Welcome to the California High-Speed Rail Authority's Public Information Meeting

Merced to Fresno High-Speed Train Project

CALIFORNIA HIGH-SPEED RAIL AUTHORITY

U.S. Department of Transportation
Federal Railroad Administration

Purpose and Need

Purpose of the High-Speed Train Project

- Provide a new mode of high-speed intercity travel that would link the Central Valley to the Bay Area and Southern California
- Interface with international airports, mass transit, and highways
- Provide added capacity to meet increases in intercity travel demand in California in a manner sensitive to and protective of California's unique natural resources

Current and Projected Need

- Expected growth in population
- Increases in intercity travel demand
- Increases in travel delays arising from the growing congestion on California's highways and airports
- Intercity highway system, commercial airports, and conventional passenger rail serving the intercity market at or near capacity
- Negative effects on the economy, quality of life, and air quality in the San Joaquin Valley from highway and airport congestion

What are High-Speed Trains?

- Intercity passenger trains operating at speeds up to 220 miles per hour
- Tracks separated from roads and highways
- Proven Technology
  - Safe and Reliable
  - Successfully operating throughout Europe and Asia

California High-Speed Train Concept

Other High-Speed Trains Around the World

Shinkansen, Japan

TGV, France

Intercity Express, Germany

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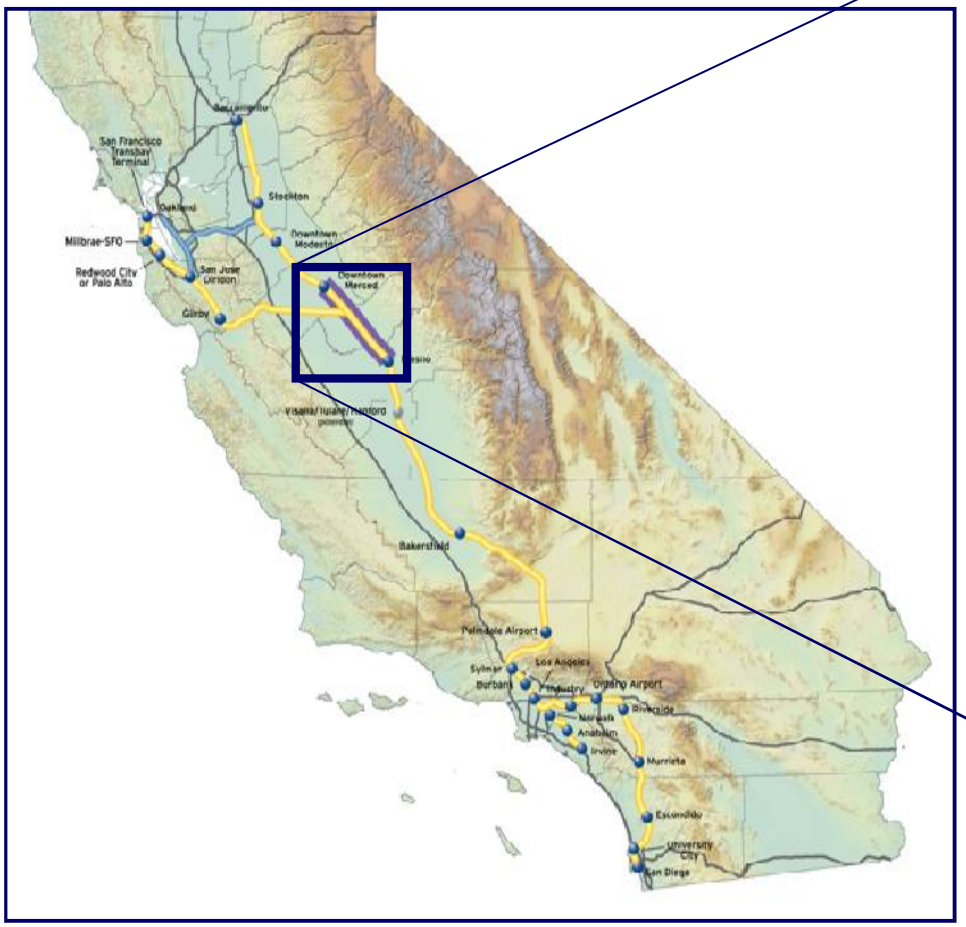
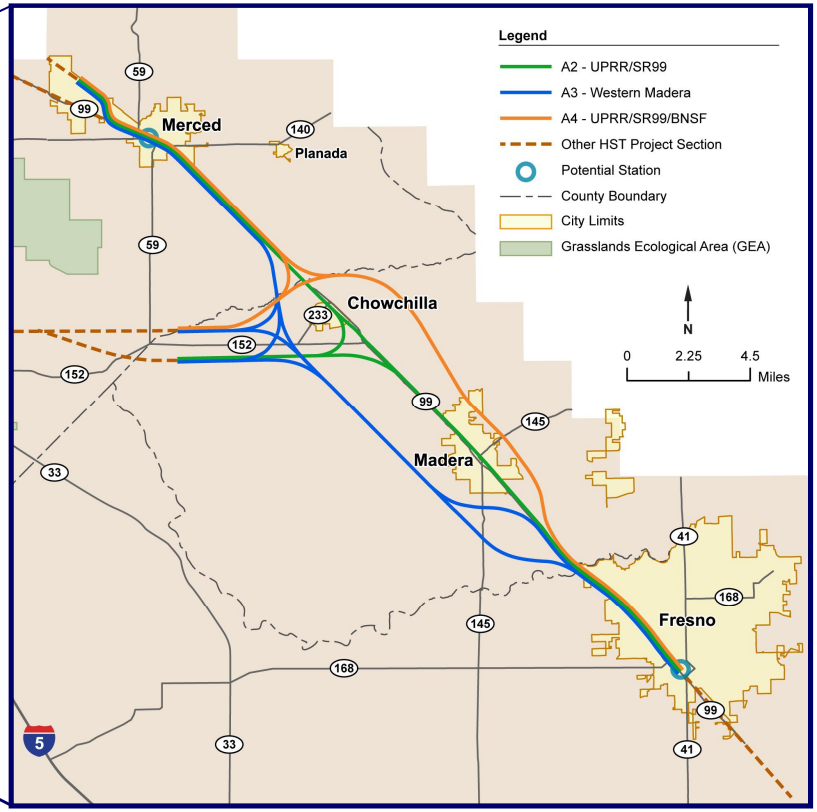
Merced-to-Fresno Section



Statewide Map



Project Vicinity

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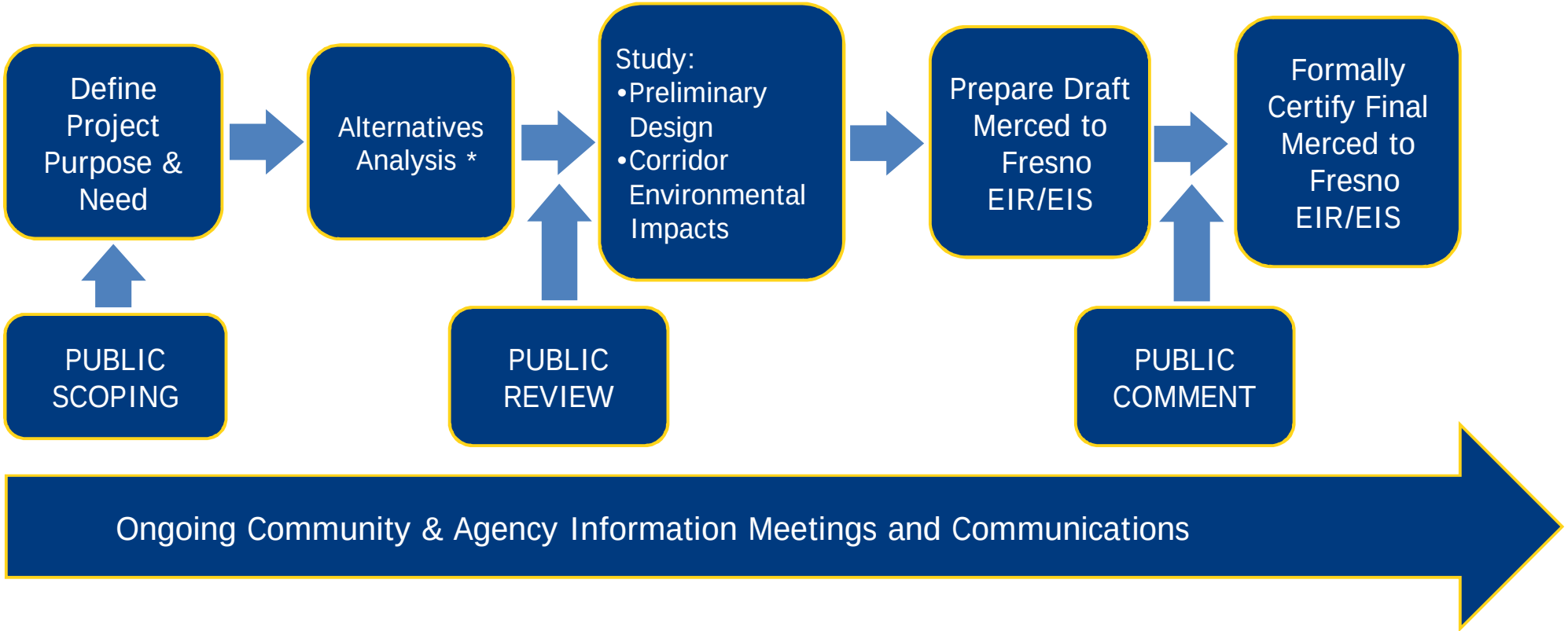
HST Project Process

Merced to Fresno HST Project
Environmental Impact Report/
Environmental Impact Statement (EIR/EIS)



* See separate board

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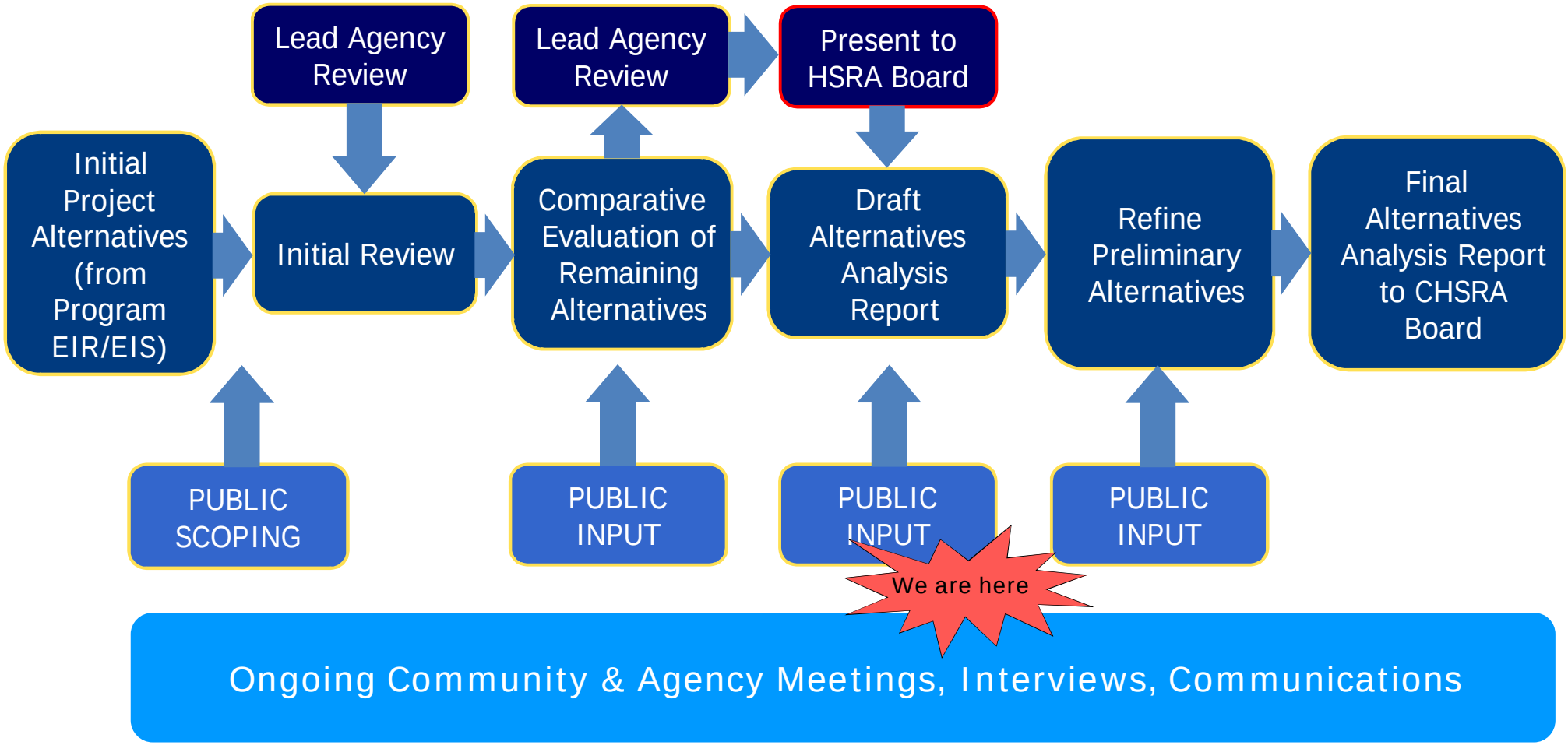
Alternatives Analysis Process



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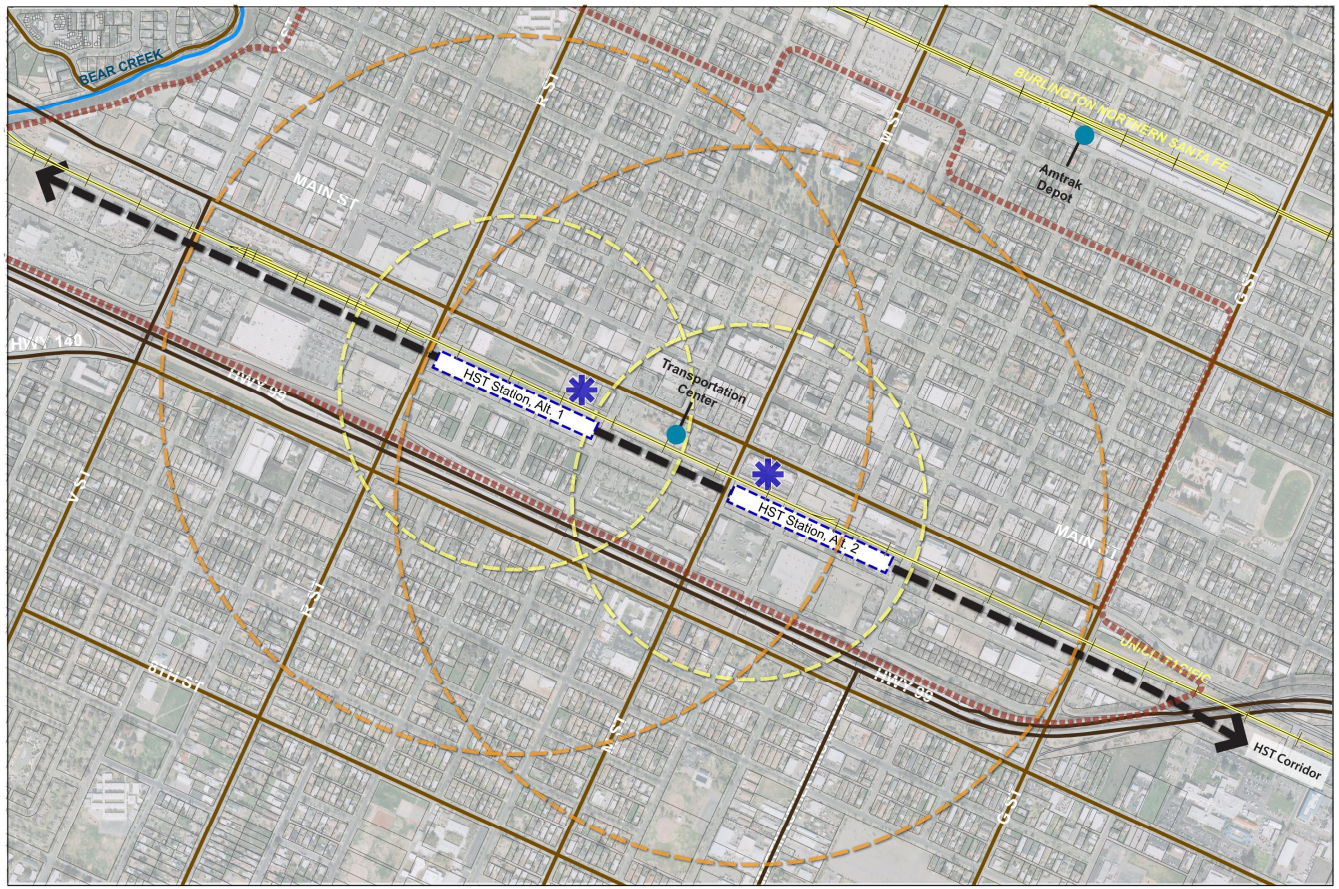
Downtown Merced HST Station Location



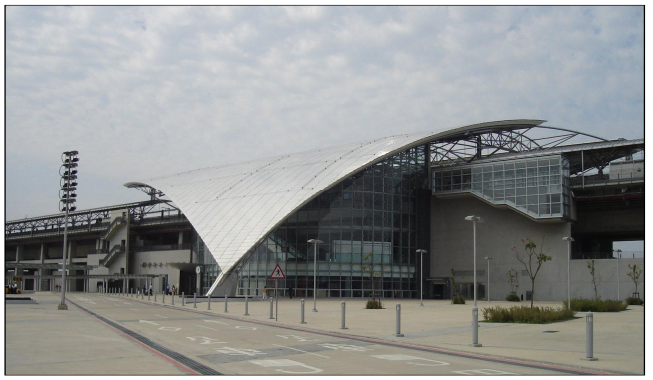
Legend

- Downtown District Boundary
- Freeways
- Major Roads
- Rivers & Streams
- Railroads
- Existing Transit Stations
- Proposed HST Line
- Proposed HST Station
- 1/4 Mile Planning Area
- 1/2 Mile Planning Area
- Proposed HST Station Entrance Locations

Proposed Downtown Station Site Area Alternatives

N

0 250 500 1,000 Feet



Example Station Exterior

Station Construction in Korea

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Economic Impact on Central Valley

- $3.4 billion direct savings
- $48 billion income increase

The Economic Impact of the California High-Speed Rail in the Sacramento/Central Valley Area

KEY RESEARCH FINDINGS

Prepared by:

Shawn Kantor, Ph.D.
County Bank Professor of Economics
University of California, Merced

September 2008

- **Direct cost savings to Central Valley travelers and society attributable to high speed train:**
  - shift to less costly means of transportation – $780 million
  - reduced freeway congestion – $2.2 billion
  - reduced airway congestion – $7.6 million
  - accident reduction – $366 million
  - pollution abatement – $48 million
- **Economic benefits of high speed train to Central Valley communities**
  - modest effect on population growth, except in Madera and Merced Counties
  - modest effect on employment growth, except in Madera and Merced Counties
  - pronounced effect on service, transportation, communications and utilities (TCU), and finance, insurance, and real estate (FIRE) sectors in the Central Valley region
  - significant effect on service, TCU, FIRE industry sectors in the Southern San Joaquin region
  - direct expenditures within the Central Valley to construct HST system estimated between $6 and $16 billion
  - potential income gain to Central Valley regions from market integration of $48 billion annually
    - translates to $2.2 billion in new state income tax revenue
    - translates to $333 million in new sales and use tax, $45 million flowing to counties and cities
  - value of real property would rise with reduced transportation costs and increased accessibility
    - more pronounced in cities with station stops and with plans for Transit Oriented Development
  - given nature of state's public finance, Central Valley residents will pay between 16 and 25% of state investment in HSR
- **High speed train's enhancements to the quality of life in the Central Valley**
  - revitalization of downtown districts
  - modest impact on urbanization
  - use of existing transportation corridors will consume less open space than freeway development
  - will lead to fewer vehicle and airplane miles travelled
    - pollutants will be reduced 8% in the Central Valley and up to 4% in the Bay Area

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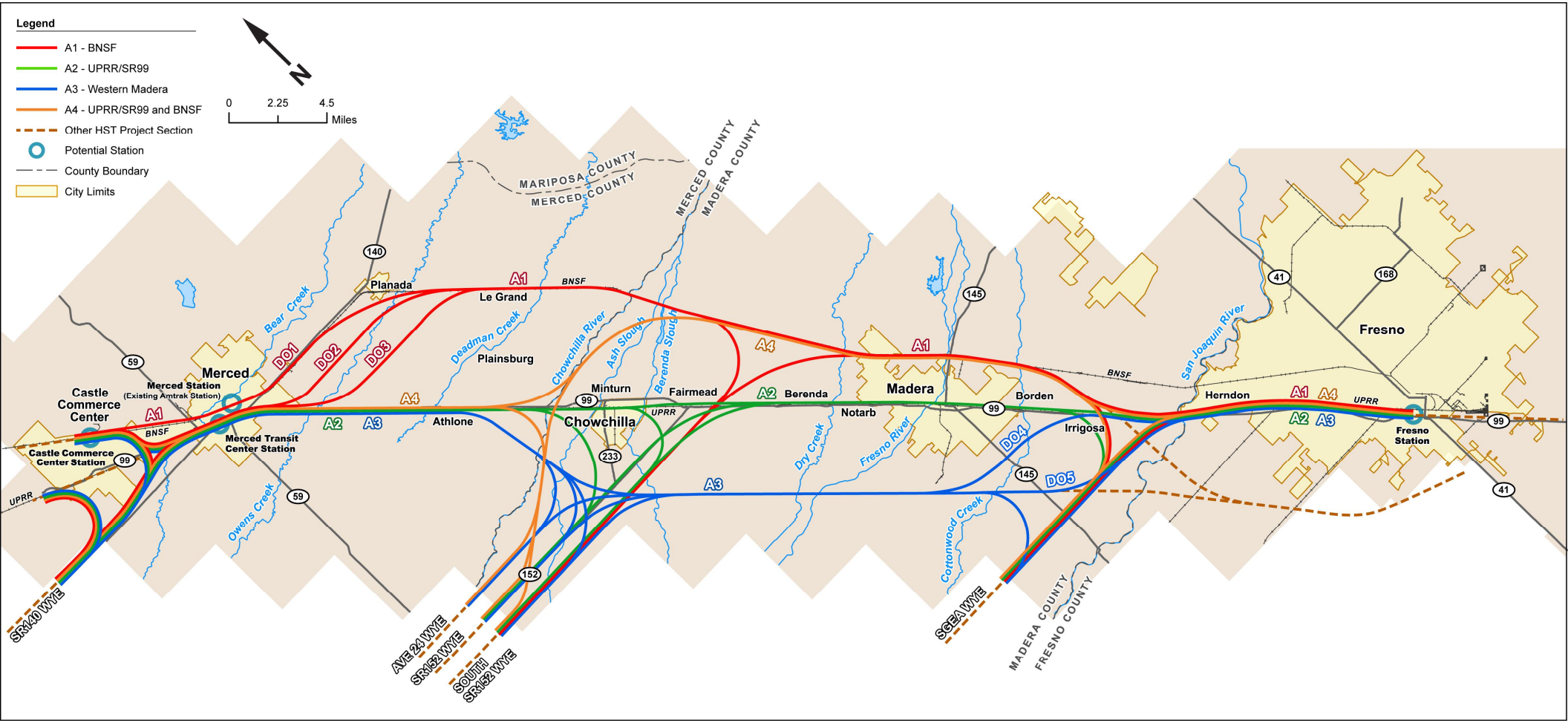
Alignment Alternatives Considered



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Evaluation Measures

- Travel time
- Cost to construct
- Natural environment impacts
- Cultural resource impacts
- Community impacts
- Agency and community support
- Constructability

Madera County Courthouse

Merced Old Library

Chowchilla River

San Joaquin River Crossing

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Evaluation Results

Alternative A1: Not carried forward

- Slowest travel time, highest cost, high agricultural impacts, highest residential impacts; not supported by resource agencies

Alternative A2:

- Second best travel time, fewest habitat impacts, regulatory agency support, high cost

Alternative A3:

- Fastest travel time, fewest community impacts, high agricultural impacts, lowest cost

Alternative A4:

- Second slowest travel time, high cost, no environmental advantages, low resource agency support

Evaluation Results

Criteria	Project Goals	Measurements	Alternative A2	Alternative A3		Alternative A4
			South SR152 Wye	Avenue 24 Wye [1]	South SR152 Wye [1]	Avenue 24 Wye
Travel Time (Fractional Hours)	Maintain high speed to Fresno from San Francisco	San Luis Reservoir to Fresno	23.9	23.8	23.7	25.4
	Maintain high speed to Merced from San Francisco	San Luis Reservoir to Merced	19.5	16.8	17.8	17.8
	Maintain high speed within Central Valley	Merced to Fresno	18.2	20.2	20.2	20.7
Costs	Minimize operating and capital costs	Total length of Alternative (including wye)	80	76	77	82
		Cost to construct (millions)	$2,206	$1,411 - $1,439	$1,411 - $1,370	$2,055
		Cost indexed to baseline	1.6	1.1	1.0	1.5
Community Impacts	Minimize effects on agricultural business	**Agriculture**				
		Number of parcels of Prime Farmland potentially affected	133	171 - 181	162 - 172	130
		Acres potentially impacted Prime Ag Land	312	494 - 539	453 - 498	481
		Percent of Prime Farmlands (370,776 acres)[2]	0.08%	0.13%	0.12%	0.13%
	Minimize disruptions to neighborhoods and communities	**Commercial/Industrial**				
		Acres potentially impacted Commercial/ Industrial lands	17/19	11/9	11/9	13/9
		Number of business parcels potentially affected	143	115 - 123	115 - 123	117
		Residential				
		Acres potentially impacted	36	27 - 33	30 - 34	52
		Number of residential parcels potentially affected	157	79 - 114	79 - 114	144
		Approximate population potentially affected [3]	515	260 - 370	260 - 370	480
Natural Resources	Minimize effects on natural resources	Estimate of acres of wetlands, including vernal pools, within alternative	9	9 - 10	9 - 10	12
		Linear feet of waterways, measured by length of bridge crossings	5,200	5,590 - 5,750	5,090 - 5,250	6,280
		Acres of potential threatened and endangered habitats affected and acres of natural areas / critical habitat affected within 300 feet of each side of the centerline of the alternative	126	125 - 201	125 - 201	169

1) Range with Design Options 4 and 5

2) Available Prime Acres in Merced and Madera County

3) Average household size for Merced County is 3.3 and for Madera County is 3.23 (U.S. Census Bureau 2006-2007 American Community Survey 3-Year Estimates)

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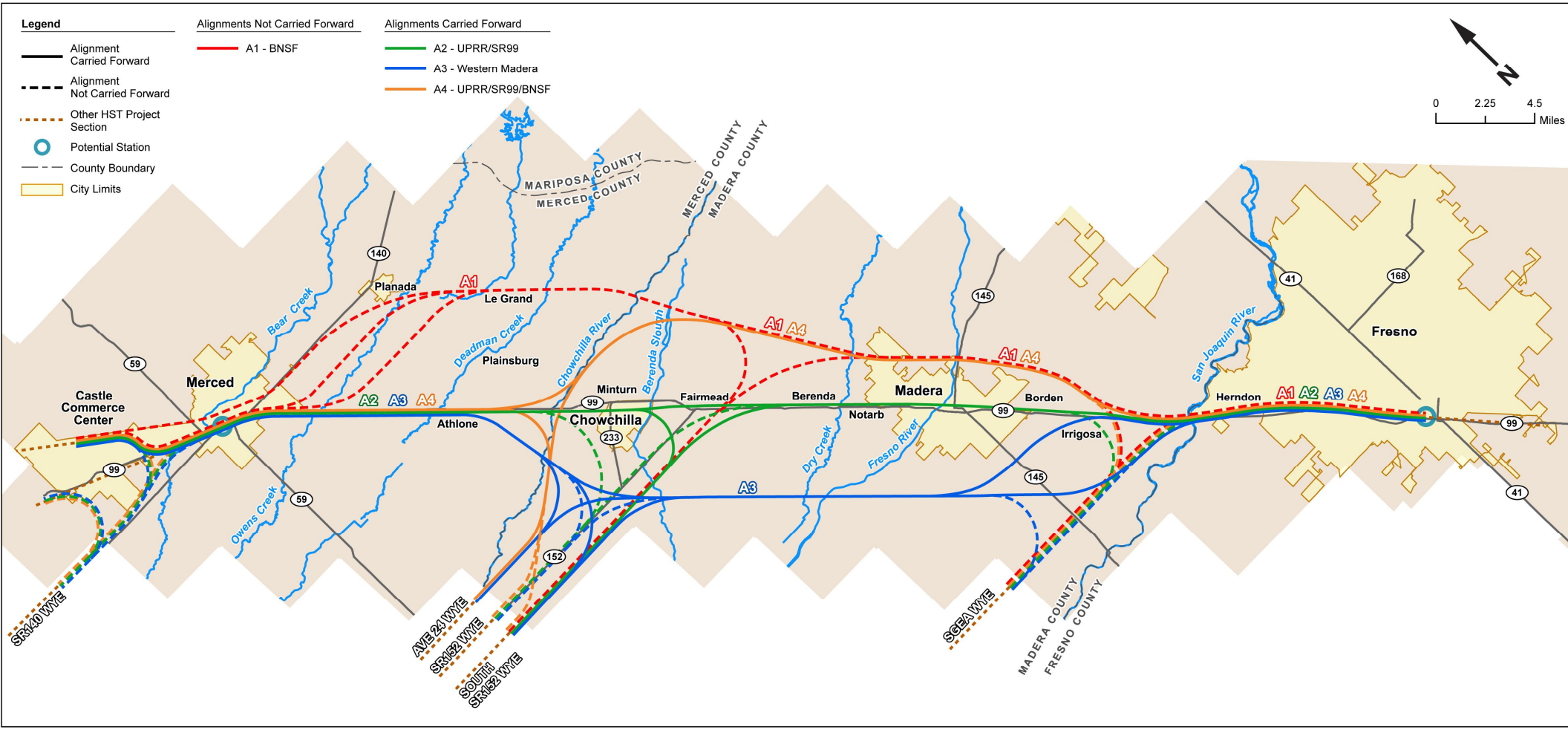
Alternatives A2, A3 and A4 Selected for Further Study



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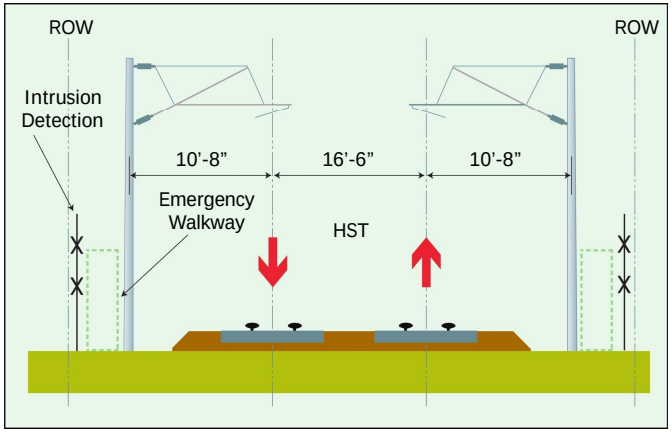
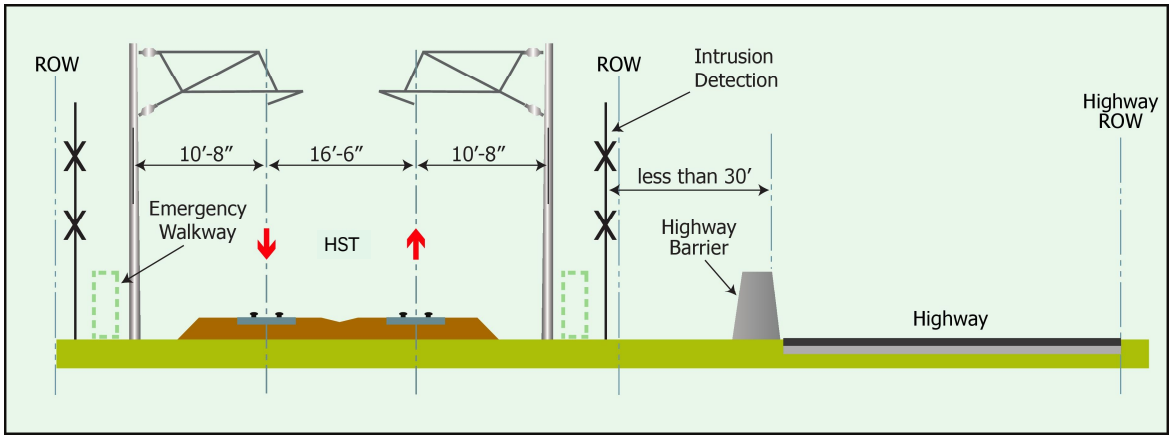
Typical Sections Along Alignment

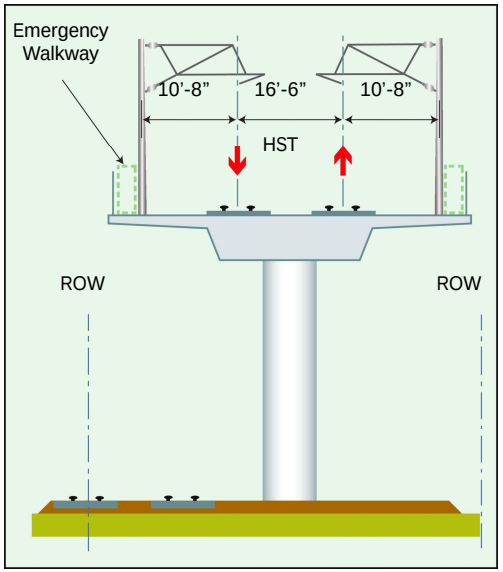
At-Grade Section



Shared Highway Corridor

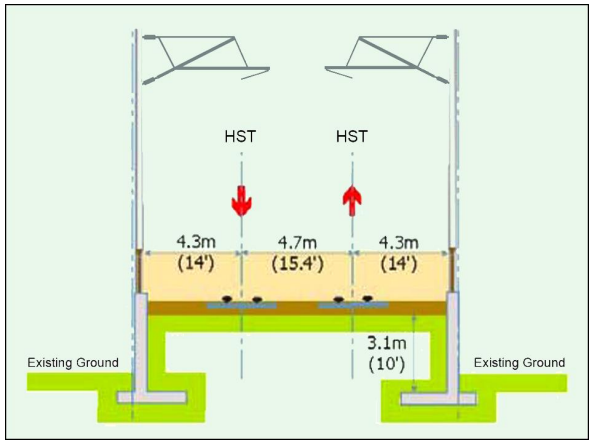


Aerial Structure



- Portions of the alignment will need special structures to fit into built environment
- Structures could include:
  - Aerial structures (bridges)
  - Embankments (retained fill)
  - At grade

Embankment (Retained Fill)



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Flexibility of Design









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Flexibility in Design






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Grade Separations

Before
Typical Underpass
After

- Grade separations are underpasses and overpasses where roadways cross railroad tracks
- Grade separations reduce congestion and noise and improve safety
- California High-Speed Rail tracks will be grade-separated from adjacent roadways

Typical Overpass

Grade Separated from Roadway

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Environmental Review Process

The Environmental Review Process and planning activities associated with the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA) will:

- Identify all environmental impacts
- Evaluate reasonable alternatives that could avoid or minimize environmental impacts
- Develop detailed mitigation (ways to reduce or avoid environmental impacts)
- Provide information for public review and comment
- Disclose to decision makers the impacts, mitigation, and public comments

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Farmland Resources

High-speed train project could potentially affect farmlands by:

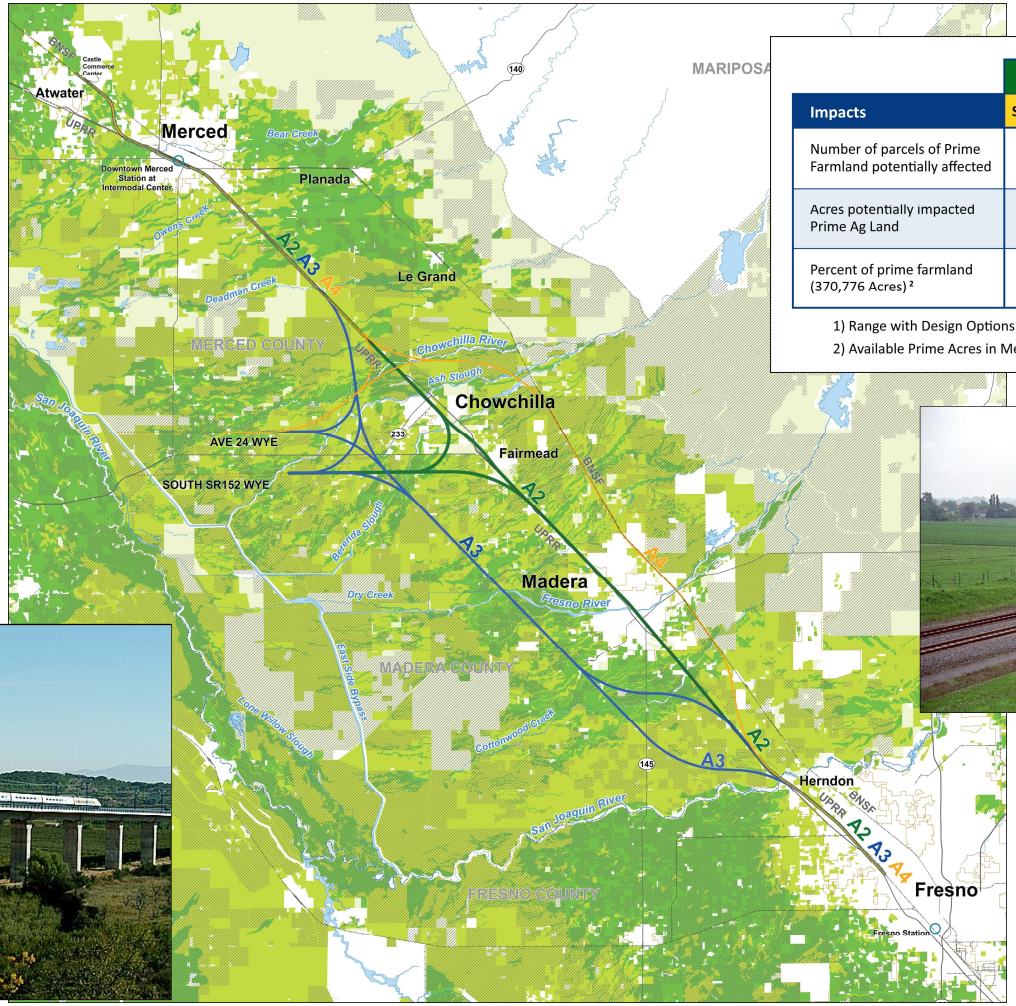
- Acquiring farmland for right-of-way (consider Williamson Act contracts)
- Severing parcels and access
- Increasing cost of farming operations

Mitigation measures to be considered

- Avoiding farmlands (such as by aligning HST features adjacent to existing road and rail rights-of-way)
- Reduce width of right-of-way
- Preserve access through HST for farm equipment
- Provide easements for irrigation piping

Agricultural benefits of HST

- Reducing pressure for farmland conversion to urban uses by fostering higher-density development around HST stations



Impacts	Alternative A2	Alternative A3		Alternative A4
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Percent of prime farmland (370,776 Acres) [2]	0.08%	0.13%	0.12%	0.13%

1) Range with Design Options 4 and 5.
2) Available Prime Acres in Merced and Madera County

1) Williamson Act designation based on recent parcel data from the Assessor's Offices for Merced County, Madera County, and Fresno County. Williamson Act lands are those designated as Farmland Security Zone Land, Prime Agricultural Land, and Non-Prime Agricultural Land. Williamson Act lands in non-renewal are not shown.

2) Farmland as defined by the California Department of Conservation, Farmland Mapping and Monitoring Program (FMMP). FMMP data is for general planning purposes, and has a minimum mapping unit of 10 acres. "Other Important Farmland" includes the following FMMP categories: Farmland of Statewide Importance, Farmland of Local Importance, and Unique Farmland. "Other Lands" category includes the following FMMP categories: Grazing Lands and Other Land. Based on FMMP GIS data for Merced County (2006), Madera County (2008), and Fresno County (2006).

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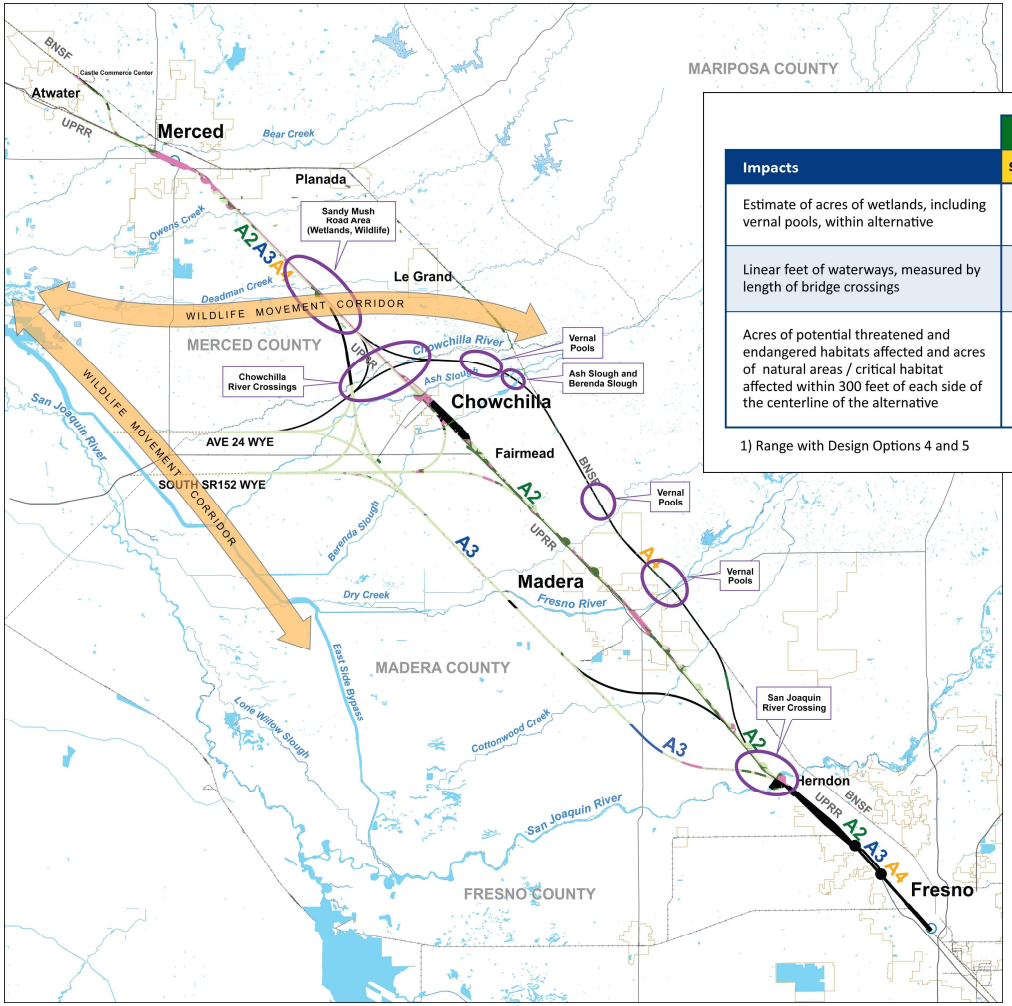
High-Value Habitat Resources

High-speed train project could potentially affect high-value habitat and protected species by:

- Removing habitat and protected species for railway right-of-way
- Construction and operation of the high speed train could disturb protected wildlife species, e.g., as a result of noise, and impede migration corridors
- Protected wildlife species include the Swainson's hawk, burrowing owl, nesting birds, San Joaquin kit fox, bats, California tiger salamander, several species of vernal pool fairy shrimp, valley elderberry longhorn beetle, steelhead, and salmon
- Changing wildlife corridor movements
- Protected plant species include succulent owl's clover, Colusa grass, San Joaquin Valley Orcutt grass, and Greene's tuctoria

Mitigation measures to be considered

- Avoid or minimize construction in wildlife habitats and wetlands (such as by using aerial structures or large culvert passages)
- Construct the high speed rail allowing continued passage of wildlife
- Preserve habitat



Impacts	Alternative A2	Alternative A3		Alternative A4
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Acres of potential threatened and endangered habitats affected and acres of natural areas / critical habitat affected within 300 feet of each side of the centerline of the alternative	126	125 - 201	125 - 201	169

1) Range with Design Options 4 and 5

Legend
- A2 Alternative A2
- A3 Alternative A3
- A4 Alternative A4
- Potential Station
- National Wetlands Inventory (May, 2009)
- Wildlife Movement Corridor

Preliminary Field Survey Results (CH2M HILL, 2009, unpublished)
- Farmland (Including Pastures)
- Natural Habitat (Including Trees, Grassland, Wetlands, Waters of the United States)
- Developed
- Data Not Available
- Water (Including Ponds, Canals, Irrigation Ditches)

N
0 1.5 3.0 4.5 6.0 Miles

Wetlands data from National Wetland Inventory (May 2009).

Habitat mapping based on field reconnaissance conducted in 2009 (CH2M HILL, unpublished).

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Community Impacts

High speed train project effects on community could include:

- Potential noise impacts—brief noise from the aerodynamic movement of air from high train speeds
- Potential bifurcation of neighborhoods—no crossings at undesignated locations
- Potential visual effects of elevated structures
- Construction disturbances

Methods of minimizing effects on community

- Avoid residential corridors when possible
- Plan for future road crossing needs or maintain transportation network by being elevated
- Minimize elevated structures where practical, or integrate structures within urban centers

High speed train project benefits to community

- Economic connectivity/attraction
- Enhance intercity accessibility
- Reduce dependence on non-sustainable fuels
- Improve air quality
- Provide more travel choices

	Alternative A2	Alternative A3		Alternative A4
Impacts	**South SR152 Wye**	**Avenue 24 Wye [1]**	**South SR152 Wye [1]**	**Avenue 24 Wye**
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1) Range with Design Options 4 and 5

2) Available Prime Acres in Merced and Madera County

3) Average household size for Merced County is 3.3 and for Madera County is 3.23 (U.S. Census Bureau 2006-2007 American Community Survey 3-Year Estimates)

Community Impact are the effects of a transportation action on a community and its quality of life. Community impacts include all items of importance to people, such as aesthetics, noise and vibration, mobility and access, safety,. employment effects, relocation, isolation and other community issues specific to each project

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Public Participation — How to Comment

Thank you for attending today's public information meeting. Please fill out a comment sheet, hand it to a staff person or leave it in the comment boxes provided at each station.

If you want to comment outside the meeting, here is how to provide input:

Written Comments –

California High-Speed Rail Authority
Ms. Carrie Bowen, Regional Director
Attn: Merced to Fresno
HST Project EIR/EIS
925 L Street, Suite 1425
Sacramento, CA 95814

Emailed Comments –

California High-Speed Rail Authority
comments@hsr.ca.gov
Include in the subject line:
Merced to Fresno HST

For more project information visit the authority's website:

www.cahighspeedrail.ca.gov

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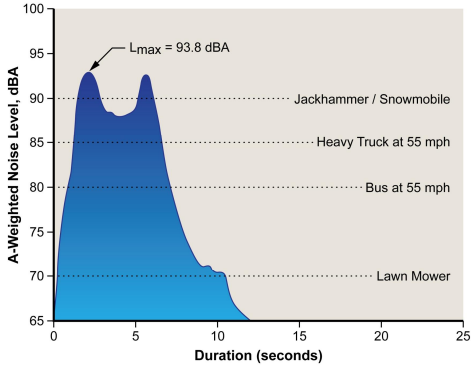
High Speed Train Noise

High-speed train noise

Noise generated by a high-speed train pass-by consists of:

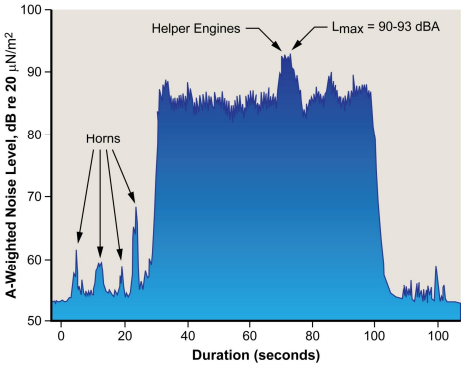
- Electric propulsion system (factor at lower than 160 mph)
- Wheel/rail interactions (factor at lower than 160 mph), and
- Aerodynamic noise from airflow moving past the train (primary factor at speeds higher than 160 mph)

Typical high-speed train noise passing by at 180 mph, 82 feet from track (TGV in France)

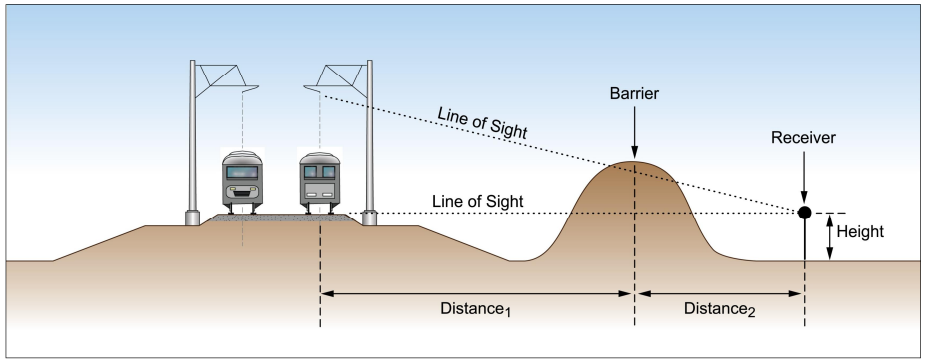


USDOT, 2005. High-Speed Ground Transportation Noise and Vibration Assessment October 2005, Office of Railroad Development, Washington D.C.

Typical freight train noise passing by at 67 mph, 100 feet from track (Lancaster to Rosamond, CA)



Minor, Michael. Assessment of Noise Environments Around Railroad Operations, Wyle Laboratories.



HST Noise Barrier Model

Mitigation Measures for high-speed train noise

Effective noise control treatment for steel-wheeled high-speed rail systems will include:

- Design and maintenance techniques to maintain lowest noise generation
- Installation of noise barriers, such as sound walls or earthen berm

Noise Barriers along Railways

Benefits of HST operations

Road crossings will be designed for trains to go over or under the road, or the road to go over or under the trains:

- No need for warning horns and grade crossing bells because no at-grade road crossings will be allowed
- Local traffic won't have to stop for trains passing
- Public safety, emergency vehicle access is preserved
- No increase in local traffic congestion due to trains

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