that may have substantial erosion risk, including areas with erosive soils and steep slopes.

The Authority finds that the mitigation strategies described above will substantially lessen or avoid this impact; however sufficient information is not available at the programmatic level to conclude with certainty that mitigation will reduce this impact to a less-than-significant level in all circumstances. Accordingly, the Authority finds this impact remains significant at the programmatic level after the application of mitigation strategies.

Impact 6 Impacts to Special Status Species

The HST system could directly impact 67-84 special status species based on the representative facility footprint. The study area for the HST system indicates the possible presence of 279 to 350 special status species within the area of potential indirect effect from the HST system. Some of these species could be affected by the construction and the operation of the HST system. Considering CEQA Guidelines Appendix G as a basis for thresholds of significance, the impact is considered significant when viewed on a system-wide basis.

The following mitigation strategies can be refined and applied at the project-specific level and will reduce this impact:

1. Utilize existing transportation corridors and rail lines to minimize potential impacts.
2. Relocate sensitive species.
3. Conduct pre-construction focused surveys.
4. Conduct biological construction monitoring.
5. Restore suitable breeding and foraging habitat.
6. Purchase credits from an existing mitigation bank.
7. Participate in an existing Habitat Conservation Plan.
8. Phase construction around the breeding season.

The Authority finds that the mitigation strategies described above will substantially lessen or avoid this impact; 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. Accordingly, the Authority finds this impact remains significant at the programmatic level after the application of mitigation strategies.

3.16 Public Parks and Recreation Resources

To analyze the potential for the HST system to 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, the EIR examined the occurrence of these resources within 900 feet from the location of proposed HST facilities and considered both direct and proximity (indirect) impacts. The recreation resources identified in the analysis are covered by either section 4(f) of the federal Transportation Act or section 6(f) of the federal Land and Water Conservation Fund Act. The two referenced federal statutes require special efforts to be made in planning proposed transportation projects to avoid using and limit adverse impacts to publicly owned park and recreation lands and will require findings to be made by FRA in future project-level reviews to address federal statutory requirements. Impacts to historic resources from the HST system are addressed in section 3.12.

Impact 1 Impacts to Parks and Recreational Resources

The HST system 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 these Findings, the EIR identifies the park and recreational resources located within 900 feet of the centerline of HST alignments or facilities, and notes that the HST system would affect fewer such facilities than the Modal Alternative. The use of existing transportation corridors for the location of HST facilities and the direction that HST stations serve as multi-modal transportation hubs has minimized the potential for the HST system impacts to parks and recreational resources. No state parks would be crossed or bisected by the HST system. The EIR, however, identified five state parks that may be within 900 feet of the HST system. Additionally, certain local, regional or federal recreational resources could be affected. At the 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 system-wide review at the programmatic level, this impact is considered significant.

The following mitigation strategies can be refined and applied at the project-specific level and will reduce this impact:

1. Continue to apply design practices to avoid impacts to park resources, and when avoidance cannot be accommodated, minimize the scale of the impact.
2. Apply measures at the project level to reduce and minimize indirect/proximity impacts as appropriate for the particular sites affected, while avoiding other adverse impacts (e.g., visual), such as noise barriers, visual buffers and landscaping.
3. Apply measures to modify access to/egress from the recreational resource [first paragraph 3.16.8] to reduce impacts to these resources.
4. Design and construct cuts, fill, and aerial structures to avoid and minimize visual impacts to units of the state park system.
5. Incorporate wildlife under or over crossings at appropriate intervals as necessary
6. Where public parklands acquired with public funds would be acquired for non-park use as part of the HST system, commit as required by law to providing funds for the acquisition of substantially equivalent substitute parkland or to acquiring/providing substitute parkland of comparable characteristics.
7. Restore affected parklands to natural state and replace or restore affected park facilities.
8. If park facilities must be relocated, provide planning studies as well as appropriate design and replacement with minimal impact on park use.
9. Use local native plants for revegetation.
10. Develop and implement construction practices, including scheduling, to limit impacts to wildlife, wildlife corridors and visitor use areas within public parks.
11. For temporary unavoidable loss of park and recreation facility uses consider providing compensation.

The Authority finds that the mitigation strategies described above will substantially lessen or avoid this impact; 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. Therefore, at the programmatic level the potential for indirect impacts to parks and recreational facilities is considered significant.

V.
CUMULATIVE IMPACTS

Impact 1 Impacts on Traffic and Circulation and Travel Conditions

Implementation of the HST system could lead to a considerable contribution to the cumulative impact related to surface streets leading to and from the intercity highways and airports.

The following program level mitigation strategies can be developed, in consultation with state, federal, regional, and local governments and affected transit agencies, to improve the flow of intercity travel on the primary routes and access to the proposed stations or airports and will reduce this impact:

1. Regional strategies would include coordination with Regional Transportation planning and Intelligent Transportation System Strategies.
2. Local improvements could employ TSM/Signal Optimization; local spot widening of curves; and major intersection improvements.

Implementation of the HST system could lead to a considerable contribution to the cumulative impact related to localized travel conditions.

The following program level mitigation strategies can be developed, in consultation with state, federal, regional, and local governments and affected transit agencies, to improve the flow of intercity travel on the primary routes and access to the proposed stations or airports and will reduce this impact:

1. Regional strategies would include coordination with Regional Transportation planning and Intelligent Transportation System Strategies.
2. Local improvements could employ TSM/Signal Optimization; local spot widening of curves; and major intersection improvements.

The Authority finds that the foregoing strategies will reduce the HST system's contribution to this impact to less than cumulatively considerable. The specific measures to be applied at each location are to be determined at the project-level for areas expected to experience traffic congestion due to the HST system and are to be implemented in coordination with local and regional land use and transportation authorities, and in consultation with Caltrans as appropriate.

Impact 2 Impacts on Air Quality

Implementation of the HST system, in combination with the air quality impacts of other highway projects or airport improvements identified for the cumulative impact analysis and those projects considered in the state implementation plan for air quality, could lead to a considerable contribution to the cumulative impact related to air quality within the six-basin study area.

The project level mitigation strategies to address localized impacts can consider the following and will reduce this impact:

1. For power plants dedicated to supplying power for the HST system, if any, consider reducing emissions by increasing emission controls.
2. Design the system to utilize energy efficient, state-of-the-art equipment.
3. Promote increased use of public transit, alternative fueled vehicles, and parking for carpools, bicycles, and other alternative transportation methods.
4. Alleviate traffic congestion around passenger station areas.
5. Minimize construction air emissions.

The Authority finds the mitigations strategies listed above will reduce the HST system's contribution to this impact to less than cumulatively considerable.

Impact 3 Impacts on Noise and Vibration

Implementation of the HST system could lead to a considerable contribution to the cumulative impact related to noise and vibration.

The program level mitigation strategies will reduce this impact:

1. design practices emphasizing the use of tunnels or trenches
2. use of electric powered trains, higher quality track interface, and smaller lighter and more aerodynamic trainsets; and
3. full grade separations from all roadways.

The project level mitigation strategies include the following and will reduce this impact:

1. treatments for insulation of buildings affected by noise and vibration;
2. sound barrier walls within the right-of-way;
3. track treatments to minimize train vibrations; and
4. construction mitigation.

The Authority finds the mitigations strategies listed above will reduce the HST system's contribution to these impacts to less than cumulatively considerable.

Impact 4 Land Use Impacts

Implementation of the HST system could lead to a considerable contribution to the cumulative impact related to community and neighborhood cohesion and property loss. Combined with other transit (light rail and commuter rail) and roadway projects considered for this cumulative impact analysis these localized impacts could contribute to cumulative community/neighborhood impacts. These impacts, in combination with other transit extension and roadway projects, could cause a considerable contribution to potential cumulative impacts on various property types, neighborhoods, and communities.

The program level mitigation strategies for HST system contributions to the land use impacts, include the following and will reduce this impact:

1. design practices to maximize use of existing rights-of-way and incorporating strategies for stations to incorporate transit oriented design; and
2. coordination with cities and counties in each region to ensure that project facilities would be consistent with land use planning processes and zoning ordinances.

The Authority finds that the mitigation strategies described above will substantially lessen or avoid this impact; however, sufficient information is not available at the program-level to conclude with certainty that mitigation will reduce the HST system's contribution to this impact to less than cumulatively considerable in all circumstances. The Authority finds that to the extent that other projects contribute to this impact they are within the purview of local government agencies to address with local planning and additional mitigation measures, but at the program level, such additional measures and the process for their implementation cannot be determined. Accordingly, due to this uncertainty, the HST system's contribution to this impact is treated as cumulatively considerable.

Impact 5 Impacts on Agricultural Lands

Implementation of the HST system could lead to a considerable contribution to the cumulative impact related to the conversion of agricultural land to non-agricultural use within the study area for the HST System Alternative.

The program level mitigation strategies include the following and will reduce this impact:

1. design practices to avoid agricultural land conversion through maximizing use of existing rights-of-way to minimize encroachment on additional agricultural lands
2. utilizing aerial structure or tunnel alignments to allow for vehicular and pedestrian traffic access across the alignment; and
3. reducing the new right-of-way to 50 feet in constrained areas.

The project level mitigation strategies include the following and will reduce this impact:

1. securing easements,
2. participating in mitigation banks,
3. increasing permanent protection of farmlands at the local planning level, and
4. coordinating with various local, regional, and state agencies support farmland conservation programs.

The Authority finds that while the mitigation strategies described above will substantially lessen this impact, sufficient information is not available at the program-level to conclude with certainty that mitigation will reduce the HST system's contribution to this impact to less than cumulatively considerable in all circumstances. Therefore, for purposes of this programmatic EIR, the impact is considered cumulatively considerable.

Impact 6 Impacts on Aesthetics and Visual Resources

Implementation of the HST system could lead to a considerable contribution to the short- and long-term cumulative impact related to visual resources.

The program level mitigation strategies include the following and will reduce this impact:

1. design practices that will incorporate local agency and community input during subsequent project level environmental review in order to develop context sensitive aesthetic designs and treatments for infrastructure.

The project level mitigation strategies include the following and will reduce this impact:

1. design of facilities that integrate into landscape contexts, reducing potential view blockage, contrast with existing landscape settings, and light and shadow effects.

The Authority finds that the mitigation strategies described above will avoid or substantially lessen impacts to aesthetics and visual resources. However, because of the size of the project and absence of site-specific information related to the types of terrain affected and facilities design, sufficient information is not available at the program-level to conclude with certainty that mitigation will reduce the HST system's contribution to this impact to less than cumulatively considerable in all circumstances. Therefore, for purposes of this programmatic EIR, this impact is considered cumulatively considerable.

Impact 7 Impacts on Public Utilities

Implementation of the HST system could lead to a considerable contribution to the cumulative impact related to 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.

The program level mitigation strategies include the following and will reduce this impact:

1. design practices that will avoid potential conflicts, at the project level analysis, to the extent feasible and practical. These practices include: design methods to avoid crossing or using utility rights-of-way include modifying both the horizontal and vertical profiles of proposed transportation improvements. Emphasis would be placed on detailed alignment design to avoid potential contribution to cumulative impacts from linear facilities on land use opportunities and to minimize conflicts with existing major fixed public utilities and supporting infrastructure facilities.

The project level mitigation strategies include the following and will reduce this impact:

1. coordination with utility representatives during construction in the vicinity of critical infrastructure will occur.

The Authority finds that the mitigation strategies described above will avoid or reduce the HST system's contribution to this impact to less than cumulatively considerable.

Impact 8 Impacts on Cultural and Paleontological Resources

Implementation of the HST system could lead to a considerable contribution to the cumulative impact related to cultural and paleontological resources.

The program level mitigation strategies include the following and will reduce this impact:

1. Continued consultation with SHPO would occur to define and describe general procedures to be applied in the future for fieldwork, method of analysis, and the development of specific mitigation measures to address effects and impacts to cultural resources, resulting in a programmatic agreement between the Authority, FRA and SHPO.
2. Consultation with Native American tribes would occur.

The project level mitigation strategies include the following and will reduce this impact:

1. avoidance measures through identification of sensitive resources within the project level analysis and project design refinement and careful selection of alignments.
2. Subsequent project level field studies to verify the location of cultural resources would offer opportunities to avoid or minimize direct impacts on resources, based on the type of project, type of property, and impacts to the resource.

The Authority finds that the mitigation strategies described above will substantially lessen or avoid this impact; however, sufficient information is not available at the program-level to conclude with certainty that mitigation will reduce the HST system's contribution to this impact to less than cumulatively considerable in all circumstances. Therefore, for purposes of this programmatic EIR, this impact is considered cumulatively considerable.

Impact 9 Impacts on Geology and Soils

Implementation of the HST system could lead to a considerable contribution to the cumulative impact to 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.

The program level mitigation strategies include the following and will reduce this impact:

1. Design practices will be used while preparing extensive alignment studies to ensure that potential effects related to major geologic hazards such as major fault crossings, oil fields, and landslide areas, will be avoided.
2. Mitigation for potential impacts will be developed on a site-specific basis, based on detailed geotechnical studies to address ground shaking, fault crossings, slope

stability/landslides, areas of difficult excavation, hazards related to oil and gas fields, and mineral resources.

The Authority finds that the foregoing mitigation strategies will reduce the HST system's contribution to this impact to less than cumulatively considerable.

Impact 10 Impacts on Hydrology and Water Resources

Implementation of the HST system could lead to a considerable contribution to the cumulative impact related to hydrologic resources.

The program level mitigation strategies include the following and will reduce this impact:

1. design practices to maximize use of existing rights-of-way to minimize potential impacts on water resources.

The project level mitigation strategies include the following and will reduce this impact:

1. Avoidance and minimization measures would be incorporated into the development, design, and implementation phases.
2. Close coordination will occur with the regulatory agencies to develop specific design and construction standards for stream crossings, infrastructure setbacks, erosion control measures, sediment controlling excavation/fill practices, and other best management practices.
3. Mitigation strategies specific to reconstruction, restoration, or replacement of the resource will occur, in close coordination with state and federal resource agencies, related to flood plains; surface waters, runoff, and erosion; and groundwater.

The Authority finds that the mitigation strategies described above will substantially reduce the HST system's contribution to this impact; however, sufficient information is not available at the program-level to conclude with certainty that mitigation will reduce the HST system's contribution to this impact to less than cumulatively considerable in all circumstances. Therefore, for purposes of this programmatic EIR, this impact is considered cumulatively considerable.

Impact 11 Impacts on Biological Resources and Wetlands

Implementation of the HST Alternative could lead to a considerable contribution to the cumulative impact related to sensitive biological resources and wetlands.

The program level mitigation strategies include the following and will reduce this impact:

1. design practices to maximize use of existing rights-of-way to minimize potential impacts on biological resources and wetlands.

The project level mitigation strategies include the following and will reduce this impact:

1. Avoidance and minimization measures would be incorporated into the development, design, and implementation phases.
2. Close coordination will occur with the regulatory agencies to develop specific design and construction standards for stream crossings, infrastructure setbacks, monitoring during construction, and other best management practices.
3. Mitigation strategies specific to reconstruction, restoration, or replacement of the resource will occur, in close coordination with state and federal resource agencies, related to wetlands.
4. Field studies would be conducted to verify the location, in relation to the HST alignments, of sensitive habitat, wildlife movement corridors, and wetlands. These studies would provide further opportunities to minimize and avoid potential impacts on biological resources through changes to the alignment plan and profile in sensitive areas. For example, the inclusion of design features such as elevated track structures over drainages and wetland areas and wildlife movement corridors would minimize potential impacts to wildlife and sensitive species.

The Authority finds that the mitigation strategies described above will substantially lessen or avoid this impact; however, sufficient information is not available at the program-level to conclude with certainty that mitigation will reduce the HST system's contribution to this impact to less than cumulatively considerable in all circumstances. Therefore, for purposes of this programmatic EIR, this impact is considered cumulatively considerable.

Impact 12 Impacts on Public Parks and Recreation Resources (Section 4(f) and 6(f) Resources)

Implementation of the HST system could lead to a considerable contribution to the cumulative impact of indirect effects related to parklands and recreational resources.

The program level mitigation strategies include the following and will reduce this impact:

1. Incorporation of sound barriers (e.g., walls, berms or trenches), visual buffers/landscaping, and modification of transportation access to/egress from the public lands and recreational resource.

2. Incorporation of design modifications or controls on construction schedules, phasing, and activities.

The project level mitigation strategies include the following and will reduce this impact:

1. Beautification measures.

2. Replacement of land or structures or their equivalents on or near their existing site(s).

3. Tunneling, cut and cover, cut and fill of right-of-ways.

4. Treatment of embankments.

5. Planting, screening, creating wildlife corridors, acquisition of land for preservation, installation of noise barriers.

6. Establishment of pedestrian or bicycle paths.

7. Other potential mitigation strategies could be identified during the public input process.

In the event that HST alignments or facilities are located within or in close proximity to public parks, the following mitigations for natural, cultural, aesthetic and recreational impacts may be considered to offset the contribution to the cumulative impact, including but not limited to:

1. Compensation for temporary and loss of park and recreation use.

2. Recordation of any historic features removed.

3. If necessary, provide alternative shuttle access service to park visitors.

4. Restore directly impacted park lands to a natural state.

5. If any facilities must be relocated, provide planning studies as well as design and appropriate replacement with minimal impact on park use.

6. Inventory and record affected historic structures. Provide appropriate mitigation for adverse effects to historic structures.

7. Require appropriate vehicle cleaning for all construction equipment used near units of the California State Park System to protect against spreading exotic plants or disease.

8. Use local native plants for revegetation.

9. Design and construct cuts, fills, and aerial structures to avoid and minimize visual impact to units of the State Park System.

10. In addressing impacts to wildlife movement corridors and habitat directly related to California State Park System units, consult with the California Department of Parks and recreation.

11. Incorporate wildlife under- or over-crossings as necessary.

12. Adopt construction practices to protect critical wildlife corridors and visitor use areas within public parks.

The Authority finds that the mitigation strategies described above will substantially lessen or avoid this impact; however, sufficient information is not available at the program-level to conclude with certainty that mitigation will reduce the HST system's contribution to this impact to less than cumulatively considerable in all circumstances. Therefore, for purposes of this programmatic EIR, this impact is considered cumulatively considerable.

Impact 13 Impacts from Indirect Effects Related to Growth

Implementation of the HST system could result in indirect effects related to the increment of growth associated with the HST system which was projected for the period from now until 2035, recognizing that growth related to the HST system would occur in the future after early implementation steps for the HST system have been taken. As noted in Chapter 3, the EIR addressed cumulative impacts related to growth at a landscape level in Chapter 5. Incremental growth associated with the HST system would be distributed across the various communities in which HST stations are located, and would be reflected primarily in increased infill development and increased development densities in areas already slated for development in local general plans. The growth anticipated by local general plans was taken into account in the analysis in Chapter 5. At the program level, given the timeframe proposed for the construction of an HST system and the timelag in growth associated with an HST system, except as indicated in the Program EIR/EIS reasonably foreseeable future projects could not be identified for this program analysis. The incremental growth associated with the HST system is not expected to result in a significant increase in demand for municipal services. The timeframe within which incremental growth associated with the HST system would be expected is within normal planning horizons and within the purview of the local and regional agencies responsible for planning for municipal services to address.

The Authority finds that the implementation of the HST system could lead to a considerable contribution to cumulative impacts to waterways, wetlands, sensitive habitat and sensitive species associated with growth. The extent and location of such potential growth effects cannot be predicted and examined at the program-level of analysis. To assure that such potential effects will be examined in the future, the Authority will incorporate in project level studies analyses of impacts to waterways, wetlands, sensitive habitat and species based on appropriate regional study areas. In order to address cumulative impacts to such resources project level analyses must look beyond the affected project sites. To assure that appropriate planning for HST station areas is undertaken so as to avoid indirect effects associated with growth related to the HST system, the Authority has adopted the station area development strategies described in Chapter 6B of the Final EIR.

VI.
GROWTH-INDUCING IMPACTS AND INDIRECT IMPACTS RELATED TO GROWTH

Transportation investments can lead to reduced travel time or cost, improved accessibility to regions or parts of regions, or 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 to additional impacts beyond those directly attributable to the changes in the transportation system, which the EIR refers to as growth-related indirect impacts.

Growth-Inducing Effects of the HST System Alternative

The EIR's discussion of growth-inducing impacts was based on a multi-phased analytical process that combined the Regional Economic Models, Inc.'s macroeconomic model, with a business attraction model, an employment allocation model, and a residential spatial allocation model. The analytical process considered the potential effects that changes in transportation congestion and delay between existing conditions and future years would have on the state's economic growth, as well as the possible indirect impacts on jobs, population, and land development.

The following summarizes the analysis in the EIR:

Population Effects: Statewide population is expected to grow by about 54% between 2002 and 2035 under the No Project Alternative. Compared to the No Project Alternative, the statewide population growth is projected to be roughly 2% higher under the HST System Alternative. These population differences among alternatives represent the increased accessibility provided by the transportation investments. An investment in HST is projected to lead to greater economic growth within the state than the No Project Alternative. These statewide figures follow the same general pattern at the regional level, with the exception of the Northern Central Valley, where population growth is projected to be about 4% higher under the HST System Alternative than under the No Project Alternative.

Employment Effects: Statewide employment is expected to increase by about 46% between 2002 and 2035 under the No Project Alternative. Compared to the No Project Alternative, statewide employment growth is projected to be roughly 2% higher under the HST System Alternative.

Urbanized and Non-urbanized Areas: Urbanized areas in California are expected to grow by 48% between 2002 and 2035 under the No Project Alternative, representing an increase of about 1.5 million acres over the approximately 3.1 million acres in the existing urbanized areas in the study area of core analysis counties. These are the counties in which HST facilities would be located, grouped by regions and excluding other California counties. Compared to the No Project Alternative, the HST System Alternative is expected to have about 0.1% less growth in urbanized areas, which is about 2600 fewer acres. The HST System Alternative compared to the Modal Alternative would use 68,100 fewer urbanized acres than the Modal Alternative. The HST System Alternative would therefore be able to accommodate more population and employment growth on less land than the No Project Alternative.

Location of Growth: The EIR provided county-level population growth rates for the No Project Alternative, Modal Alternative, and the HST System Alternative. The results show that both the Modal and HST System Alternatives may reverse the historic trend in California toward dispersed population growth, with portions of the Bay Area and Southern California exhibiting strong population growth rates. At the same time, under the HST System Alternative, Merced, San Francisco, and Sacramento counties are projected to achieve the highest growth rates. These results suggest that additional population growth under the HST System Alternative 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. For the HST System Alternative, population in the Central Valley is expected to experience a small increase in both net growth and distributive effects as compared to the No Project Alternative. Because such growth would occur attendant to or after the initiation of HST service, the locations in which such growth may occur could not be predicted at this time for the programmatic analysis.

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 system that can serve the local communities as well as providing access to and egress from HST stations. The Authority's adopted policies will ensure that implementation of the HST in California would maximize the potential for station area development. HST station area development principles draw upon transit-oriented development (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 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 environment. TOD measures are generally applied to areas within one-half mile of transit stations and this principal would be followed for HST stations.

Indirect Effects Related to Growth from the HST Alternative

The HST 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. Despite the relatively small magnitude of the expected 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. However, the additional growth expected from the HST System Alternative over the No Project Alternative in 2035 is expected to be accommodated on a similar amount of land, and the growth of urbanized area in acres would be smaller under the HST System Alternative, than under the Modal Alternative.

The following summarizes the analysis in the EIR:

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 HST System Alternative are considered speculative at the programmatic level.

Overall traffic conditions are expected to improve with the HST system, despite the estimated 2% increase in population and employment under the HST System Alternative. Some increase in local traffic around HST stations, consistent with this increased growth, is expected.

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 HST System Alternative and the No Project Alternative when considering growth. However, the HST System Alternative could result in less overall demand for transportation energy, despite the expected small increase in growth under the HST System Alternative.

Socioeconomic changes from growth under the HST System Alternative are expected to be small, and therefore indirect land use compatibility impacts from induced growth are also expected to be small. Growth under the HST System Alternative would be distributed across various communities, would be reflected in infill development and increased development densities, 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 HST System Alternative is expected to impact 4100 fewer acres of important farmland on a statewide basis than the No project Alternative.

Growth under the HST System Alternative is expected to impact about 270 miles more of waterways than the No Project Alternative, or about 7% more. The largest percentage of this increase is expected to occur in Southern California. The HST System Alternative is expected to affect fewer waterways in the Northern Central Valley region than the No Project Alternative due to induced growth. The Northern Central Valley is projected to experience a decrease in acreage of habitats potentially affected by induced growth.

Growth under the HST System Alternative has the potential to affect up to 8400 acres more of land which may contain some threatened and endangered species habitat on a system-wide basis than the No Project Alternative. The largest percentage increase is expected to occur in the Bay Area, while the largest acreage increase is expected in the Southern Central Valley. Growth under the HST System Alternative has the potential to affect about 330 acres more containing some wetlands on a system-wide basis than the No Project Alternative, or about 1% more. The largest acreage and percentage increase is project to occur in the Northern Central Valley, whereas Southern California is expected to exhibit a reduction in wetland loss 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 HST System 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, 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.

VII.
FEASIBILITY OF POTENTIAL ALTERNATIVES

CEQA requires the lead agency, the High Speed Rail Authority, to consider a reasonable range of potentially feasible alternatives to the proposed Program. See Public Resources Code sections 21002 and 21081; see also CEQA Guidelines section 15126.6. "Feasible" means capable of being accomplished in a successful manner within a reasonable time, taking into account economic, environmental, legal, social and technological factors. CEQA Guidelines section 15364. The range of alternatives to be considered is governed by a "rule of reason" that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice. The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project. Of those alternatives, the EIR need examine in detail only the ones that the lead agency determines could feasibly attain most of the basic objectives of the project. CEQA Guidelines section 15126.6(f). Additionally, CEQA does not require the consideration of alternatives that are incompatible with the fundamental objectives of the Program or alternatives that would change the basic nature of the Program. See *Save San Francisco Bay Association v. San Francisco Bay Conserv. & Dev. Commission* (1992) 10 Cal.App 4th 908, 919; *Marin Mun. Water Dist. v. KG Land Cal.Corp.*(1991) 235 Cal.App. 3d 1652.

A. Alternatives Considered and Not Taken Forward

1. Evaluation of Alternatives Against the Program Objectives, Purpose and Need

<u>The purpose and objectives of the HST System</u>. With the enactment of the California High Speed Rail Act in 1996, the Legislature recognized, among other things, that the state's existing network of highways and airports is not adequate to meet the mobility needs of the population, and that both the state's population and the travel demands of its citizens are expected to continue to grow at a rapid rate. Noting that an intercity high-speed rail service connected with urban transit and airports could provide an efficient, practical, and less-polluting transportation mode to help meet the gap between existing capacity and future travel demand, the Legislature charged the Authority to develop a proposed HST system that is integrated with the state's existing rail and transit services and uses common station facilities. See Public Utilities Code sections 185010, 185030.

The analysis in the Final Program EIR/EIS confirms that 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 state's intercity transportation system has not kept pace with the tremendous increase in the population and tourism in the state. The interstate highway system, commercial airports, and the 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 serve existing and future demand. The need for improvements serving intercity travel within California is described further in the Final Program EIR/EIS and summarized in the October 2005 Staff Report on the Final Program EIR/EIS.

As described in the Final Program EIR/EIS the purpose and objectives of the HST System, or program, which is identified as the Preferred System Alternative, is to provide a reliable mode of travel that links the major metropolitan areas of the state and delivers predictable and consistent travel times, while also providing an interface with major commercial airports, public transit services, and the highway network and relieving capacity constraints in the existing transportation system in a manner sensitive to and protective of California's unique natural resources. It is called the Preferred System Alternative to distinguish it from the preferred alignment and station locations which are identified in the Final Program EIR/EIS. Along with the stated purpose and objectives, and to implement the directives of the California High-Speed Rail Act, the Authority adopted the following policies and objectives for the proposed HST System:

- 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'ss sensitive environmental resources by reducing emissions and vehicle kilometers/vehicle miles traveled for intercity trips

- consult with resource and regulatory agencies during the tier 1 environmental review and use all available information for assessing the alternative that it 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 above policies and objectives were important in the Authority's initial broad consideration of alternatives, in considering train technologies that could provide the desired high-speed service, in framing the alternatives for analysis in the EIR, and also in selecting preferred corridor alignments and station locations, as discussed below. The Final EIR describes this process in detail. The Authority evaluated a wide range of alternative corridor alignments for the proposed system in order to determine which corridors would best meet the program objectives while also minimizing potential adverse environmental impacts. The evaluation of both alternative technologies and alternative corridors for the proposed HST system was considered by the Authority in numerous public meetings which provided extensive opportunities for public participation and input for the Authority to consider. The system alternatives and the design options (corridors/alignments and station locations) for the proposed HST system that are described in the EIR are based on previous feasibility studies, the scoping process, and the HST screening evaluation.

2. Elimination of Alternative Technology, Alternative Systems and Alternative Corridors

a. Initial Considerations

The Authority and the FRA developed a range of potential HST corridors, and alignment and station options within the corridors, informed by previously prepared feasibility studies, as well as comments received from the public and from public agencies during the scoping process for the preparation of the Draft Program EIR/EIS. The Authority reviewed the Los Angeles to Bakersfield Preliminary Engineering Feasibility Study completed by the California Department of Transportation (Caltrans) in 1994; the Corridor Evaluation and Environmental Constraints Analysis completed by the High Speed Rail Commission in 1996; the High Speed Rail Corridor Evaluation completed by the Authority in 1999; and the Authority's Business Plan, completed in 2000. The Final EIR explains in Chapter 2 the consideration of these reports and additional criteria that were applied to evaluate potential HST corridors, technologies, alignments and stations.

For purposes of organizing the information and evaluating the HST options, the state was divided in to five geographic regions or travel markets, as shown in Figure 2.1-1 of the EIR. The previously prepared studies mentioned above were reviewed and reevaluated to develop HST alignment and station options in each of the five regions. Technical studies gathered data to assist in evaluating the range of HST options, as reflected in the Authority's California High Speed Train Screening Report (2002), and provided information to help focus further studies for the Program EIR/EIS HST options to meet the project/program purpose and attain the objectives established by the Authority.

Prior to completing the screening evaluation the Authority directed specific alignment refinement studies in order to gather additional technical information to assist in its review of northern and southern mountain pass crossing options for the proposed HST system. In these mountain areas, due to the vast potential for variation in specific alignments (horizontal and vertical), and with related variation in costs and potential environmental impacts, the Authority undertook further review of tunneling considerations in a two-day technical conference and an alignment refinement and optimization study.

The range of potential HST corridors was reduced during a "screening" process in which the Authority and FRA further considered the potential HST corridors, received additional public comment during public meetings, and eliminated from detailed consideration in the EIR/EIS potential alternatives that were: (i) unable to meet most of the basic project objectives; (ii) infeasible; or (iii) unable to avoid significant environmental impacts.

b. Eliminated technology

Four primary technology groups were considered in the development of the HST System alternative. These groups were classified by their speed (both currently obtainable speeds as well as targeted speeds that may result from further research and development) and by their similar design characteristics. Three groups were eliminated from further consideration for reasons discussed in more detail in the EIR and the Authority's screening evaluation documentation. Magnetic levitation technology was eliminated principally due to the unique guideway it requires, which would not allow it to share track with conventional steel wheel systems and such separation would prevent direct HST service in certain heavily constrained urban terminus sections, e.g., San Francisco and Los Angeles. Shared use within such constrained urban corridors would help to mitigate the impacts of adding additional tracks and would provide an opportunity for incremental improvement of portions of the existing rail network.

High-speed steel wheel on steel rail electrified technology, which is designed to operate at speeds of 100 to 150 mph (160-240 kph), and non-electrified conventional rail, which is capable of speeds up to 100 to 150 mph with diesel technology, were eliminated because they would not be able to produce the sustained speeds needed for a viable HST system in California. Studies showed that a travel time of three hours or less between San Francisco and Los Angeles would be needed in order to provide a travel time competitive with other modes and to attract riders to the system. The costs to implement the slower train technology would be similar to those for the HST system.

c. Eliminated system alternatives

The modal alternative which is considered in the EIR consists of a combination of highway and airport components, as described below. In developing the modal alternative, the Authority considered both a highway-improvement only system alternative and an airport-improvement only system alternative. These alternatives were rejected because neither would be practical or feasible to serve the range of intercity trip lengths to be served by the HST system, and neither would meet the purpose and need and objectives for the system with regard to predictable and reliable travel times, safety, and protection of natural resources through avoidance of environmental impacts. Consideration was also given to improving the conventional passenger rail system to stand alone or serve as part of the modal alternative. This was rejected because it would not provide or assist in providing a competitive option to satisfy intercity travel demand. Even with the implementation of improvements, travel time between Los Angeles and San Francisco would not be sufficiently improved (time reduced from about ten hours to eight hours and 30 minutes) for conventional to provide a competitive alternative mode and would continue to require transfer to buses for a portion of the trip.

d. Eliminated HST Corridors

The HST corridor options which were evaluated and eliminated from further consideration based on previous studies, the information provided in the screening evaluation studies, and public and agency input, are described in detail in the EIR and are listed in the staff report presented at the Authority's November 1-2, 2005, meeting in Table 2.6-3 which notes the primary reason(s) for elimination of the corridors. The eliminated corridors include a San Francisco to Los Angeles only corridor, which would not meet the objective of linking the major metropolitan areas of the state; coastal corridors generally following Highway 101 and Highway 1, which would result in greater impacts to sensitive natural and cultural resources, higher costs and slower travel due to challenging topography waters; and an Interstate Highway 5 corridor, which failed to meet basic project objectives of maximizing intermodal opportunities, maximizing connectivity and accessibility, and providing transit connections and multi-modal stations, and additionally would result in increased incompatibility with land use planning. Also eliminated were the Capitol Rail Corridor (Sacramento to Oakland) and the Panoche Pass because they would not meet basic project objectives. For additional discussion of these corridors see chapter 2 in the EIR.

Additional HST alignment and station options were evaluated and eliminated from further consideration in the EIR as a result of the Authority's screening process, which consisted of using the objectives and criteria established by the Authority to identify reasonable and practicable options for further investigation in the Program EIR. Briefly described, the criteria used for this evaluation are the following, which are presented and described in more detail in the EIR:

- maximize ridership/revenue potential
- maximize connectivity and accessibility
- minimize operating and capital costs
- maximize compatibility with existing and planned development
- minimize impacts on natural resources
- minimize impacts on social and economic resources
- minimize impacts on cultural and parks/wildlife refuge resources
- maximize avoidance of areas with geologic and soil constraints
- maximize avoidance of areas with potential hazardous materials

In addition the Authority's performance criteria were applied. Using cost and travel time as primary indicators of engineering viability and ridership potential, capital costs and travel times were estimated and quantified for the options considered. Other engineering criteria, such as operational, construction, and right of way issues, and environmental concerns were evaluated qualitatively. The HST alignment and station options eliminated through the screening evaluation are discussed in detail in Section 2.6.9 of the Final Program EIR/EIS, are listed in Table 2.6-6 in the EIR and in the October 2005 Staff Report, and are depicted in maps included in Section 2.6.9 of the EIR.

3. Elimination of Alternatives Recommended in Comments that Would Not Meet One or More Primary Program Objectives

a. Other Technologies

A few comments on the Draft EIR suggested that technologies other than those investigated be used for the HST System. However, these other technologies are, without exception, unproven, largely conceptual technologies which have not been tested in service. These technologies include the suggested "Underground Express" technology (e.g., see comment letter I003 in the Final EIR) and other conceptual concepts for intercity transportation. These technologies cannot be used for the construction of an HST System within an appropriate timeframe to be in service by the year 2020, and are not assured of being able to share infrastructure in the very constrained urban areas within the Preferred HST System Alternative. The Authority finds these technologies are infeasible to meet the purpose and objectives for the program.

b. Other Routes

Some comments suggested other route ideas for the proposed HST System, i.e., additional routes and destinations beyond the major metropolitan areas discussed in the EIR and identified as part of the Preferred HST System Alternative. For example, suggestions included routes to the

Imperial Valley, to areas north of Sacramento, to Mexico, etc. Additional routes could be considered in the future based upon further environmental and economic analyses, but are not proposed at this time as part of the HST System. Such additional routes do not meet the program objectives of serving the state's major metropolitan areas. Further, these routes do not meet the objective of providing economically viable transportation system that would generate revenues in excess of operations and maintenance costs, and they could result in substantial additional environmental impacts. The Authority finds these additional routes are infeasible to meet the purpose and objectives of the initial HST Program.

B. Comparison of Alternatives Studied in the EIR

These findings compare all alternatives considered in the EIR where appropriate in order to provide a basis for selection of the finally approved Preferred System Alternative. In rejecting certain alternatives, the Authority has considered the purpose and need and basic program objectives and weighed the ability of the various alternatives to meet these objectives. While each alternative represents trade-offs, the Preferred HST System Alternative strikes a balance of benefits while considering environmental impacts, uncertainty, and other factors.

The discussion that follows compares the No Project Alternative and the Modal Alternative to the Preferred HST System Alternative on the basis of the relative ability of each alternative to meet program purpose and objectives, to reduce or avoid potential environmental impacts and its practicability. The Preferred HST System Alternative is described more fully in Chapter 2 of the Final Program EIR/EIS, Section II of these Findings, and in Subsection C below. The purpose of this comparison of alternatives is to highlight the changes to the environment that would take place as a result of implementing the different system alternatives.

1. Comparison to No Project Alternative

The No Project Alternative consists of the state's transportation system (highway, air, and conventional rail) in 1999-2000 and as it would be after the implementation of improvements, programs or projects, that are currently projected in regional transportation plans (RTPs), for which implementation funds have been identified, and that are expected to be in place by 2020 in the same general geographic area that would be served by the proposed HST System.

Compared to the No Project Alternative and existing conditions, the Preferred HST System Alternative provides significant improvements in terms of air quality, energy efficiency in transportation uses, reduced overall fuel use, and improving travel conditions (including mobility, reliability, safety, connectivity, travel times, and capacity). Air quality improvements with the HST System Alternative would result from reduced VMT for intercity travel and from reduced congestion. The No Project Alternative would not meet the intercity travel needs projected for the future (2020 and beyond) as population continues to grow. Under the No Project Alternative fuel use and congestion would increase, along with travel delays and air quality impacts, and travel times would be longer and less reliable than under existing conditions. Peak travel time congestion would be significantly extended in some areas of the system under the No Project Alternative. The No Project Alternative would not produce improvements in connectivity with and access to public transit or otherwise serve to increase integration of the transit system. Under the No Project Alternative intercity travel would remain subject to limited flexibility and reliability related to weather events, congestion and accidents. The No Project Alternative would result in adverse environmental impacts on air quality, energy use, and other resources, but would not offer travel improvements compared to the HST System Alternative.

After full consideration of the No Project Alternative, as discussed in the EIR/EIS, the Authority finds that taking no action under the No Project Alternative would not meet the intercity travel needs projected for the future (2020) as population continues to grow, and would fail to meet purpose and need, and would fail to meet the objectives of a statewide HST system. The No Project Alternative would result in an intercity transportation network that would not be as safe as, would have increased travel times, and would be significantly less reliable than existing conditions. The No Project Alternative would also exacerbate existing transportation system constraints, energy use, and dependence on petroleum as demand for intercity travel in California increases. The No Project Alternative would result in environmental impacts but would not offer travel improvements compared to the Modal and HST Alternatives. The No Project Alternative is neither a viable nor realistic alternative for California's future intercity travel demands. For these reasons the Authority rejects the No Project Alternative.

2. Comparison to Modal Alternative

The Modal Alternative consists of a combination of future transportation improvement options in both the highway and aviation modes of intercity travel. Because the majority of intercity travel is split between aviation and highway modes, the Modal Alternative consists of hypothetical improvements to the highway and aviation system that were identified based on an appropriate forecast of representative demand for each modes and designed to provide a quantifiable capacity improvement equivalent to the capacity that would be provided by the HST System Alternative to meet a representative demand for intercity trips (58 million) and some commuter trips (10 million) as described in Chapter 2 of the Final Program EIR/EIS.

The capacity improvements included in the Modal Alternative are considered hypothetical and have been reviewed at the program-level of the analysis for their potential feasibility in order to provide a comparison of potential environmental impacts from a system of theoretical improvements which could serve the same level of intercity travel demand as could be served by the proposed HST system. Such improvements, however, are not proposed by the Authority, nor are they within the Authority's purview to pursue or to implement.

The Modal Alternative would meet the projected needs for intercity travel in 2020 and would result in reduced highway travel times and congestion as compared to both the No Project and HST Alternatives. However, congestion would still increase on highways and airports compared to existing conditions for both the Modal and HST Alternatives. The Modal Alternative would also create slightly fewer impacts to visual quality resources as compared to the Preferred HST System Alternative.

The Modal Alternative would create somewhat greater impacts on air quality, noise, biology and wetlands, cultural resources, hydrology, water quality, and land uses, both from construction and operations, as compared to the Preferred HST System Alternative. The Modal Alternative would also result in increased energy use, continued reliance on petroleum and would contribute to increases in suburban sprawl. The Modal Alternative would provide an intercity transportation network that would not be as safe or as reliable as the HST System Alternative and would not improve connectivity between exiting modes.

The capital cost of the Modal Alternative would be over two times the estimated capital cost of the HST System Alternative, yet the Modal Alternative would have considerably less sustainable capacity than the HST System Alternative to serve California's intercity travel needs beyond 2020. Improvements within the Modal Alternative represent fixed additional capacity to the transportation system, whereas with the same basic system infrastructure and with little, if any, additional construction, and related impacts, the capacity of the Preferred HST System Alternative can be expanded, e.g., by the addition of trains for more service or longer trains for greater capacity at certain times and locations.

Finally, while the improvements for the Modal Alternative were reviewed for their potential feasibility in order to prepare an appropriate comparative impact analysis at the program level, there is no assurance that these improvements would be proposed, implemented or funded by the agencies responsible for the affected facilities within the time frame for the implementation of the Preferred HST System Alternative.

The Authority has fully considered the Modal Alternative discussed in the Final Program EIR/EIS. The Authority finds that while the Modal Alternative would meet the projected intercity travel needs for 2020, it would be much less effective that the Preferred HST System Alternative in doing so and it would result in significant environmental impacts. The Modal Alternative would not meet objectives related to interconnecting transit services and increasing the efficiency of the transportation system, would not meet objectives related to reducing VMT and improving air quality, and would not improve energy efficiency in transportation use.

For the above reasons the Authority rejects the Modal Alternative.

3. Conclusion

For the above stated reasons the Authority rejected the No Project Alternative and the Modal Alternative. The Authority finds that the Preferred HST System Program Alternative is more effective in meeting the program objectives within the time frame needed and would result in fewer adverse impacts than the Modal Alternative. The Preferred HST System Alternative is also more effective in meeting the program objectives than the No Project Alternative and would result in energy savings, air quality improvement and transportation capacity improvements, as compared to the No Project Alternative. In addition to meeting the program objectives the Preferred HST System 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, improved travel conditions (including mobility, safety, reliability, travel times, and connectivity and accessibility) and reduced vehicle-miles-traveled for intercity trips. Given the environmental benefits it would provide, the Preferred HST System Program Alternative is the environmentally superior alternative among all of the alternatives considered, including the No Project Alternative.

C. Benefits of the Preferred Program Alternative

As noted above, expected increases in population and intercity travel demand in California will result in increased travel times, increased vehicle-related air pollution emissions, increased congestion and delays, while transportation flexibility, reliability and safety will likely decline in the future. The proposed HST system is the Preferred Program Alternative and is most effective in meeting the program purpose and objectives in order to provide a new mode of transportation to help meet increasing demand for intercity travel while connecting with public transit and other travel modes and protecting sensitive environmental resources.

The Preferred HST System Alternative consists of a system over 700-miles long capable of sustained speeds of 200 mph with electric-powered steel-wheeled trains on a mostly dedicated system of fully grade-separated, access-controlled steel tracks with state-of-the-art safety, signaling, communication and train control systems which would connect the major metropolitan areas of the state and connect with other transportation modes at multi-modal stations. The Preferred HST System Alternative meets the multiple objectives set forth for the program, reduces adverse environmental effects, and provides multiple benefits, including the following:

- New safe, reliable mode of intercity travel with competitive travel times.
- Improved connectivity and accessibility to other travel modes.
- Air quality improvements from reduced VMT for intercity trips, grade-separated crossings that remove local traffic delays and decreased congestion.
- Reduced energy consumption and increased energy efficiency in transportation.

- Multi-modal hub stations that support transit oriented development and increased land use efficiency to decrease sprawl and decrease urban area growth.
- Increased intercity travel options, particularly in the Central Valley.
- Opportunities for expanded service and capacity with little infrastructure change.
- Noise reductions where grade separations result in removing train horn noise.

As proposed, the Preferred HST System Alternative would largely use existing transportation corridors and railroad rights of way in order to minimize impacts to environmental resources. The Authority has adopted design practices to be included in the Preferred HST System, and to be applied in the next steps of planning for the HST System, that would further minimize and avoid adverse environmental impacts described in Section IV of these findings. These design practices are described in the foregoing findings and in the Final EIR, and are incorporated into the Preferred HST System Alternative.

In addition to incorporating design practices to minimize potential impacts, the Authority has adopted mitigation strategies to avoid or minimize adverse environmental impacts described in Section IV of these Findings. The adopted mitigation strategies will be refined and applied in future project-level studies as site specific mitigation measures to address the potential impacts of proposed alignments at locations identified with more specificity than is possible at the program-level of analysis. The Authority finds that the Preferred HST System Alternative incorporates all feasible mitigation strategies identified at the program-level of analysis and that the Preferred HST System Alternative with the identified design practices and mitigation strategies best meets the purpose and objectives of the program while minimizing and avoiding environmental impacts. The design practices and mitigation measures will be refined and applied further during project level studies, and in project level studies additional mitigation measures may be identified and applied. Due to uncertainty from the fact that these mitigation strategies cannot be fully defined at the program-level and, thus, their ability to reduce potential impacts cannot be fully measured at the program level, the Authority finds that the Preferred Program Alternative could result in significant and unavoidable impacts. Accordingly a statement of overriding considerations has been prepared and included in these Findings.

D. Selection of Preferred Corridor Alignments and Station Locations

Chapter 6A of the EIR/EIS identifies HST alignment and station location preferences based upon information contained in the EIR/EIS, supporting technical reports, and comments received from agencies and the public. In identifying preferred alignment and station locations the Authority has considered the relative differences among alignments and station locations within each of the conceptual corridors studied with regard to physical and operational characteristics, and potential environmental impacts. The Authority was guided by the objectives and criteria applied for the screening evaluations which is summarized above [Table 2.6-5 in the EIR], in considering the more detailed information provided by the EIR/EIS. Staff reports presented to the Authority in public meetings provided detailed information concerning the relative differences between the alignment and station locations being considered and made recommendations for selection of those that would best satisfy the screening evaluations. In considering station locations, the Authority was seeking multi-modal hub locations.

The Authority reviewed the staff recommendations, and approved them with a few modifications as preferred alignment and station locations to be identified in the Final EIR. Further review during the preparation of the Final EIR resulted in slight changes broadening the study areas described for future analysis in three locations [inclusion of the CCT alignment between Sacramento and Stockton, additional planning studies for a potential Visalia station, and defining the segment between Burbank to LAUS as a relatively wide corridor]. In its action approving staff recommendations, the Authority approved the identification of a broad corridor for the HST segment linking the Bay Area with the Central Valley for further study of potential northern mountain crossing alignment options, excluding routes crossing Henry Coe State Park. By selecting these preferred alignment and station locations the Authority is indicating it does not intend to investigate further in project level studies the alignment and station options that have <u>not</u> been identified as preferred. After future study of the broad northern mountain corridor along with connections in the Bay Area and the Central Valley, the Authority intends to identify a preferred northern mountain crossing alignment. The preferred alignment and station locations are identified conceptually to indicate the locations for future more specific study that will provide the information needed to determine precise alignment and station locations. The Authority approves the preferred alignment and station locations, as identified in Chapter 6A of the Final EIR, to be the focus of future more detailed studies to implement the Preferred HST System Alternative.

VIII.
STATEMENT OF OVERRIDING CONSIDERATIONS

The program-level environmental impact report/ environmental impact statement (EIR/EIS) prepared for the California High-Speed Train (HST) project concluded that significant and unavoidable impacts would occur as a result of the proposed project. In keeping with CEQA Section 21081 and the requirements of the State CEQA Guidelines 15093, this statement of overriding considerations has been prepared. The significant and unavoidable impacts and the benefits related to the HST project are described below. The California High-Speed Rail Authority (Authority) Board has weighed these impacts and benefits of the HST system. As described below, the Authority has found that the transportation, environmental, economic, and social benefits of the HST project outweigh the significant and unavoidable environmental impacts.

The level of analysis provided in this program EIR is less detailed than that typically provided in a project-level EIR, such as for approval of a development project like a hotel at a particular location. Because a program EIR necessarily provides less detailed analysis and less detail concerning mitigation measures, it is more difficult to conclude with certainty that the inclusion of identified mitigation measures or strategies in the program approval will necessarily reduce adverse impacts to a less-than-significant level. For example, the program EIR notes that implementing the train system would result in some loss of agricultural land (i.e., conversion of land currently in agricultural use to urban use), but it cannot be determined at the program level of analysis exactly where and how much agricultural land would be needed for the train system. For such areas of uncertainty, a statement of overriding considerations is needed.

General Findings

Potentially significant/unavoidable impacts associated with the following resource areas might occur as a result of the HST System Alternative:

- Land Use:
  - Incompatibility with Land Uses and Disruption to Communities
  - Impacts to Neighborhoods During Construction
- Agricultural Lands:
  - Conversion of prime, statewide important, and unique farmlands, and farmlands of local importance, to project uses
- Aesthetics and Visual Resources
- Cultural and Paleontological Resources
  - Impacts to Archaeological Resources and Traditional Cultural Properties
  - Impacts to Historic Properties/Resources
  - Impacts to Paleontological Resources
- Biological Resources and Wetlands

- Impacts to Sensitive Habitat and Sensitive Vegetation Communities
- Impacts to Wildlife Movement Corridors
- Impacts to Non-wetland Jurisdictional Waters
- Impacts to Wetlands
- Impacts to Marine and Anadromous Fishery Resources
- Impacts to Special Status Species

- Public Parks and Recreation Resources—Impacts to Parks and Recreational Resources

Overriding Considerations

The Authority has determined that the need for a high-speed train system is directly related to the expected growth in population and resulting increases in intercity travel demand in California over the next twenty years and beyond. As a result of this growth in travel demand, there will be increases in travel delays from the growing congestion on California's highways and at airports. In addition, there will be effects on the economy and quality of life from a transportation system that is less and less reliable as travel demand increases and from deteriorating air quality in and around California's metropolitan areas. The intercity highway system, commercial airports, and conventional passenger rail 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.

The proposed high-speed train system would provide a new mode of high-speed intercity travel that would link the major metropolitan areas of the state; interface with international airports, mass transit, and highways; and provide added capacity to meet increases in intercity travel demand in California projected for the year 2020 and beyond in a manner sensitive to and protective of California's unique natural resources.

The evaluation and findings indicate that the Modal Alternative, improvement to existing highway and air modes of intercity travel, would help meet projected needs for intercity travel in 2020, but would not satisfy the purpose and objectives of the program as well as the HST alternative. In addition, although the capital cost of the Modal Alternative would be over two times the estimated capital cost of the HST Alternative, the Modal Alternative would have considerably less sustainable capacity than the HST Alternative to serve California's intercity travel needs beyond 2020.

The evaluation and findings of the Final Program EIR/EIS also indicate that taking no action under the No Project Alternative would not meet the intercity travel needs projected for the future (2020 and beyond) as population continues to grow, and would fail to meet the purpose and objectives of the program which can be met by the Preferred HST Alternative. The No Project Alternative would result in environmental impacts but would not offer travel improvements compared to the Modal and HST Alternatives.

As informed by the analysis presented in the Draft Program EIR/EIS, public and agency comments, and additional analysis described in the Final Program EIR/EIS, the Authority and the FRA have concluded that the HST alternative is the preferred system alternative and have identified preferable alignments and stations. In addition, the HST Alternative is identified as environmentally preferable under NEPA as well as the environmentally superior alternative under CEQA.

BENEFITS OF THE CALIFORNIA HIGH-SPEED TRAIN SYSTEM

Benefits to the Transportation System

Highway traffic conditions are currently highly congested and are projected to further deteriorate under the No Project Alternative. In every region studied, the No Project Alternative would not add sufficient capacity to accommodate the projected growth in highway travel, including both the existing large urban areas (i.e., the San Francisco Bay Area and Los Angeles basin) and the growing urban areas in the Central Valley. Future forecast increases in travel demand will lead to greater congestion, increased total travel time delay, and reduced reliability on the primary highway corridors throughout the study area. Of the highway segments analyzed, over half are already operating beyond their capacity with "stop-start" conditions during peak periods, and congestion is estimated to increase by nearly 40% under the No Project Alternative. Between Los Angeles and Bakersfield, highway traffic congestion is forecasted to increase by over 70%, with portions of I-5 burdened during peak periods with more than three times the volume of traffic than highway capacity to carry it. Typically, this would cause the morning peak period of congestion in urban areas to extend from two hours under existing conditions, to four hours by 2020. Because this program-level analysis could not attempt to quantify localized capacity restriction (e.g., bottlenecks at given interchanges) and incidents on the highways—accidents, breakdowns, and highway maintenance that are unpredictable and are responsible for a majority of the congestion on California's urban highway networks—congestion would be likely considerably greater than forecast under the No Project Alternative.

Likewise, many of the airports in the study area are currently at or near capacity and could become severely congested under the No Project Alternative. The number of passengers that enplaned and deplaned in California in 1999 (almost 173 million) is expected to more than double by 2020. However, the aviation component of the No Project Alternative consists primarily of additional gates, access improvements, and parking expansion. No additional runways or other major capacity expansion projects are included. Capacity constraints are likely to result in considerable future aircraft delays, particularly at California's three largest airports.[1] San Francisco International Airport (SFO) has "one of the worst flight delay records of major U.S. airports—only 64 percent of SFO flights were on time during 1998."[2] According to the Web site for SFO, within 10 years, the three Bay Area airports will not, even during good weather, have sufficient capacity to meet regional air traffic demand. Los Angeles International Airport projects a demand of 19.2 million more annual passengers than their 78.7 million total passenger capacity by 2015, and San Diego International-Lindbergh Field expects to be at

[1] California High Speed Rail Commission 1996. Working Paper #3, Cost Comparison of Mode Alternatives. June 20.

[2] San Francisco International Airport. 2003. Building the future. Available at: <www.flysfo.com>. Accessed: December 2003.

capacity prior to 2020.[3] The projected delays at heavily used airports and forecasted highway congestion would continue to delay travel, negatively affecting the California economy and quality of life.

The HST System Alternative would meet the need for a safe and reliable mode of travel that would link the major metropolitan areas of the state and deliver predictable, consistent travel times sustainable over time. The HST System Alternative also would provide quick, competitive travel times between California's major intercity markets. Table S.5-1 shows examples of door-to-door travel times between several city-pairs for 2020, comparing the automobile and air transportation travel times estimated for the No Project Alternative to the travel times estimated for the HST System Alternative. For longer distance intercity markets such as San Francisco to Los Angeles, the HST System Alternative would provide door-to-door travel times that would be comparable to air transportation and less than one half as long as automobile travel times. For intermediate intercity trips such as Fresno to Los Angeles, the HST System Alternative would provide considerably quicker travel times than either air or automobile transportation, and would bring frequent HST service to many parts of the state that are not well served by air transportation. In addition, the passenger cost for travel via the HST service would be lower than for travel by automobile or air for the same intercity markets.

The HST System Alternative would provide a new intercity, interregional, and regional passenger mode—the high-speed train—, which would improve connectivity and accessibility to other existing transit modes and airports compared to the other alternatives. The proposed HST system is the only alternative that would improve the travel options available in the Central Valley and other areas of the state with limited bus, rail, and air service for intercity trips. The HST system also provides system redundancy in cases of extreme events such as adverse weather or petroleum shortages (HST trains are powered by electricity which can be generated from non-petroleum or petroleum-fueled sources; automobiles and airplanes currently require petroleum). The HST System Alternative would provide a predominantly separate transportation system that would be less susceptible to many factors influencing reliability, such as capacity constraints, congestion, and incidents that disrupt service. In addition, since high-speed trains are able to operate in all weather conditions, the on-time reliability of this mode of travel would be superior to travel by either auto or air. Based on experience with HST systems in other countries, HST has a lower accident and fatality rate than automobile travel. In terms of sustainable capacity, the HST System Alternative would offer greater opportunities to expand service and capacity with minimal expansion of infrastructure, than either the No Project or Modal Alternatives.

[3] San Diego Airport. 2001. The San Diego Airport Economic Analysis and Public Information Program. San Diego, CA.

Table S.5-1
Estimated Total Travel Times (Door to Door) between City Pairs by Auto, Air, and HST in 2020 (Hours:Minutes)

City Pairs	Auto[1] (No Project Alternative)	Air (No-Project Alternative)		HST (HST Alternative) (Optimal Express Time)	
	Total	Line Haul[2]	Total	Line Haul[2]	Total
Los Angeles downtown to San Francisco downtown	7:57	1:20	3:32	2:35	3:30
Fresno downtown to Los Angeles downtown	4:30	1:05	3:02	1:22	2:33
Los Angeles downtown to San Diego downtown	2:49	0:48	3:00	1:13	2:16
Burbank (Airport) to San Jose downtown	6:50	1:00	3:14	1:49	2:52
Sacramento downtown to San Jose downtown	2:40	No service	No service	0:50	1:53

Auto trips are assumed to be "point to point" and therefore do not have a line-haul (time in vehicle) time associated with their travel times.
Time in airplane or train.
Source: Parsons Brinckerhoff.

The HST System Alternative would add capacity to the state's transportation infrastructure and reduce traffic on certain intercity highways and around airports to the extent that intercity trips are diverted to the HST system. It also would eliminate delays at existing at-grade crossings where the HST system would provide grade separation. The HST System Alternative would reduce travel time, improve reliability, and divert auto and air traffic and thereby reduce highway congestion. The HST System Alternative also would decrease injuries and fatalities due to diversion of trips from highways, improve connectivity, and add a variety of connections to existing modes, additional frequencies, and greater flexibility.

Benefits to the Environment

The Authority has made a serious commitment to utilize existing transportation corridors and railroad rights of way to minimize the impacts on California's treasured landscape. Furthermore, a key objective to avoid and/or minimize the potential impacts to cultural, park, recreational and wildlife refuges has been largely met. The preferred HST alignment and station locations best meet the objectives and criteria for minimizing potential environmental impacts while maximizing HST ridership potential and connectivity and accessibility.

The USEPA and USACE have participated in the development of both the Draft and Final Program EIR/EIS and in accordance with the memorandum of understanding among Federal agencies for this environmental review, were consulted concerning the selection of the preferred corridor and route most likely to yield the least environmentally damaging practicable alternative (LEDPA) and as identified as preferred in the Final Program EIR/EIS. The USEPA and USACE have concurred that the preferred HST alignment and station options identified in the Final Program EIR/EIS are most likely to contain the LEDPA.

The HST System Alternative would provide air quality, energy consumption, and noise benefits. The HST system would decrease air pollutants statewide and in all air basins analyzed by reducing pollution generated by automobile combustion engines. This reduction would be a result of decreased vehicle miles traveled by automobiles and decreased automobile congestion.

The HST system would also lower total energy consumption because a HST system uses less energy to move passengers than either airplanes or automobiles: the HST system would use about one-third the energy needed by an airplane, about one-half the energy needed by an automobile for an intercity automobile trip, and one-fifth the energy needed by an automobile for a commuter automobile trip.

In addition, noise reduction would occur in locations where grade separations eliminate horn and crossing gate noise at existing grade crossings.

Land Use Planning Benefits

The HST System Alternative would be highly compatible with local and regional plans that support rail systems and transit-oriented development (TOD) and would offer opportunities for increased land use efficiency (i.e., higher density development and reduced rate of farmland loss). The HST System Alternative would also meet the need for improved inter-modal connectivity with existing local and commuter transit systems. In contrast, the highway improvement options under the Modal Alternative would encourage dispersed patterns of development and would be inconsistent with the objectives of many local and regional planning agencies to promote transit-oriented, higher-density development around transit nodes as the key to stimulate in-fill development that makes more efficient use of land and resources and can better sustain population growth. Urbanized areas in California are expected to grow by 47% between now and 2035 under the No Project Alternative. Under the Modal Alternative, urbanized area growth is expected to be about 1.4% (65,500 ac [26,507 ha]) higher than the No Project Alternative, while the HST System Alternative would result in a slight decrease in urban area growth (2,600 ac [1,052 ha]) compared to the No Project Alternative. However, the HST System Alternative is expected to result in a slightly greater increase in population than the No Project and Modal Alternatives.

HST stations in California will be multi-modal transportation hubs. All the selected high-speed rail station locations would provide linkage with local and regional transit, airports, and highways. In particular, convenient links to other rail services (heavy rail, commuter rail, light rail, and conventional intercity) will promote TOD at stations by increasing ridership and pedestrian activity at these “hub” stations. A high level of accessibility and activity at the stations can make the nearby area more attractive for additional economic activity. Most of the potential stations identified for further evaluation are located in heart of the downtown/central city area of California's major cities minimizing potential impacts on the environment and maximizing connectivity with other modes of transportation. These locations also would have the most potential to support infill development and TOD.

Increased density of development in and around HST stations provides a means to increase public benefits beyond the benefits of access to the HST system itself. Such benefits could include relief from traffic congestion, improved air quality, promotion of infill development and preservation of natural resources, increased stock of affordable housing, promotion of job opportunities, reduction in energy consumption, and improved cost-effectiveness of public infrastructure. The Authority and local government working together will need to determine which mechanisms best suit each community and could be implemented to enhance the benefits possible from potential HST station development.

Significant growth is expected in large areas of California with or without an HST system. The proposed HST system, however, would be consistent with and promote the State's adopted smart growth principles,[4] and should be a catalyst for wider adoption of smart growth principles in communities near HST stations. It should encourage infill development, help to protect environmental and agricultural resources by encouraging more efficient land use, and encourage efficient and compact development, along with infrastructure that provides adequate transportation and other utilities and minimizes ongoing cost to taxpayers.

Economic Benefits

The HST System Alternative would generate economic benefits related to revenue generated by the system, economic growth generated by construction and operation of the system, benefits from reduced delays to air and auto travelers, reduced air pollution, reduced accidents and fatalities and economic advantages related to proximity to the HST system.

According to the Authority's Business Plan (June 2000), the market for intercity travel in California that the high-speed train system can serve is projected to grow by almost 40 percent over the next 20 years. By the year 2020, the HST system is forecast to carry at least 32 million intercity passengers and generate $888 million in revenue (calculated in 1999 dollars). This revenue will more than cover operating costs, resulting in an annual surplus of nearly $340 million, while using HST fares significantly lower than current airfares. Moreover, the benefit-cost analysis done as part of the Business Plan concluded that through the year 2050, direct benefits from HST would be more than twice the costs.

The Business Plan estimated that the construction of the HST system would generate the equivalent of almost 300,000 job-years of employment. In addition, the construction spending is estimated to generate in present value more than $11 billion in personal income, almost $28 billion in industrial output, and $871 million in tax revenue. The industries in California that are expected to benefit most are construction ($10.4 billion in total added output), services ($6.6 billion in added output), and manufacturing ($2.7 billion in added output). Also, the system

[4] As expressed in the Wiggins Bill (AB857, 2003), and in government code 65041.1

would generate thousands of permanent jobs through the ongoing operations of high-speed trains.

The Business Plan concluded that Californians who continue to travel by air and automobile will also benefit from the HST system. By diverting some passengers to high-speed trains, the system will reduce the otherwise expected delays in major airports and highways. Reductions in airport delay will, in turn, reduce aircraft operating costs. At California's nine largest airports, the present value of these benefits is estimated at over $12 billion. Benefits to automobile users (both intercity and commuter) are estimated at over $13.6 billion.

Although the HST System Alternative would induce slightly more economic growth than the No Project or Modal Alternative, the HST System Alternative is forecasted to result in denser development, which would accommodate more population and employment on less land. The HST Alternative would result in a slight decrease in urban area growth and a statewide increase of 450,000 jobs over the No Project Alternative and 200,000 jobs over the Modal Alternative between 2002 and 2035.

Experiences in other countries have shown that an HST system can provide a location advantage to those areas that are in proximity to an HST station because an HST system would improve accessibility to labor and customer markets, thereby potentially improving the competitiveness of the state's industries and the overall economy. Businesses that locate in proximity to an HST station could operate more efficiently than businesses that locate elsewhere. This competitive advantage may be quite pronounced in high-wage employment sectors that are frequently in high demand in many communities.

Social Benefits

The HST System Alternative would provide a new intercity, interregional, and regional passenger mode that would improve connectivity and accessibility to other existing transit modes and airports compared to the other alternatives. HST would improve the travel options available in the Central Valley and other areas of the state with limited bus, rail, and air service for intercity trips and the passenger cost for travel via the HST service would be lower than for travel by automobile or air for the same intercity markets.

According to the Business Plan, an HST system would provide an opportunity for some people who would not otherwise make trips to do so, e.g., where travel options are currently limited. In addition, high-speed rail is a mode of transportation that can enhance and strengthen urban centers. In combination with appropriate local land use policies, the increased accessibility afforded by the high-speed service could encourage more intensive development and may lead to higher property values around stations.

Conclusion

Although the HST System Alternative would have potentially significant environmental impacts on resources, including noise, biology, wetlands, and farmlands, the HST System Alternative would have distinct benefits in travel conditions, land use planning, energy savings, and reduced air emissions. In addition, although the HST System Alternative would induce slightly more economic growth, the HST System Alternative is forecasted to result in denser development, which would accommodate more population and employment on less land. The HST System Alternative would result in a slight decrease in urban area growth and a statewide increase of 450,000 jobs. The HST System Alternative is identified as environmentally preferable under NEPA as well as environmentally superior under CEQA.

The Authority has found that the transportation, environmental, land use, economic, and social benefits of the HST project outweigh the significant and unavoidable environmental impacts. This statement of overriding considerations is based on the Authority Board's review of the Final Program EIR/EIS and other information in the administrative record.