

# CALIFORNIA HIGH-SPEED TRAIN SYSTEM



- Provide a new mode of high-speed intercity travel to link major metropolitan areas
- Forecasted to carry as many as 100 million passengers annually by the year 2035
- 800-mile system with stations built to allow for express service
- Service linking the San Francisco Bay Area, Central Valley and Southern California
- 100% clean electric power
- Estimated travel time from San Francisco to Los Angeles: less than 2 hours 40 minutes

**SAN JOSE TO MERCED**

# WHY WE NEED HIGH-SPEED RAIL



## JOBS

- 600,000 full-time, one-year, construction-related job-equivalents
- 5,000 permanent operations and maintenance jobs
- 450,000 economy-wide jobs by 2035

## MOBILITY

- "Economic power is how fast you move people and goods around the state."  
*Gov. Arnold Schwarzenegger, January 15, 2008*

## ENVIRONMENT

- Reduced greenhouse gases
- AB 32: California's 2006 landmark legislation to reduce greenhouse gas emissions 25% by 2020
- Population Growth
- California's population now: 38 million  
By 2035: 50 million



**SAN JOSE TO MERCED**

# WHY WE NEED HIGH-SPEED RAIL



## *We can build...*

- New freeways, airport runways and more departure gates to address our expected population growth

*or*

## *We can achieve...*

- An 800-mile high-speed train system, powered by 100% renewable electricity generated by clean wind and solar energy



**SAN JOSE TO MERCED**

# **DESIGN OBJECTIVES AND EVALUATION CRITERIA**

## **OBJECTIVE**

- **Maximize ridership & revenue potential**
- **Maximize accessibility**
- **Minimize operating and capital costs**

## **CRITERIA**

- **Minimize travel time**
- **Intermodal connections**
- **Minimize route length**

## **EVALUATION MEASURES**

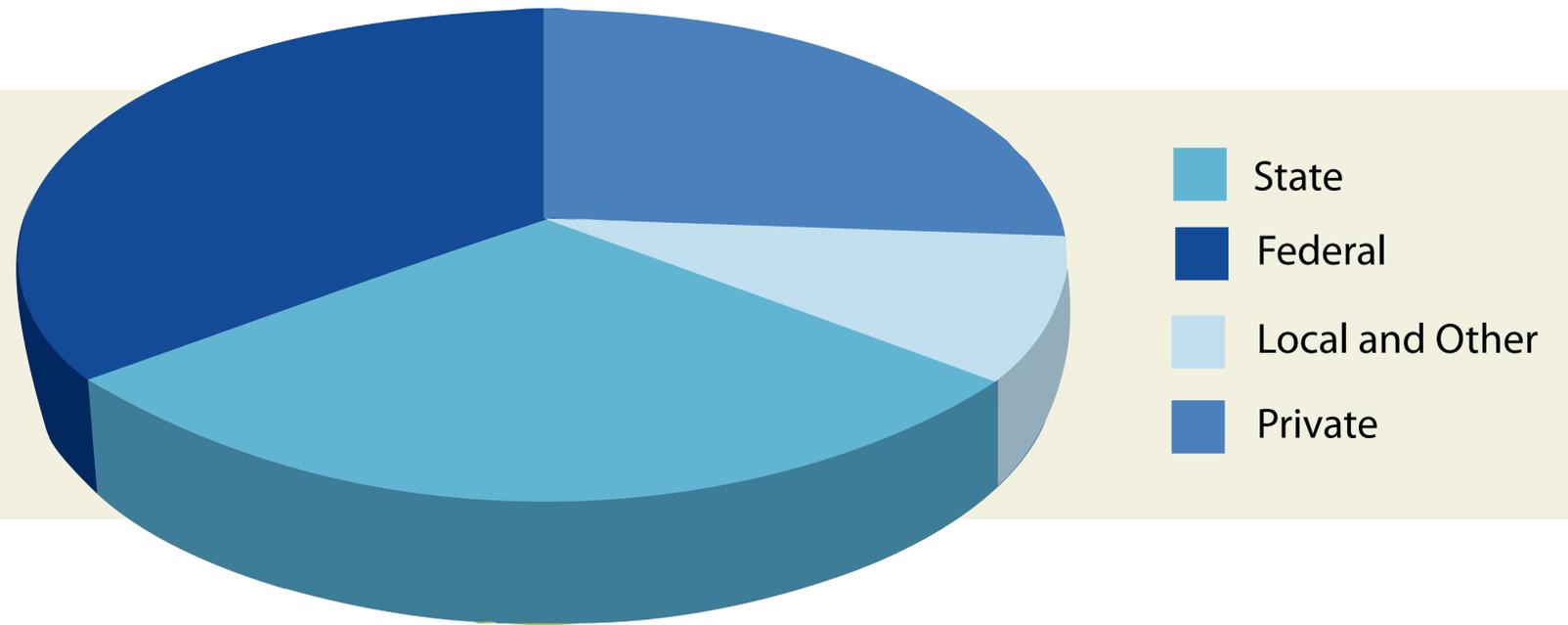
- **Minimize disruption to neighborhoods and communities**
- **Minimize impacts to environmental resources**
- **Minimize impacts to natural resources**
- **Land use**
- **Construction feasibility**

**SAN JOSE TO MERCED**

# PROJECT FUNDING

**PROJECTED OVERALL STATEWIDE CONSTRUCTION COST: \$42.6 BILLION**  
(Anticipated funding sources)

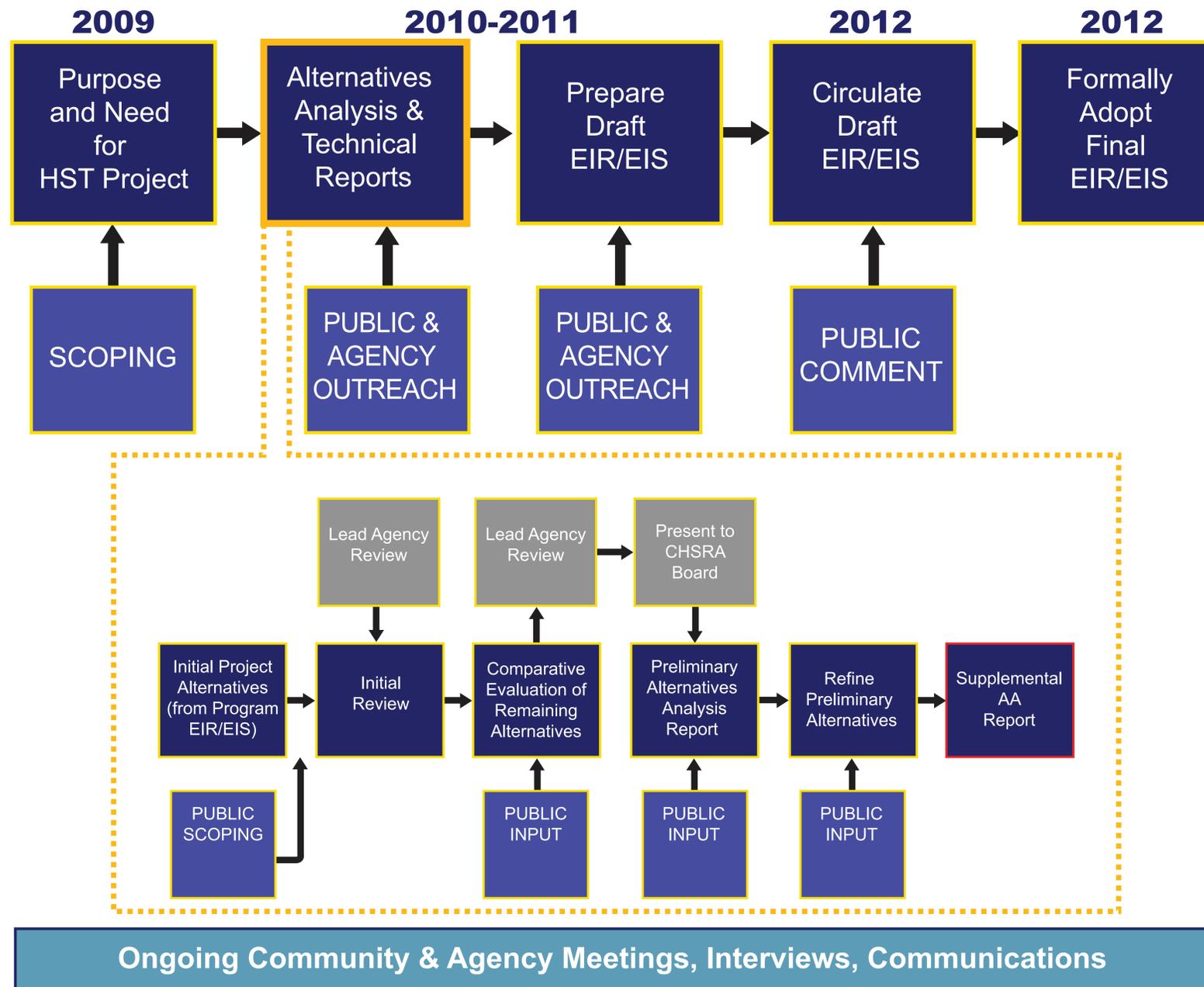
**California Funding: \$9B**  
**Federal Funding: \$17-19B**  
**Local Funding: \$4-5B**  
**Private Investment: \$10-12B**



**SAN JOSE TO MERCED**

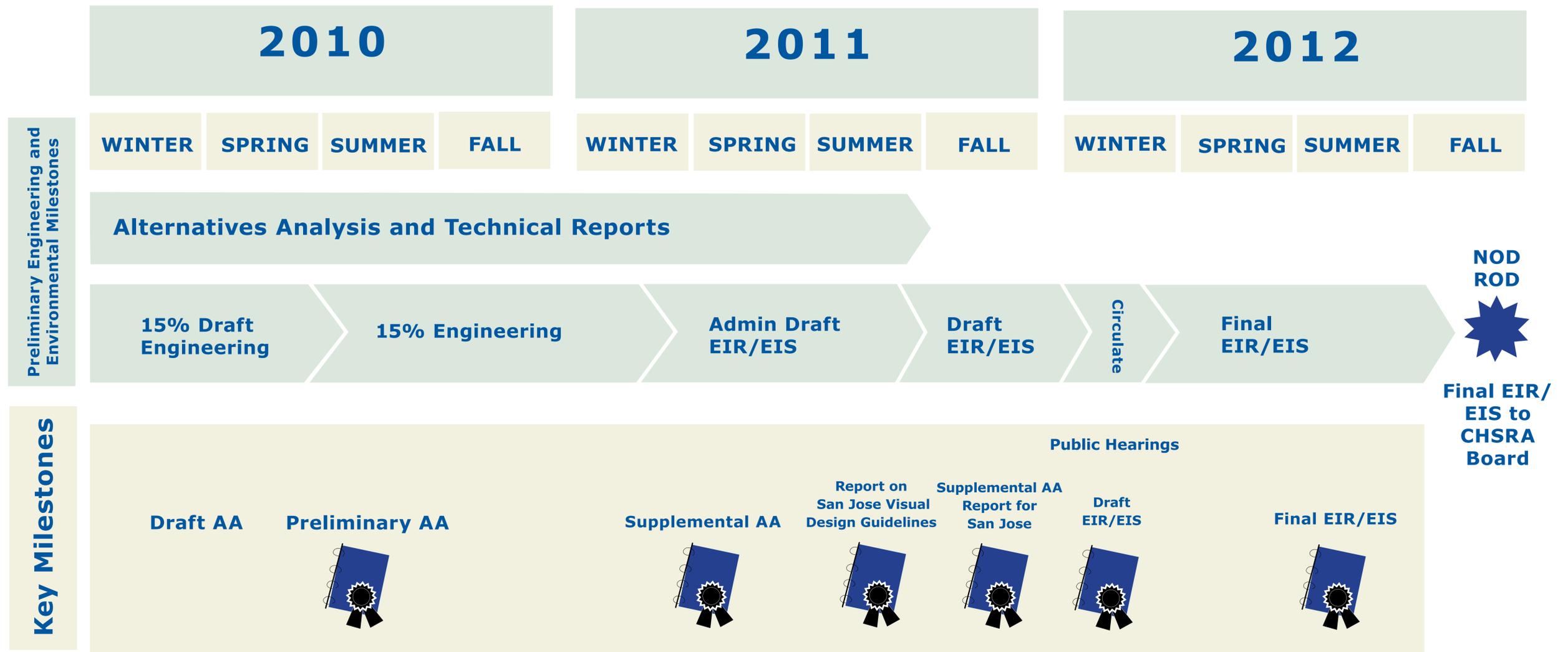


# PROJECT ENVIRONMENTAL REVIEW SCHEDULE AND ALTERNATIVES ANALYSIS PROCESS



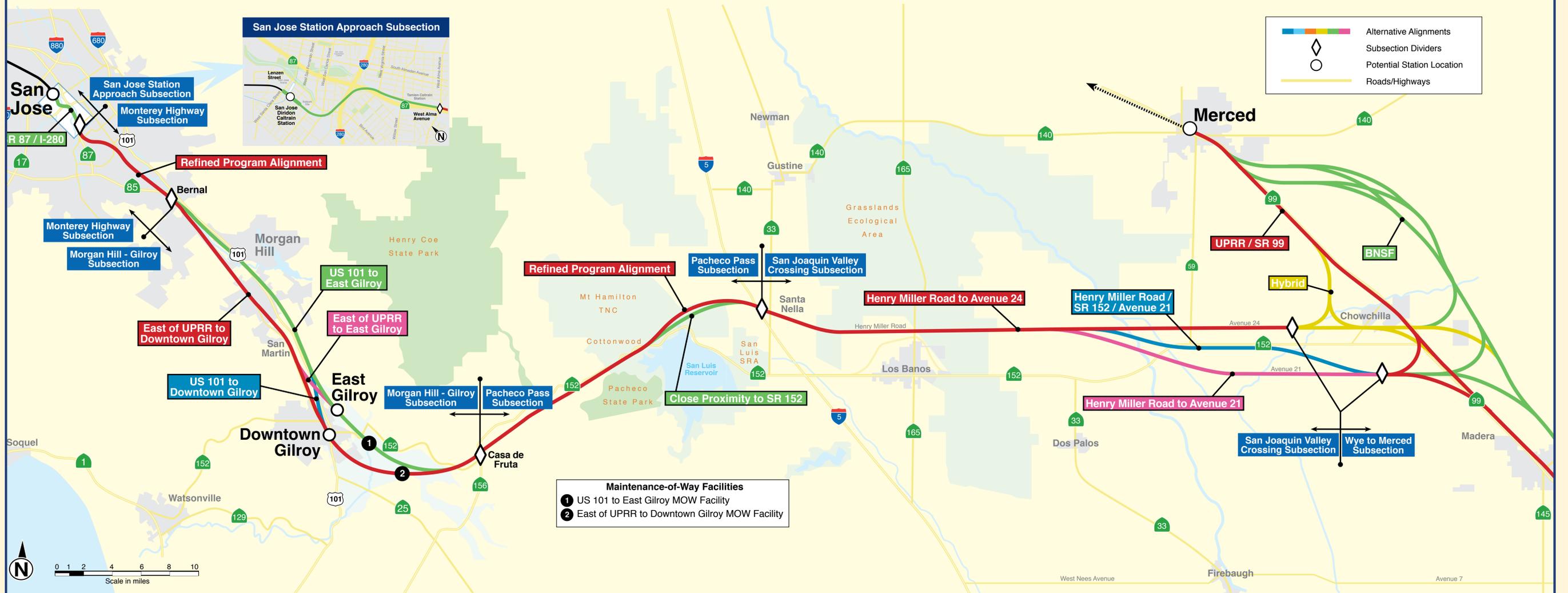
**SAN JOSE TO MERCED**

# NEXT STEPS



**SAN JOSE TO MERCED**

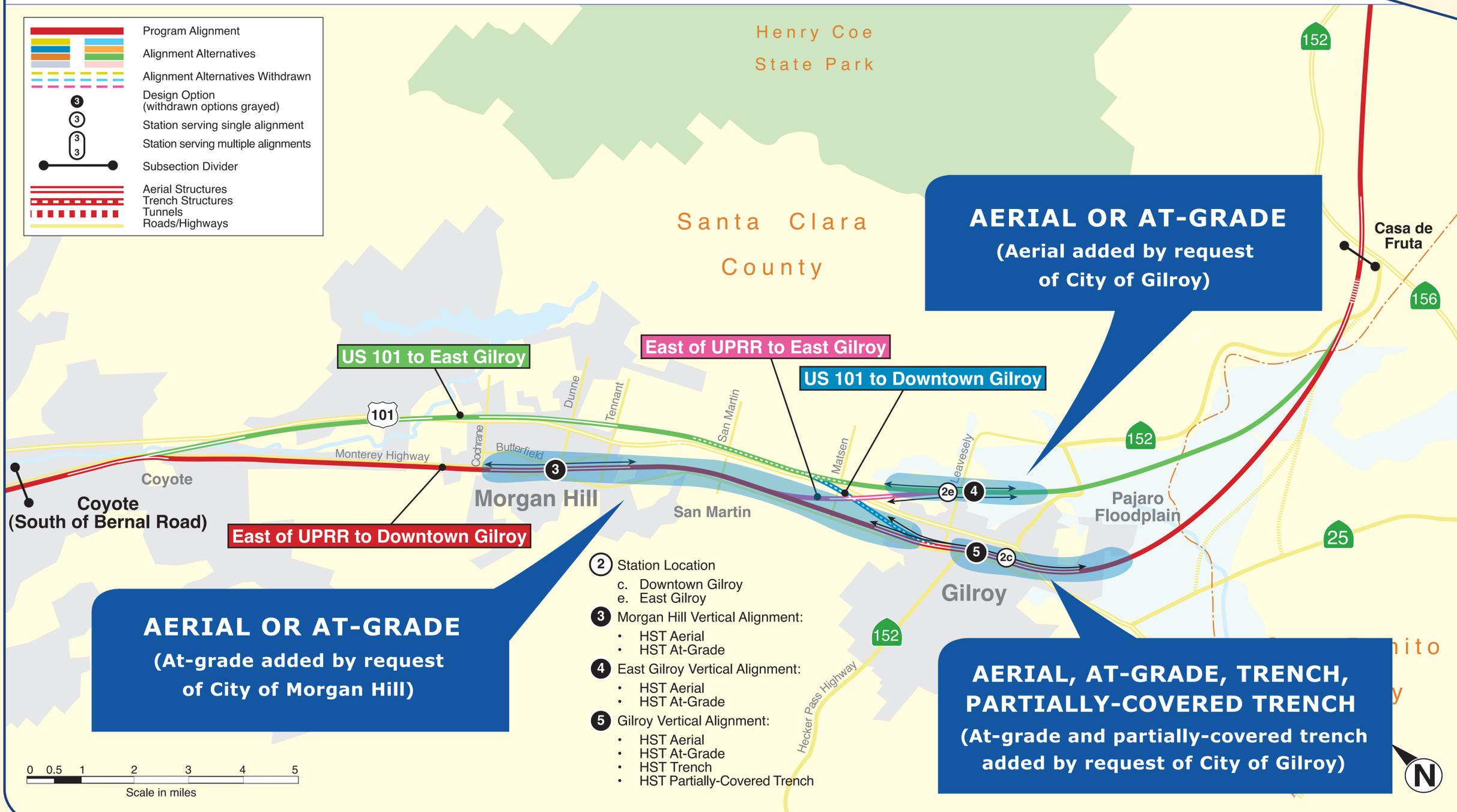
# SAN JOSE TO MERCED SECTION ALIGNMENT ALTERNATIVES (AS OF MAY 2011)



*\*Alignments subject to change*

**SAN JOSE TO MERCED**

# MORGAN HILL – GILROY SUBSECTION



**SAN JOSE TO MERCED**

# MORGAN HILL – GILROY SUBSECTION

## ALTERNATIVES

Recommended alternatives to carry forward (additional alternatives shown in **bold**):

- East of UPRR to Downtown Gilroy Alignment Alternative
  - Design options in Morgan Hill: aerial, **at-grade**
  - Design options in Downtown Gilroy: aerial, open trench, **at-grade, partially covered trench**
- East of UPRR to East Gilroy Alignment Alternative
  - Design options in Morgan Hill: aerial, **at-grade**
  - Design options in East Gilroy Station area: at-grade, **aerial**
- US 101 to Downtown Gilroy Alignment Alternative
  - Design options in Downtown Gilroy: aerial, open trench, **at-grade, partially covered trench**
- US 101 to Gilroy Alignment Alternative
  - Design options in East Gilroy Station area: at-grade, **aerial in station area**

## STATIONS

Recommended stations to carry forward (additional alternatives shown in **bold**):

- Gilroy Downtown Station
  - Design options: aerial, trench, **partially covered trench, at-grade**
- East Gilroy Station
  - Design options: at-grade, **aerial in station area**

SAN JOSE TO MERCED

# EXISTING AND PROPOSED FUTURE ROADWAYS EAST GILROY STATION AREA

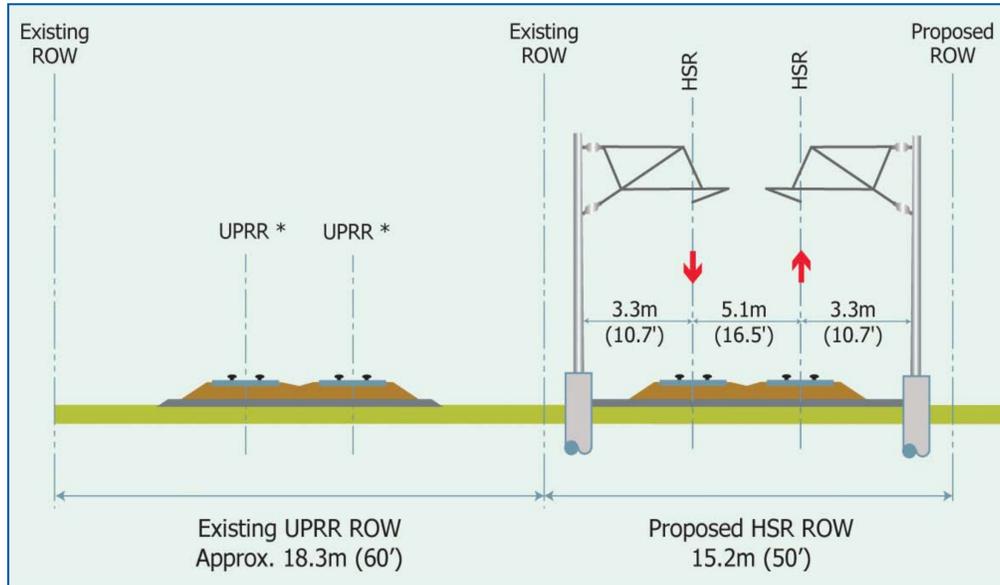


*\*Proposed, subject to change*

**SAN JOSE TO MERCED**

# TYPICAL SECTIONS ALONG ALIGNMENT

## Shared Railroad Corridor

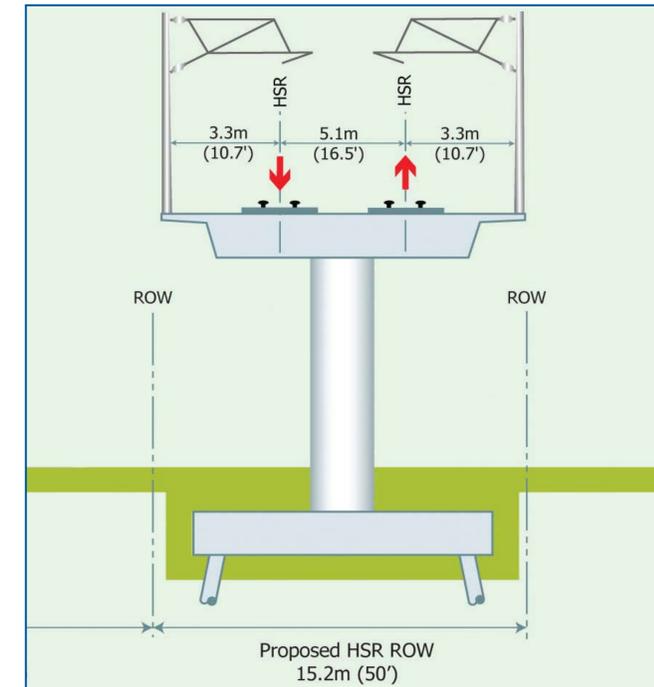


Portions of the alignment will need special structures to fit into the built environment

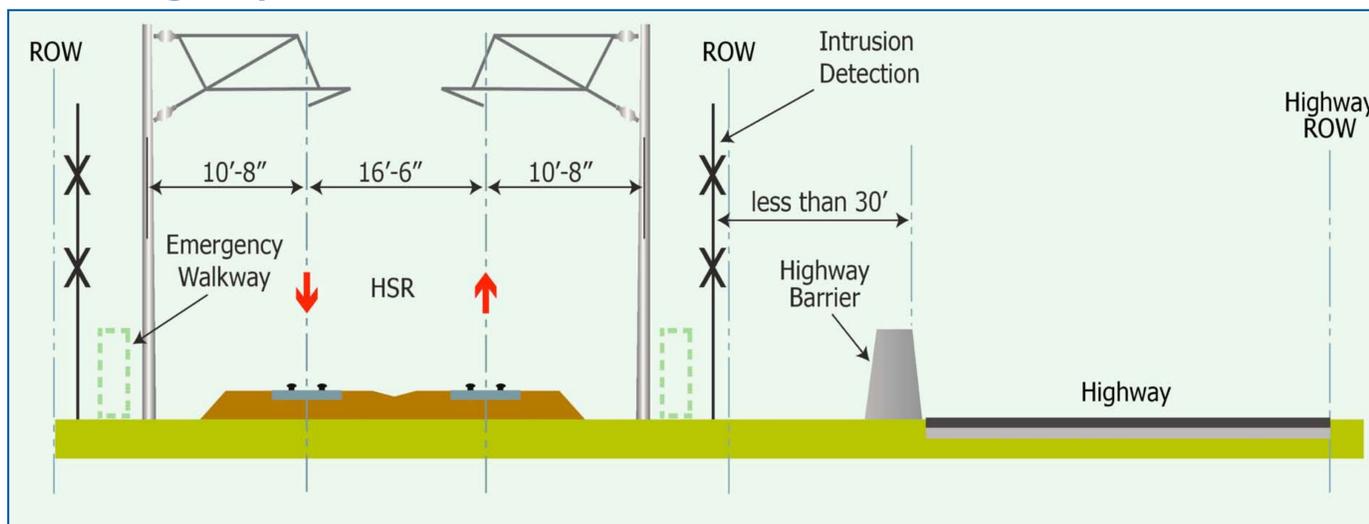
Structures could include:

- Aerial structures
- At-grade
- Trenches

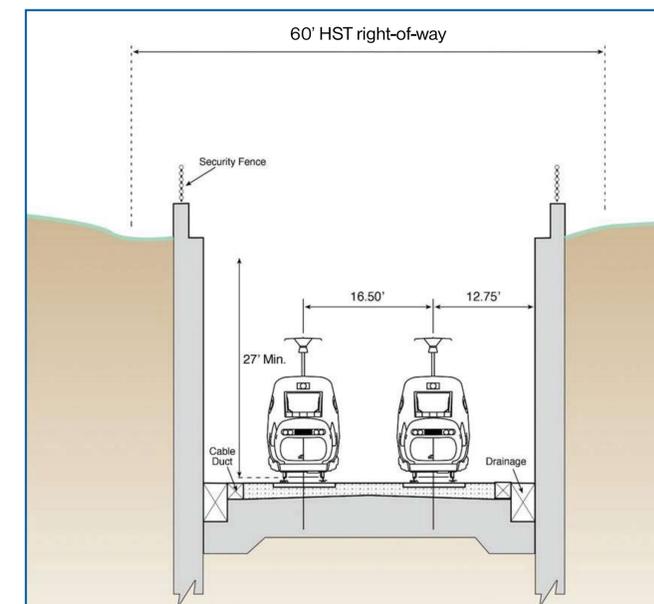
## Aerial Structure



## Shared Highway Corridor

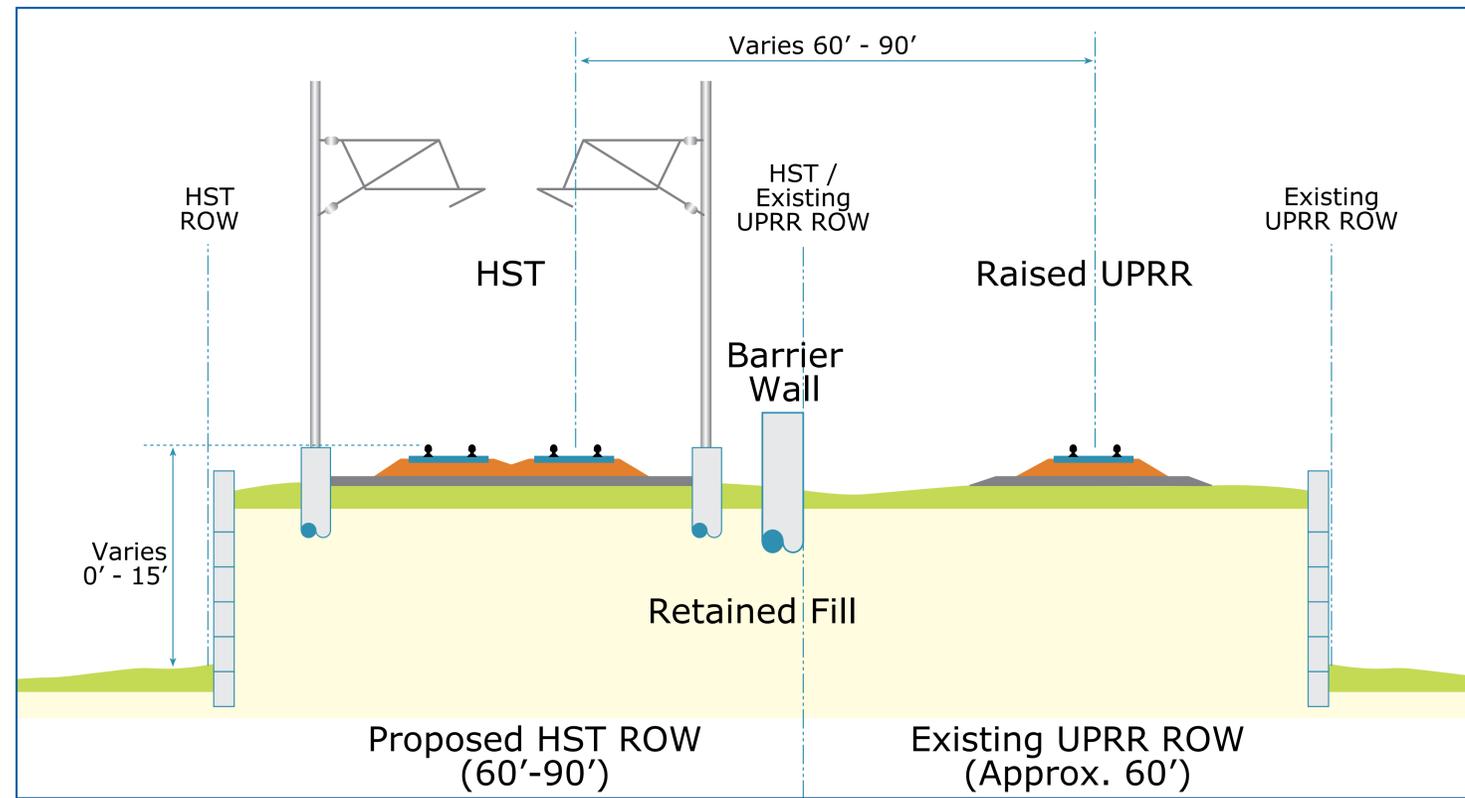


## Trench Section

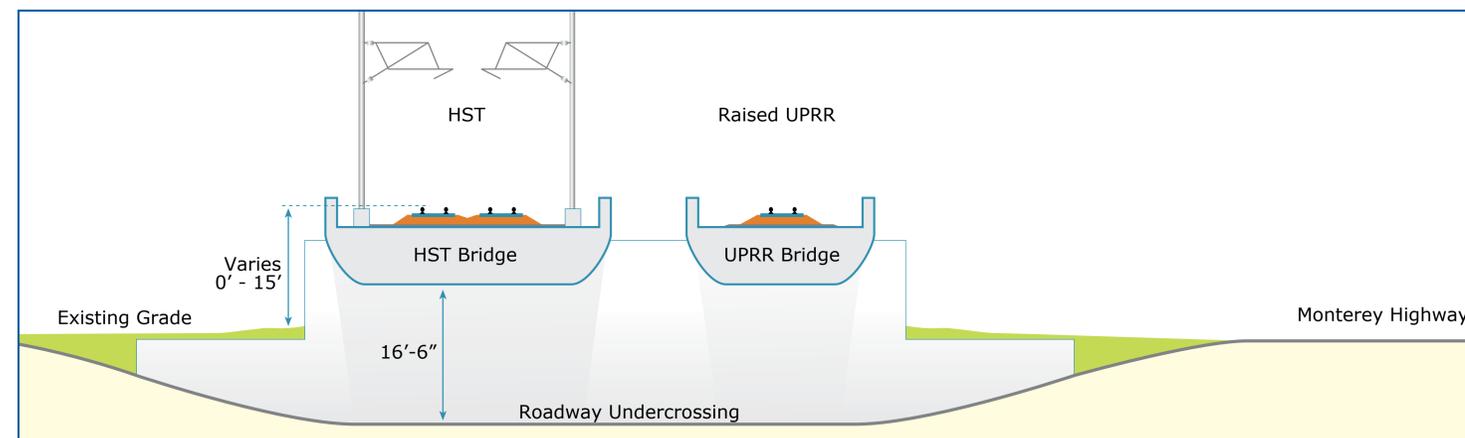


SAN JOSE TO MERCED

# TYPICAL SECTIONS ALONG ALIGNMENT



**AT-GRADE (ON RETAINED FILL)**



**ROADWAY UNDERCROSSING**

**SAN JOSE TO MERCED**

# 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 Train tracks will be grade-separated from adjacent roadways**

## Typical Overpass



## Grade Separated from Roadway



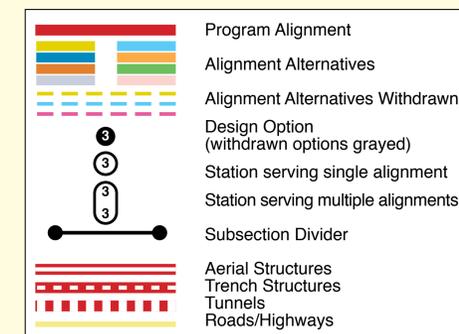
**SAN JOSE TO MERCED**

# PACHECO PASS SUBSECTION

RECOMMENDED ALTERNATIVES TO CARRY FORWARD (ADDITIONAL ALTERNATIVE SHOWN IN **BOLD**):



- Close Proximity to SR 152 Alignment Alternative
- Refined Program Alignment Alternative
- **Both alignments were refined for potential landslide areas in the western portion of the Pacheco Pass**

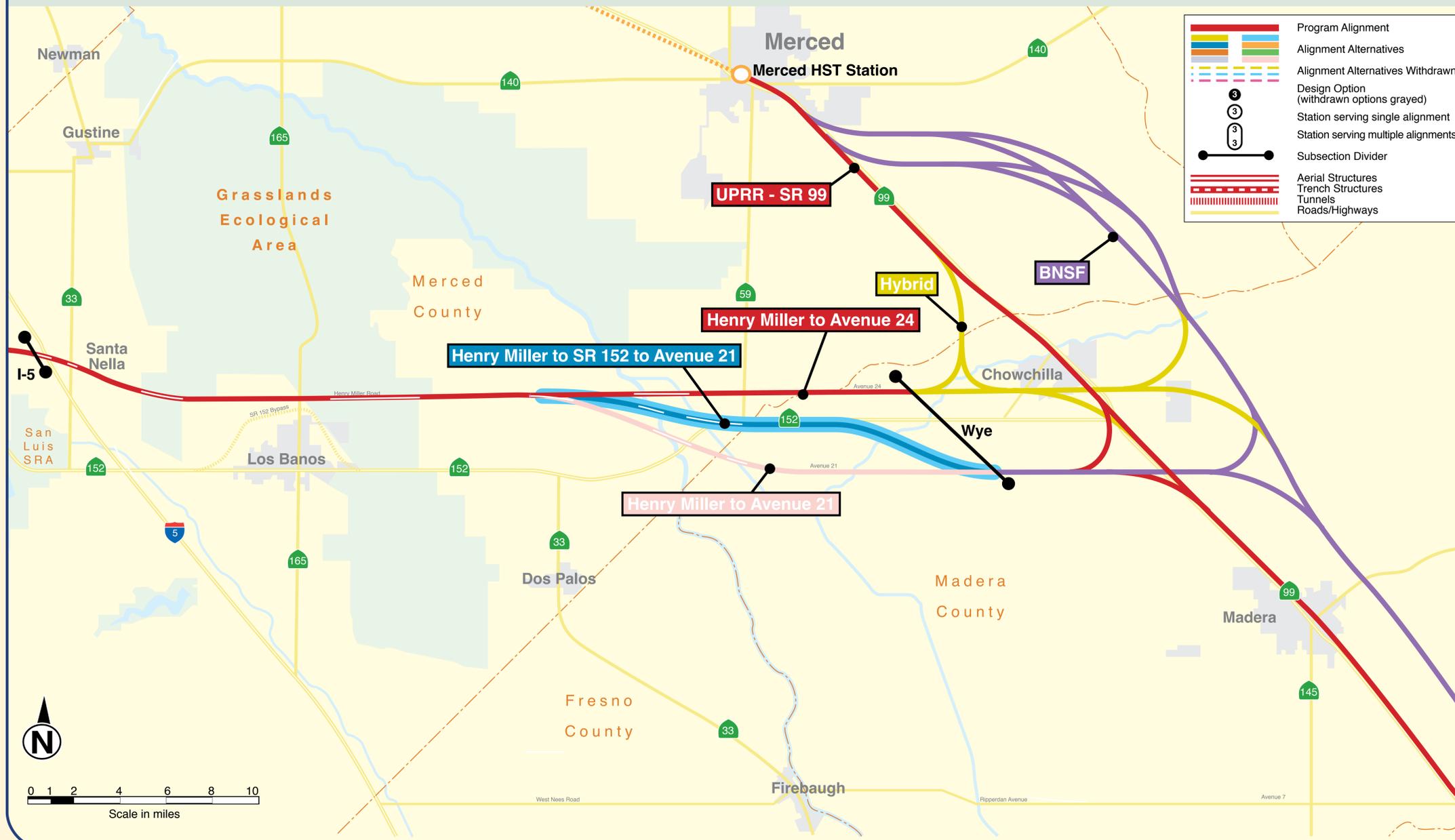


*\*Alignments subject to change*

**SAN JOSE TO MERCED**

# SAN JOAQUIN VALLEY CROSSING SUBSECTION

RECOMMENDED ALTERNATIVES TO CARRY FORWARD (ADDITIONAL ALTERNATIVE SHOWN IN **BOLD**):



- Henry Miller Road to Avenue 24 Alignment Alternative
- Henry Miller Road to Avenue 21 Alignment Alternative
- **Henry Miller Road/SR 152/Avenue 21 Alignment Alternative** (other alternatives along SR 152 will be considered)

*\*Alignments subject to change*

**SAN JOSE TO MERCED**

# ***SAN JOSE-MERCED SIMULATIONS***



**Downtown Gilroy (6th St.)**

**Casa de Fruta**



**Monterey Rd.**

**Los Banos Wildlife Area at Henry Miller Rd.**



***SAN JOSE TO MERCED***

# MITIGATION MEASURES UNDER ELEVATED GUIDEWAY



**Agricultural Use Under Guideway**



- FRA has approved joint use under HST Guideway
- Linear parks, paths and roadways may be considered

**Joint Use in Italy**



**SAN JOSE TO MERCED**

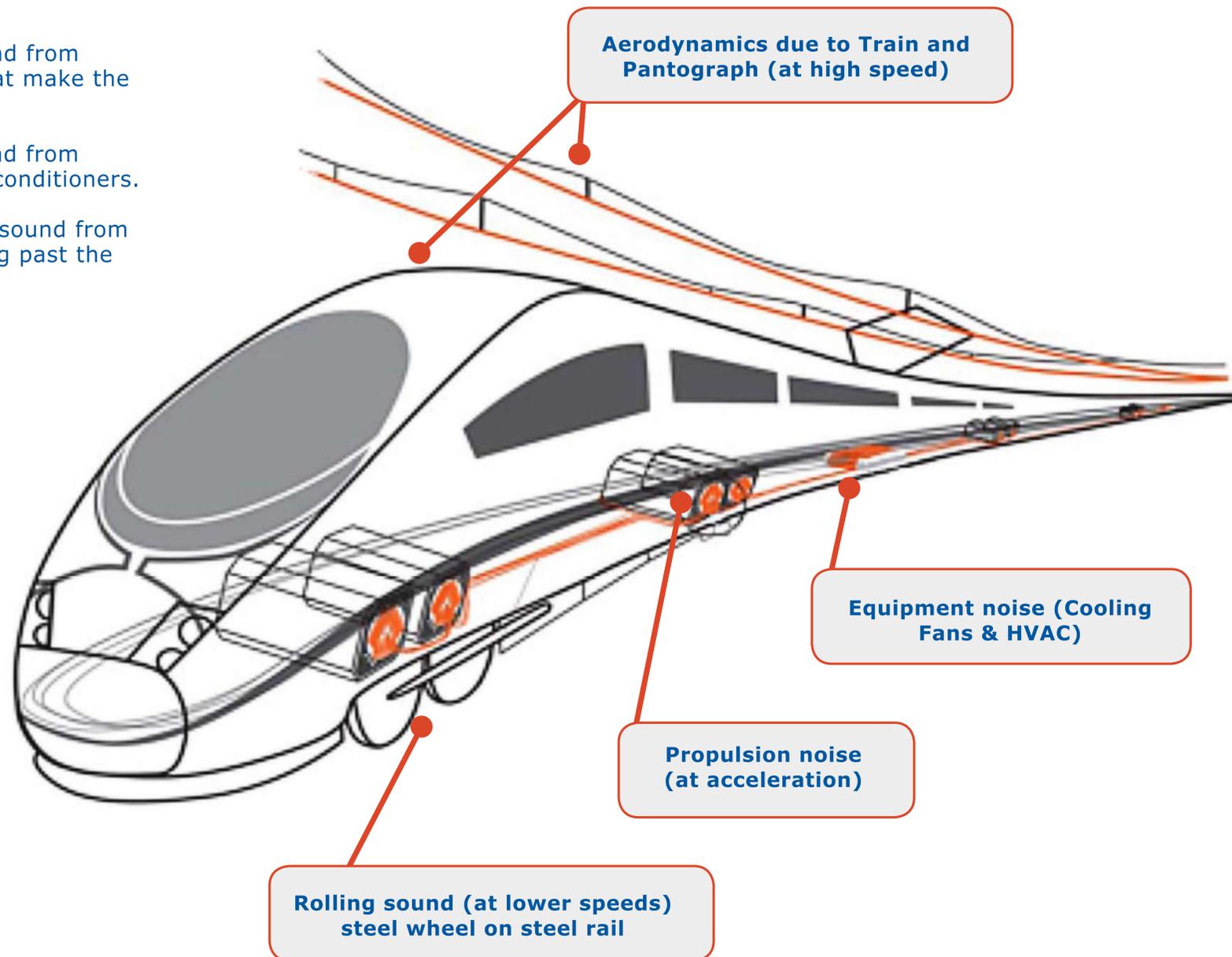
# SOUND

**Rolling** – sound from the wheels as trains move along the tracks.

**Propulsion** – sound from motors and gears that make the train move.

**Equipment** – sound from cooling fans and air conditioners.

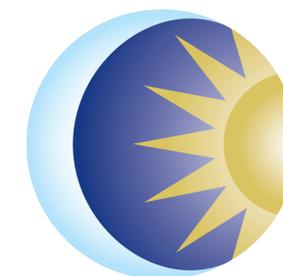
**Aerodynamics** – sound from the flow of air moving past the train at high speed.



**The review will look at two key measurements:**



One-Hour Equivalent Sound Level, which measures the moment-to-moment fluctuations in sound over a single hour – taking into account both the number of trains and the time they take to pass by – the best measure for assessing the impacts on offices, schools and libraries.



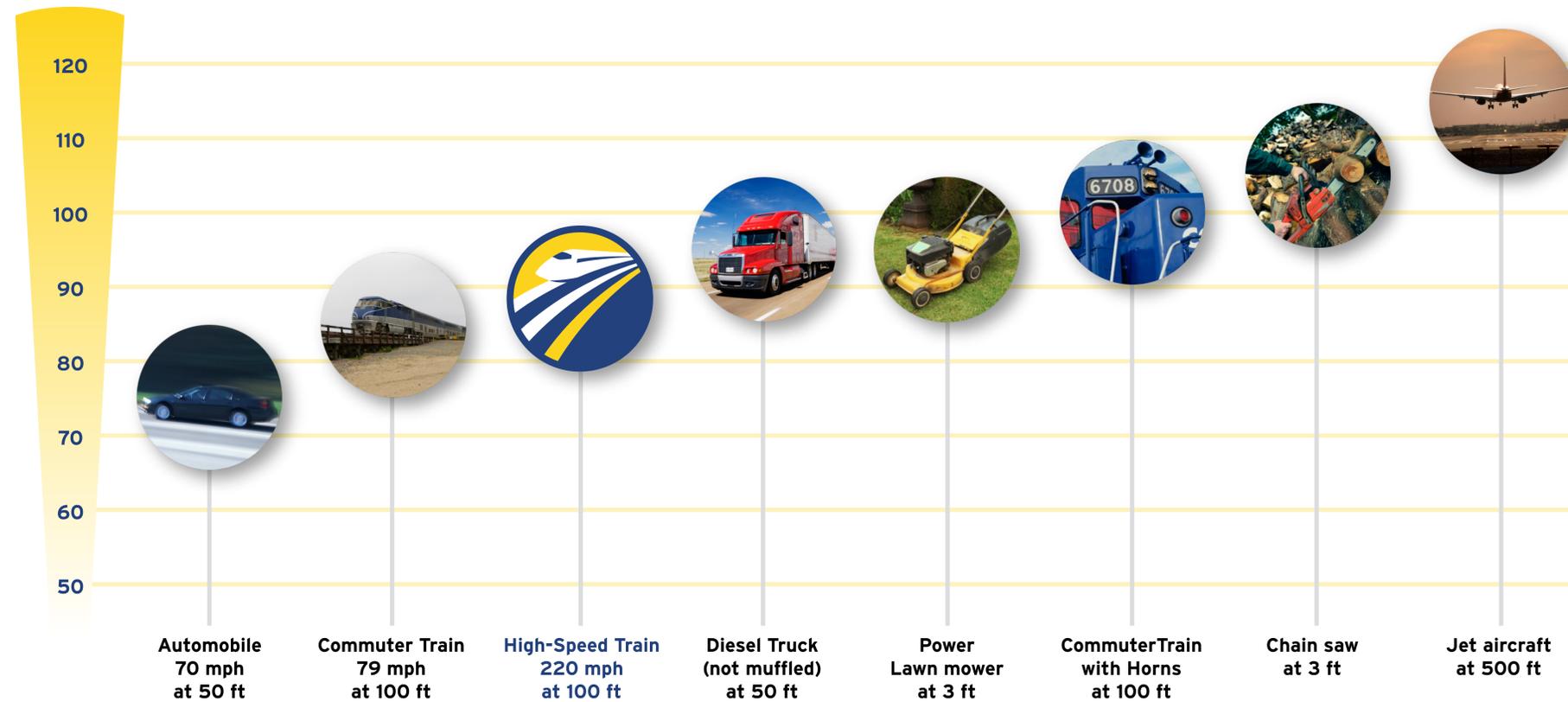
Day-Night Sound Level looks at sound fluctuations over a full 24 hours, taking into account the heightened sensitivity in residential areas to sounds made late at night.

**SAN JOSE TO MERCED**

# SOUND

## How does high-speed rail compare to other everyday noises?

Maximum level  
in decibels  
(single event)



**A train moving at 220 mph – the top speed of California’s high-speed trains – will be heard for about four seconds**

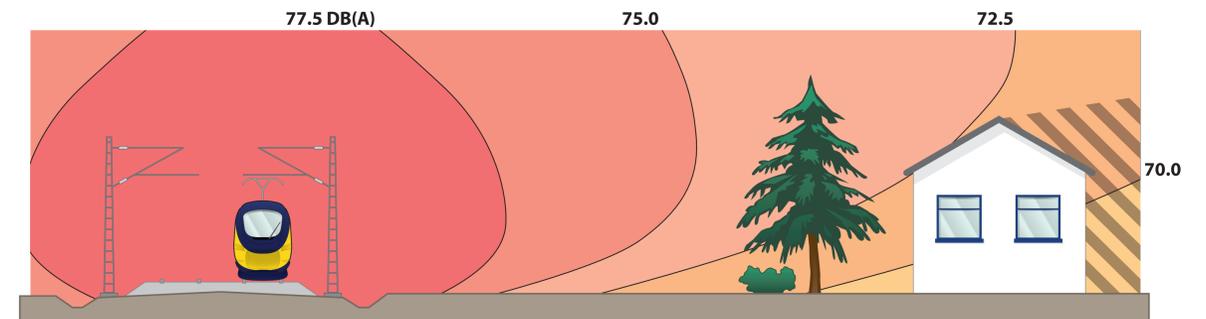
**By comparison. . . A 50-car freight train traveling at 30 mph can be heard for one minute**

**SAN JOSE TO MERCED**

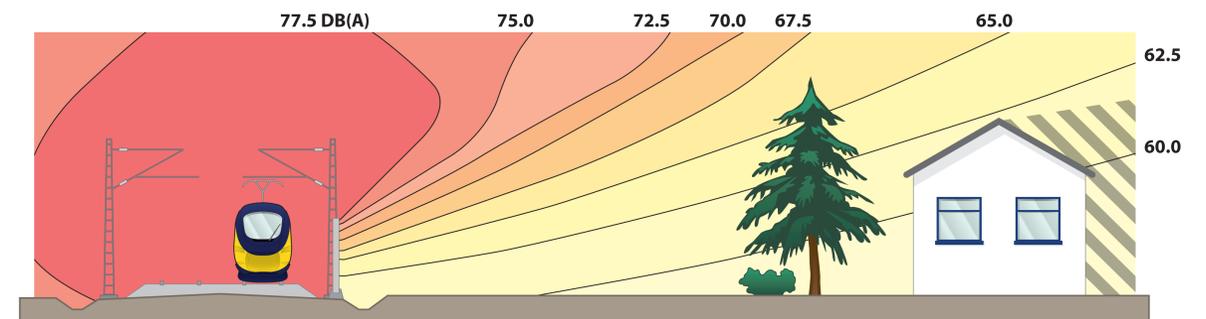
# COMMITMENT TO SOUND MITIGATION

## Engineering and design will make a big difference

- Sound engineers and train builders have over 40 years experience – and good mitigation measures are working around the world.
- For a train traveling less than 160 mph, a six to 12-foot sound barrier will **reduce noise by five to nine decibels** (the human ear perceives a 10-decibel reduction as cutting the sound in half).
- The sound from a high-speed train operating on an aerial structure could be **one or two decibels higher** than at ground level.
- The sound from a high-speed train operating in an open trench could be **five to seven decibels lower** than at ground level



Noise levels without sound barrier



Noise levels with sound barrier

SAN JOSE TO MERCED

# ***HOW TO PARTICIPATE***

- **Talk to high-speed train staff**
- **Fill in and drop off comment cards**
- **Add your e-mail to our mailing list**

**For more information after this meeting:**

**Call: (800) 881-5799**

**Visit: [www.cahighspeedrail.ca.gov](http://www.cahighspeedrail.ca.gov)**

**E-mail: [san.jose\\_merced@hsr.ca.gov](mailto:san.jose_merced@hsr.ca.gov)**

***SAN JOSE TO MERCED***