# SELECTION CRITERIA

**Prepared**

**by**

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AUTHORITY

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# TABLE OF CONTENTS

The California High-Speed Rail Authority (Authority) certified the final statewide program EIR/EIS and the Federal Railroad Administration (FRA) issued a Record of Decision for the 800-mile-long high-speed train system in November 2005. This statewide process took four years to complete at a cost of about $20 million. The High-Speed Train Alternative was the selected system alternative and was identified as the environmentally preferred alternative under NEPA, as well as the environmentally superior alternative under CEQA. To serve the same number of travelers as the high-speed train system was projected to carry by 2020, California would have to build nearly 3,000 lane-miles of freeway, plus five new airport runways and 90 departure gates at a cost of two to three times more than the High-Speed Train Alternative. The program EIR/EIS concluded that high-speed trains can decrease dependency on foreign oil, preserve energy, decrease air pollutants and discourage sprawl, while having less impact on the natural environment than expanding highways and airports.

Preferred alignments and potential high-speed train station location options were selected for most of the statewide high-speed train system as part of the final program EIR/EIS. Between the San Francisco Bay Area and Central Valley, a broad corridor was identified for further evaluation. In November 2005, the Authority and FRA initiated the preparation of a separate next-tier Program EIR/EIS to address the choice of a corridor/general alignment and station locations in the San Francisco Bay Area to the Central Valley region of the high-speed train system. The “Bay Area to Central Valley High-Speed Train Program EIR/EIS” which resulted in the selection of a preferred alignment and station locations between the San Francisco Bay Area and the Central Valley was completed and certified in July 2008.

To evaluate potential alignment and station options, the Authority and FRA summarized and compared the relative differences among physical and operational characteristics and potential environmental consequences associated with the high-speed train alignment alternatives and station location options, including:

- Physical/operational characteristics
  - Alignment
  - Length
  - Capital Cost
  - Travel Time
  - Ridership
  - Constructability
  - Operational Issues

- Potential environmental impacts
  - Transportation-related topics (air quality, noise and vibration, and energy);
  - Human environment (land use and community impacts, farmlands and agriculture, aesthetics and visual resources, socioeconomics, utilities and public services, hazardous materials and wastes);
  - Cultural resources (archaeological resources, historical properties) and paleontological resources;
  - Natural environment (geology and seismic hazards, hydrology and water resources, and biological resources and wetlands);
  - Section 4(f) and 6(f) resources (certain types of publicly owned parklands, recreation areas, wildlife/waterfowl refuges, and historical sites).

In identifying a preferred alignment alternative, the Authority was guided by adopted objectives and criteria for selecting preferred alignment alternatives and station location options that were also applied in narrowing the number of alignment alternatives ("screening") evaluated (Table 2.1 below).

**TABLE 2.1**
**HIGH-SPEED TRAIN ALIGNMENT AND STATION EVALUATION OBJECTIVES AND CRITERIA**

| OBJECTIVE | CRITERIA |
|---|---|
| Maximize ridership/revenue potential | Travel time<br>Length<br>Population/employment catchment area<br>Ridership and revenue forecasts |
| Maximize connectivity and accessibility | Intermodal connections |
| Minimize operating and capital costs | Length<br>Operational issues<br>Construction issues<br>Capital cost<br>Right-of-way issues/cost |
| Maximize compatibility with existing and planned development | Land use compatibility and conflicts<br>Visual quality impacts |
| Minimize impacts on natural resources | Water resources impacts<br>Floodplain impacts<br>Wetland impacts<br>Threatened and endangered species impacts |
| Minimize impacts on social and economic resources | Environmental justice impacts (demographics)<br>Farmland impacts |
| Minimize impacts on cultural and parks/wildlife refuge resources | Cultural resources impacts<br>Parks and recreation impacts<br>Wildlife refuge impacts |
| Maximize avoidance of areas with geologic and soils constraints | Soils/slope constraints<br>Seismic constraints |
| Maximize avoidance of areas with potential hazardous materials | Hazardous materials/waste constraints |

The FRA has concurred with the Authority's identification of preferred alignment alternatives and station location options and has consulted with USEPA and USACE regarding their concurrence for compliance with the requirements of Section 404 of the Clean Water Act. Although no permit is being requested at this time under the Clean Water Act, USEPA and USACE have concurred that the identified preferred alignment alternative is most likely to yield the "least environmentally damaging practicable alternative" (LEDPA) consistent with the USACE's permit program (33 CFR Part 320–331) and USEPA's Section 404(b)(1) Guidelines (40 CFR 230–233). In addition, the High-Speed Train Alternative represents the proposed action and the Authority and FRA have identified the preferred High-Speed Train Alternative as environmentally preferable under NEPA and environmentally superior under CEQA.

The Authority and FRA are now focusing on project-level analysis on alignment alternatives and station location options selected through the two program environmental processes. Site-specific location and design alternatives for the preferred alternative and station location options, including avoidance and minimization alternatives, will be fully investigated and considered during next tier project-level environmental review.

# I.

# ROUTE AND ALIGNMENT

The Authority has selected an 800-mile high-speed train preferred alignment providing direct high-speed service between California's major metropolitan areas. The proposed high-speed train system would link the San Francisco Bay Area and Sacramento in the north, through the Central Valley, to Los Angeles, Orange County, the Inland Empire, and San Diego in the south (see Figure 2.1).


**Figure 2.1 Statewide high-speed train system with stations under study**

The preferred high-speed train alignments are generally configured along or adjacent to existing rail transportation facilities, instead of creating new transportation corridors. Although a wide range of options were considered, the Authority's initial conceptual approach, previous corridor evaluations, and the evaluation conducted as part of the Program EIR/EIS documents have consistently shown a potential for fewer substantial environmental impacts along existing highway and rail facilities than on new alignments through both developed and undeveloped areas. Although increasing the overall width of existing facilities could have potential impacts on the amount of land disturbed similar to those of creating new facilities, creating new facilities would also introduce potential incompatibility and severance issues in both urban communities and rural settings (farmlands, open spaces).

The station location options described in this section were identified generally and represent the most likely sites based on current knowledge, consistent with the objective to serve the state's major population centers. There is a critical tradeoff between accessibility of the system to potential passengers and the resulting high-speed train travel times (i.e., more closely spaced stations will lengthen the travel times for local service as well as express services). The station locations shown here are spaced approximately 50 miles (80 km) apart in rural areas and 15 miles (24 km) apart in the metropolitan areas. Additional or more closely spaced stations would negatively affect travel times and the ability to operate both express and local services.

Several key factors were considered in identifying potential station stops, including speed, cost, local access times, potential connections with other modes of transportation, ridership potential, and distribution of population and major destinations along the route. Again, the ultimate locations and configurations of stations cannot be determined until the project-level environmental process has been completed.

A description of each segment of the high-speed network is provided below:

- **Los Angeles to San Diego Via the Inland Empire**

  The preferred alignment for high-speed train service between Los Angeles and San Diego goes east from Los Angeles to the Inland Empire (Riverside and San Bernardino counties) using existing rail corridors, and then would continue south from Riverside using the Interstate 215/Interstate 15 highway corridor through Escondido. To reach downtown San Diego, the high-speed train alignment would use the coastal rail corridor via a connection to the I-15 corridor utilizing either the Carroll Canyon or Miramar Road alignment. The preferred high-speed train terminus station site for serving Los Angeles would be at Los Angeles Union Station (LAUS). The LAUS station would be an elevated structure constructed over the current Metrolink and Amtrak tracks. LAUS is the primary transit/rail transportation hub of Southern California for Metrolink, Los Angeles Metro Red Line, the Pasadena Gold Line, Amtrak, and the regional bus services. In San Diego, the preferred high-speed train terminus station is the San Diego Santa Fe Depot in the heart of downtown which is the transit "hub" station for San Diego and has good connectivity to San Diego International Airport. Between Los Angeles and San Diego, the Authority also selected five preferred intermediate high-speed train stations to serve East San Gabriel Valley (Industry), Ontario Airport, Riverside, the Temecula Valley (Murrieta), Escondido, and Northern San Diego (University City).

**Figure 2.2 A simulation of the high-speed train traveling though Mission Bay in San Diego**

## Los Angeles to Orange County

Direct service to Orange County as far south as Irvine along the LOSSAN corridor is the preferred alignment for high-speed train service between Los Angeles and Orange County. At the project-level, both shared-use and dedicated alternatives are being investigated which maximize use of the existing rail right-of-way. There is considerable support for direct high-speed train service between Los Angeles and Anaheim, and the Orange County Transportation Authority (OCTA) is a funding partner with the Authority, providing $7 million towards the completion of the project-level document for this portion of the high-speed train system. However, extending the high-speed train service south of Anaheim to Irvine is unlikely as a result of significant concerns raised by the cities of Orange, Santa Ana and Tustin. Per the agreement with OCTA, the current project-level work between Los Angeles and Orange County terminates at Anaheim. The ARTIC (Anaheim Regional Transit Intermodal Center) station location which will be the transit hub station for Central Orange County is the preferred high-speed train terminus station for Anaheim. A potential intermediate station would be at either the Norwalk (Metrolink) or Fullerton (Amtrak/Metrolink) station areas.

**Figure 2.3 A simulation of a grade-separated intersection with the high-speed train passing overhead**

## Tehachapi Crossing: Los Angeles to Bakersfield

From LAUS to Santa Clarita, the MTA/Metrolink corridor is the preferred alignment. Between LAUS and Burbank, the MTA/Metrolink refers to a relatively wide corridor within alignment variations which are being studied at the project-level. North of this, one of the major challenges for a statewide high-speed train system is crossing the Tehachapi Mountains from Santa Clarita to Bakersfield. The preferred high-speed train alignment is the Antelope Valley which crosses the Tehachapis through the Mojave Pass (SR-58 corridor), minimizes tunneling, seismic constraints and risks and environmental impacts. The Palmdale Airport/Transportation Center is the preferred high-speed train station location to serve the Antelope Valley population and maximize connectivity with Palmdale Airport. In the Los Angeles basin, preferred intermediate high-speed train stations were selected at Sylmar (Metrolink) to serve the San Fernando Valley, Simi Valley and Newhall/Santa Clarita areas and downtown Burbank (Metrolink) to serve the Burbank/Glendale area.

**Figure 2.4 A simulation of the high-speed train traveling through Tehachapi Mountains**

## Central Valley: Bakersfield to Sacramento

The preferred alignment through the Central Valley between Sacramento and Bakersfield would generally utilize one of the two existing freight rail corridors. Between Sacramento and Fresno, the UPRR alignment is the preferred alternative, primarily because of it best serves downtown high-speed train station sites at Stockton, Modesto, Merced and Fresno. From Fresno to Bakersfield, the BNSF alignment is preferred because it would have fewer constructability issues and urban impacts. The Authority and FRA will continue to study both rail corridors throughout the project-level analyses. Preferred downtown, multi-modal stations have been selected throughout the Central Valley at Sacramento, Stockton, Modesto, Merced, Fresno and Bakersfield. There is great interest in the Central Valley for an additional high-speed train stop to serve Tulare and Kings counties in the Visalia/Hanford/Tulare area. Additional study has shown that there are feasible and practicable alignment alternatives to serve such a high-speed train station. Therefore, a potential Visalia/ Hanford/Tulare high-speed train station will be fully evaluated as part of the project-level environmental review.

## Bay Area Access: Northern Mountain Crossing

The optimum corridor for serving the San Francisco Bay Area is an alignment from the Central Valley through the Pacheco Pass, in the vicinity of State Route 152. This alignment would head west from the State Route 99 Corridor north of Fresno. At the project-level, the Authority and FRA will continue to seek and evaluate alignment alternatives using the Pacheco Pass that would minimize or avoid impacts to the Grasslands Ecological Area (GEA) and has committed to acquiring agricultural, conservation, and/or open space easements for potential impacts in and around the GEA. From Gilroy to San Jose, the alignment would utilize the existing Caltrain rail corridor. Diridon Station in downtown San Jose is a multi-modal transportation hub that maximized connectivity to transit and other rail modes as well as San Jose International Airport and is the preferred high-speed train station location for serving San Jose and the Southern Bay Area. The Gilroy (Caltrain) Station location is the preferred high-speed train station to serve Southern Santa Clara County and the Monterey Bay Area.

**Figure 2.5 A simulation of the high-speed train entering and exiting a tunnel**

## San Jose to San Francisco

Along the San Francisco Peninsula between San Francisco and San Jose, the high-speed train system would utilize the Caltrain rail right-of-way and is expected to share tracks with express commuter rail services. This segment is assumed to have four tracks, with the two middle tracks being shared by Caltrain and the high-speed train, and the outer tracks being used by Caltrain. The high-speed train could operate at maximum speeds of 100-125 miles per hour along the Peninsula and providing 30-minute express travel times between San Francisco and San Jose. Environmental impacts would be minimized since this alignment utilized the existing Caltrain right-of-way. The high-speed train system would provide a safer, more reliable, energy-efficient intercity mode along the San Francisco Peninsula while improving the safety, reliability, and performance of the regional commuter service because of the fully grade-separated tracks with fencing to prevent intrusion, additional tracks, and a state-of-the-art signaling and communications system. The preferred terminus station location at Transbay Transit Center in downtown San Francisco is located in the heart of the financial district in San Francisco. This multi-modal station will serve as the regional transit hub for San Francisco. A direct connection to San Francisco International Airport would be provided at the preferred Millbrae high-speed train station, and the Authority will continue to investigate a mid-Peninsula high-speed train station that would be located at either the Redwood City or Palo Alto Caltrain station area.

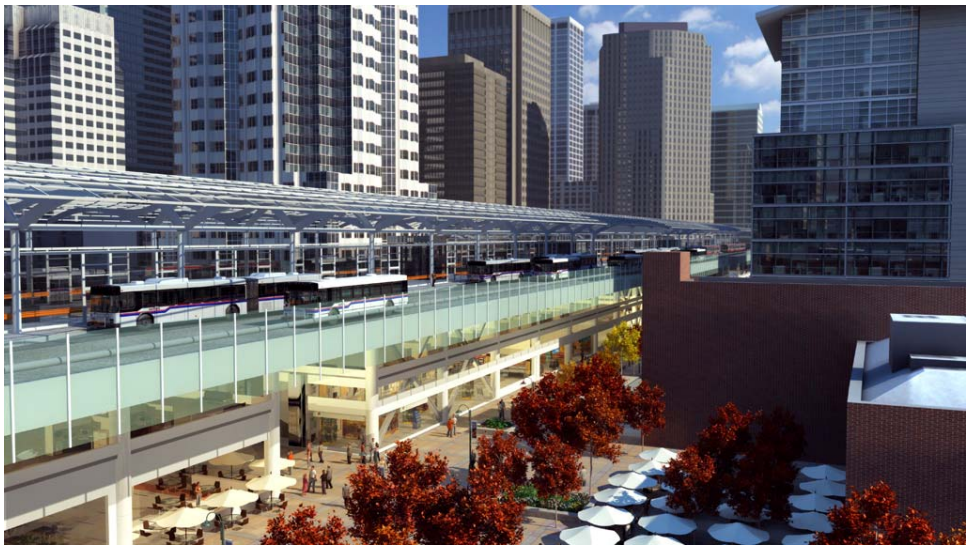

**Figure 2.6 A simulation of the San Francisco Transbay Terminal**