# **CALIFORNIA HIGH-SPEED RAIL** NORTHERN CALIFORNIA REGION

Staff-Recommended State's Preferred Alternative

San Francisco County Transportation Authority CAC Wednesday, July 24, 2019



## OBJECTIVE

Share **staff-recommended State's Preferred Alternative** and process for identifying the State's Preferred Alternative.

- The staff-recommended State's Preferred Alternative is based on stakeholder input and analyses completed to date.
- All alternatives will be analyzed at an equal level of detail and described in the published Draft EIR/EIS.
- Staff will summarize the comments received during planned outreach and report to the Authority Board for consideration with the recommended State's Preferred Alternative on September 17, 2019.
- Identifying the State's Preferred Alternative does not approve or adopt a preferred alternative for final design or construction.

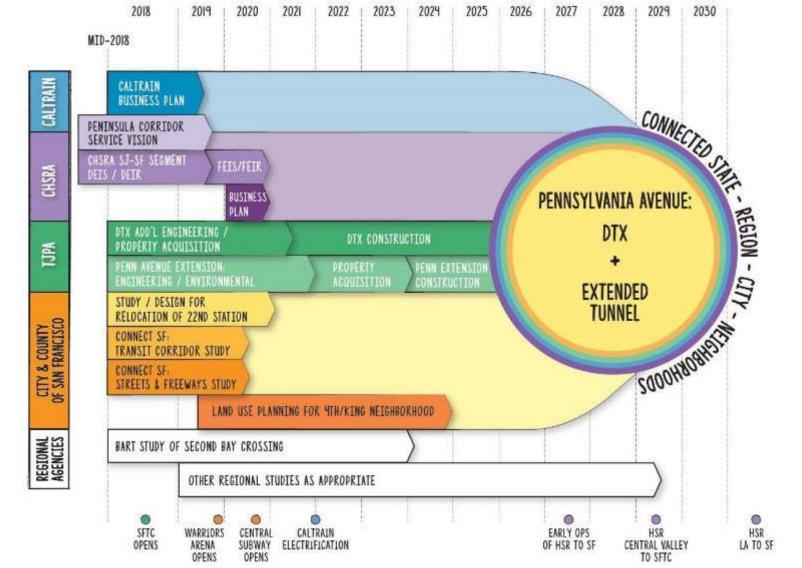


# SAN FRANCISCO TO SAN JOSE PROJECT SECTION

## **REFINING THE ALTERNATIVES:** Collaboration with Partner Agencies, Stakeholders, and Members of the Public



### **PROGRAM DEVELOPMENT AND STATUS**

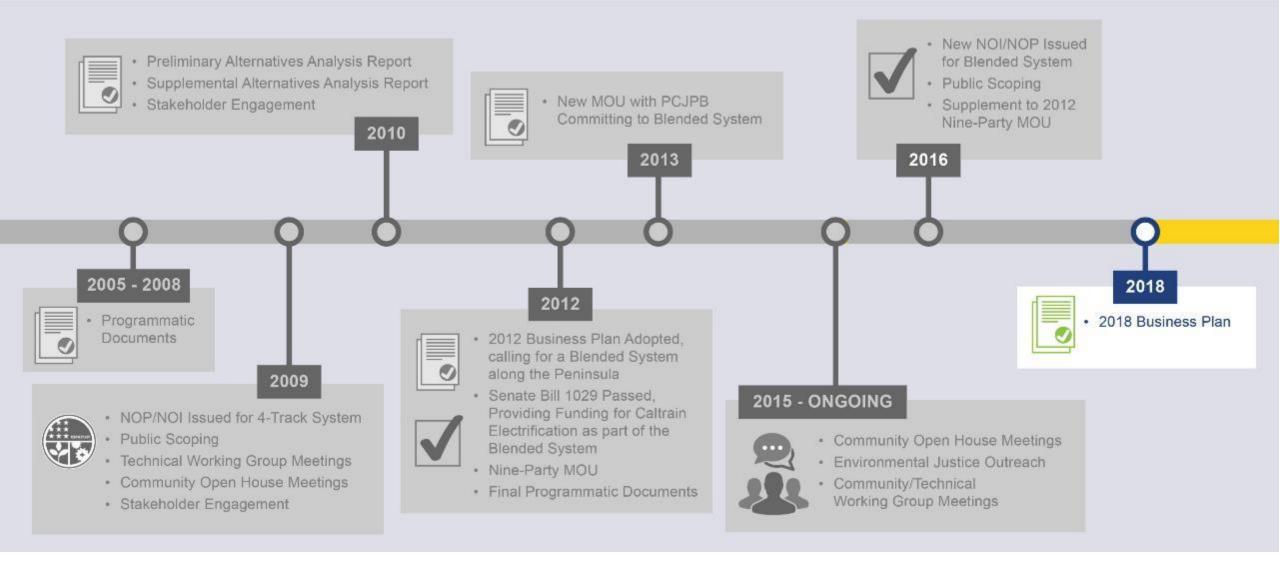




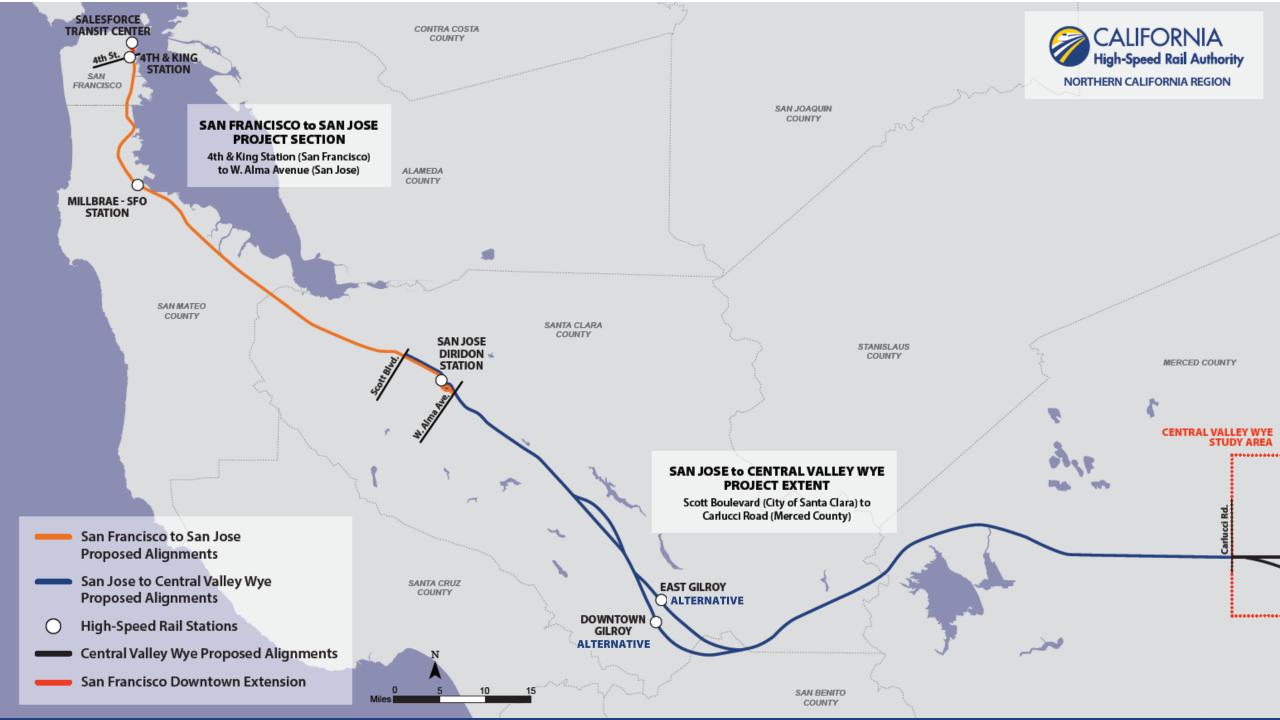
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Approximate schedules,

## HIGH-SPEED RAIL ALTERNATIVES DEVELOPMENT







# SAN FRANCISCO TO SAN JOSE PROJECT SECTION

# **ALTERNATIVES OVERVIEW**



### SAN FRANCISCO – SAN JOSE PROJECT ALTERNATIVES A AND B





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### LIGHT MAINTENANCE FACILITY

Alternatives Carried Forward

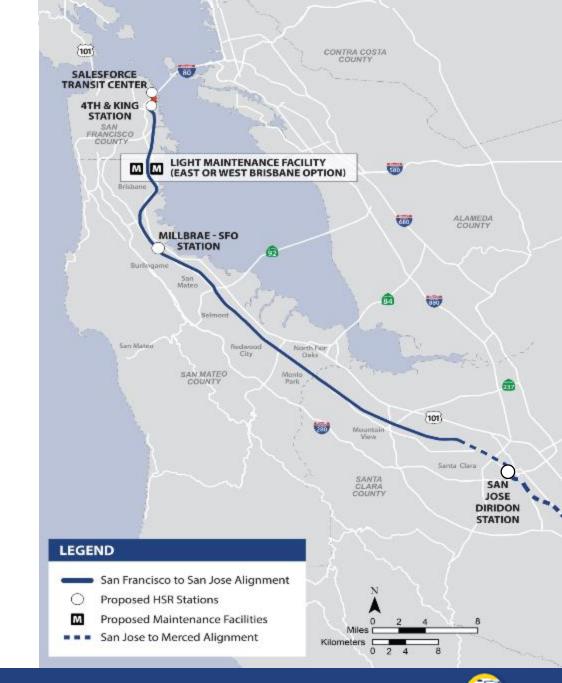
### Brisbane



Alternative A M East



Alternative B M West



#### IDENTIFYING A PREFERRED ALTERNATIVE

### SAN FRANCISCO TO SAN JOSE

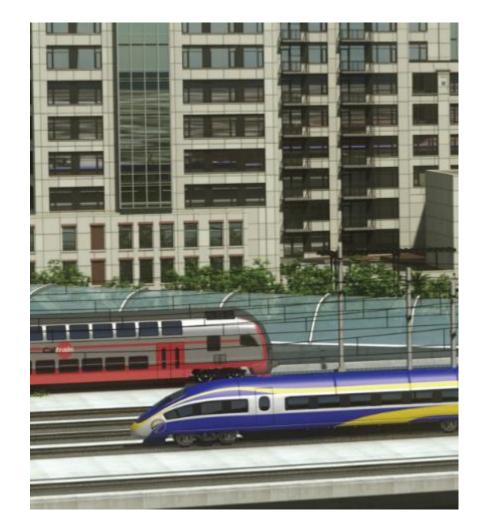
Common Project Elements – Alternatives A & B

- High-Speed Rail stations<sup>1</sup>
- » San Francisco 4<sup>th</sup> and King
- » Millbrae
- Up to 110 mph speeds
- » Track modifications to support higher speeds
- Peak operations

» 4 High-Speed Rail trains and 6 Caltrain trains per hour/per direction

<sup>1</sup> **Salesforce Transit Center** has been environmentally cleared by Transbay Joint Powers Authority and will not be part of the California High-Speed Rail Authority's environmental analysis.

**San Jose Diridon Station** is being evaluated as part of the San Jose to Merced Project Section but will be included in both project sections' environmental analysis.





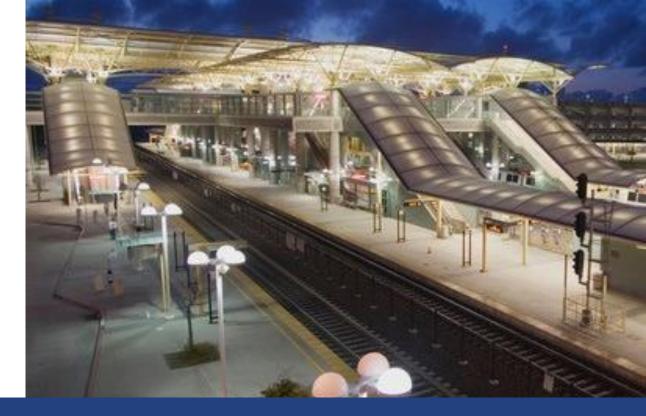
## SAN FRANCISCO TO SAN JOSE

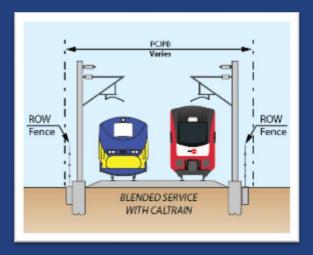
Common Project Elements – Alternatives A & B

- Remove hold-out rule at Broadway and Atherton Caltrain Stations
- Safety modifications at Caltrain-only stations and at-grade crossings
- Corridor fencing

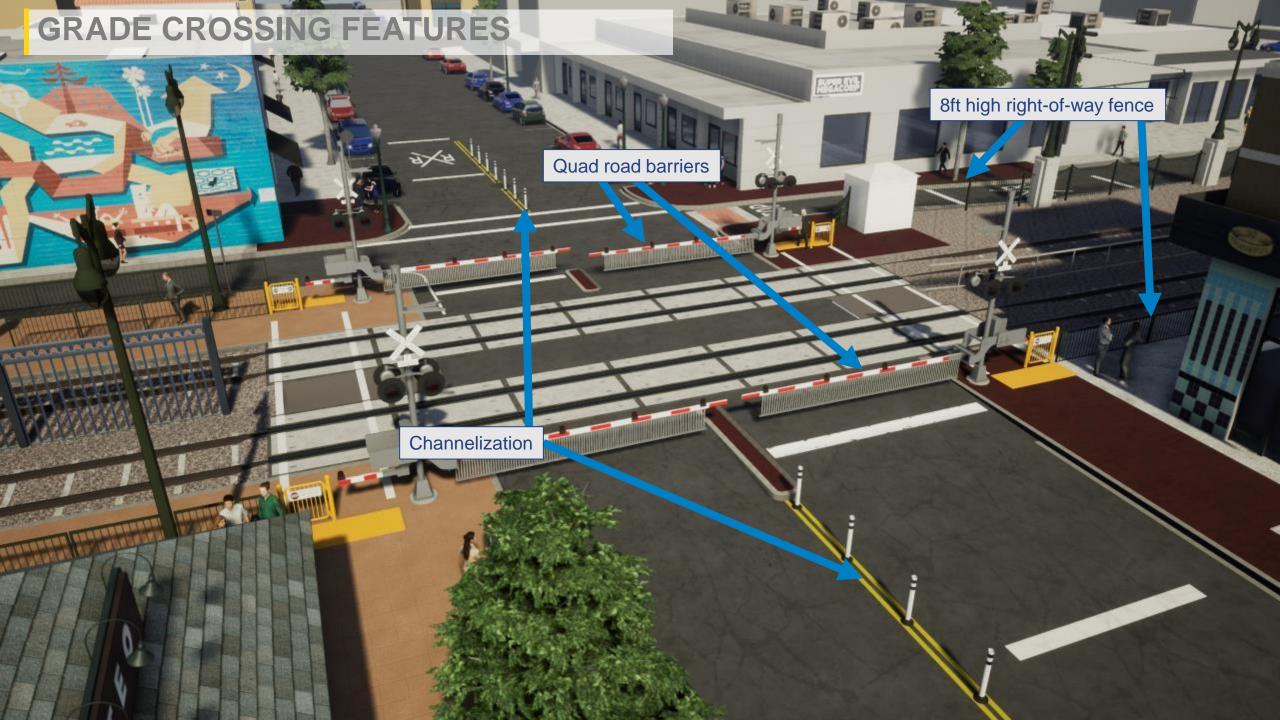
### Blended At-Grade

- Uses Caltrain electrification infrastructure and tracks
- Predominantly within the existing railroad right-ofway
- At-grade tracks with quad gates at each road crossing









# SAN FRANCISCO TO SAN JOSE PROJECT SECTION

# IDENTIFYING A PREFERRED ALTERNATIVE



### **FACT SHEETS: TECHNICAL ANALYSIS**

### SUMMER 2000 SAN FRANCISCO TO SAN JOSE PROJECT SECTION STATE'S PROJECT SECTION STATE'S PREFERRED ALTERNATIVE

### CALIFORNIA High-Speed Red Autority

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HOW TO PROVIDE FEEDBACK

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cheer declarative realf recommendation for 5 preferred alternation to be cardidened. Infrastructure that well be recommitted support high-speed rail service in the consider. Americative. Automaticy cost is caleking feedback from the normana, narranny sair a narean a seasana men ver public before the recommendation is presented to the public denote the recommendation is prevented. Authority Board of Directory in September 2010.

WHAT IS A PREFERRED ALTERNATIVE? Since 2005, numerous assentative hove been considered

Alternative A will be referred to as the snell-recommended Alternative A version removed to all the Authority Duard Solida Preferred Alternative until the Authority Duard anna nan, nannnaa a binanna rann bann onnsonna fe fab figf speed ná si greent tarvé tig witels and Search Humitica Americane Unita Unit Addreastly Unaed of Dissertion computer with the staff recommendation of ne the tright-space cas as grittern traveling outen and outerbook contention does uternalisy, two electricy was were or Landon to Con Curr With this scar read memory denoise or Industry that a difference abartuative be (denoished as the outaine of one cary executation and the centre constraints are confined forward for inclusion in the Don't Environmental comes rerears to inclusion in the user increared impact Report/Statement (SRIS). The abernative impact execution analysis (1990), me at anna tra defensioned to two Louiser to tradeo its between on anterior and construction of the second environmental common 150 enclosereum arces operation and cost factorals incomentals the cateleoned alternative and and cost factors to known as the presence availa-Indicates the proposed direction of the project. Analyzang Unase two alternatives and engeging with tech-Analyzing create two alternatives and engaging water regin News) as perform and Maketorden tes both Autority Califica recommend Alternative A as the Strate Dialected

#### WHAT IS THE PUBLIC'S ROLE IN DEVELOPING AND RECOMMENDING

ALTERNATIVES? This during receiving control nated with individuals, local ten menen y menen vermenen vert renvenen vera geventmark, inter, public sperities, and organization soventrante, totan, public experisive, en la organizatione to gali total les endedide and tentre, en engeles d'attractione faced de les tentembra ganares devente les autores and faced de les tentembra com environderes and membras encode de la committacione environderes and membras in nonny rava minina kati wan dawanakan kata mini of 156 publik, the debring elementween wathem California wate developed and school The duttionly is seeking within leadback on the staffthe extremity is element pulses sentence on the com-inversion of sounds businessed Assertative A community recommendation includes the provide the providence of the providen of Needback provided as Contents Any microsofted 1994 (1994) - NAMAR - Jackwell as Val auropenene as written content and an any will be presented to the Nathering Second of Denototics In September 2019. (i) bikan 🛃 ikanga salan kanan-kananan

nd B for the San Francisco to San Jose Project Section will largely operate within the existing California right-of-way between the 4th & King Street ancisco through Scott Boulevard in Santa Clara. Both alternatives would action of a Light Maintenance Facility (LMP) in Brisbane, curve straightening ind modifications to some existing Celtrain stations. High-speed ral stations a the existing 4th a king street and willbrae stations, which would both see

#### Alternative A 🗸

alternative a weakl sperare high-speed colloning in a blended system predominantly within the existing calibratic right-of-way betall ashety improvements and communication radio towers, and build a Light Maintenance Facility (LHF) east of the Californi comdor on the existing Drisbane Deptends site. This alternative would not include additional passing trades.

#### Alternative B

Alternative 8 would operate high-speed trains in a blended system prodommantly within the cristing Calvan right of way install safety improvements and commenteation radio towers and build a Light Maintanance Facility (Late) wett of the Califain conidor. this alternative would include do miles of additional passing tracks stratching from the City of San Hatao to Redwood City.

#### Planned High-Speed Rall Stations

#### 4th & King and Millbrae - SPO Stations

Dentes

underboth alternatives, high-speed rail stations would be located at the 4th & King Street Station in San Francisco and Millorae Station. Both stations would undergo improvements to accommodate high-speed rail, including modifications to existing tracks and platforms, new booths and fare gates, and a station half at Millbrare Statlers. The downlown extension (DTD) to the Selectorice Trends enter has been environmentally cleaned and is being implemented y the transbay some powers authority (runa), while the stra well to be evoluted through the authority's environmental analysis, Authority plana to use initialization implemented by TJPA as comes available. The 4th & King Station is being analyzed as a constry terminus in the Authority's environmental document to e high-speed rail service to San Prancisco. ee Déricion Station is addressed in the San Jose to Mercad

Section staff-recommanded State's Preferred Alternative.

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## CALIFORNIA High-Speed Rail Authority SAN JOSE PROJECT SECTION WHY IS STAFF RECOMMENDING ALTERNATIVE A

AS THE STATE'S PREFERRED ALTERNATIVE?

Teams of rail and environmental planners, engineers, and other specialists in the design and operation of high-speed rail services have undertaken a complex analysis of the two alternatives. The results indicate that each alternative has tradeoffs - advantages and disadvantages. Nevertheless, Alternative A was identified as the staff-recommended State's Preferred Alternative because it provides the best overall balance between system performance, community, and environmental factors. The factors that differentiate the two alternatives are presented in the tables below.

ALTERNATIVES EVALUATION

#### HOW WERE THE ALTERNATIVES EVALUATED?

Alternatives A & B were evaluated by comparing the alternatives across three criteria.1



#### System Performance, Operations, and Costs. The best-performing alternative is bold.

CRITERIA	ALT A	ALT B
Alignment length (miles)	42.9	
Speed Capacity (mph)	Up to 110	
HSR Peak Hour Average Representative Travel Time San Francisco to San Jose (minutes)	47	45
Proposition 1A Service Travel Time Compliance	1	1
Estimated Capital Costs (2017\$)	\$2.6 billion	\$3.5 billion
Estimated Annual Operations and Maintenance Costs (2017\$)	\$78 million	
Caltrain Peak Hour Average Representative Travel Time (minutes)	63	65



### ALTERNATIVE A – STAFF-RECOMMENDED STATE'S PREFERRED ALTERNATIVE



#### LEGEND



8

## **STATE'S PREFERRED ALTERNATIVE CRITERIA**

#### System Performance, **Operations**, & Costs

- Alignment Length
- Maximum Authorized Speed
- Proximity to Transit Corridors
- **Travel Time**
- Capital Costs
- O&M Costs

Preferred Alternative Criteria

#### **Environmental Factors**

**Biological and Aquatic Resources** 

#### **Community Factors**

- Displacements
- Aesthetics and Visual Quality
- Land Use and Development
- Transportation
- **Emergency Vehicle** Access/Response Time



### ALTERNATIVE A – Staff-Recommended State's Preferred Alternative Conclusions of Technical Analysis



Fewest major visual impacts



Fewest displacements



Fewest road closures



Fewest impacts on wetlands and habitats



**\$**,

Fewest impacts on natural resources

Lowest capital cost







Policy-level alignment with the Caltrain Business Plan

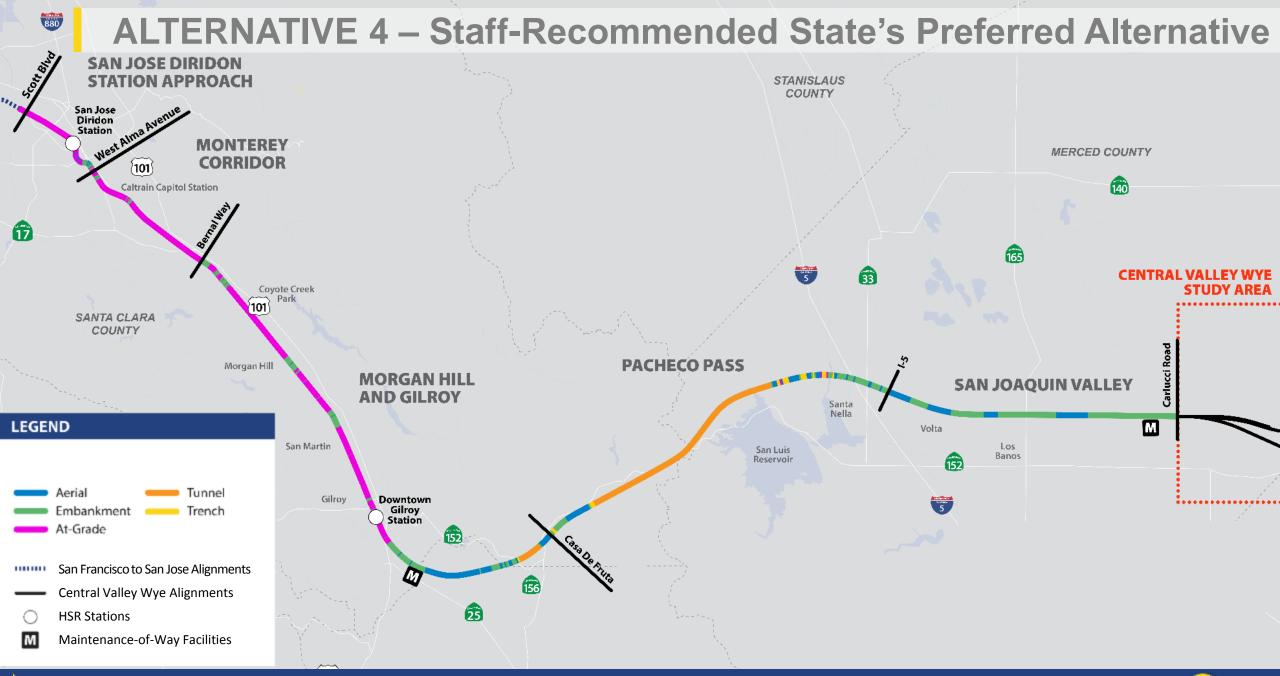


#### **IDENTIFYING A PREFERRED ALTERNATIVE**

# SAN JOSE TO MERCED PROJECT SECTION

# IDENTIFYING A PREFERRED ALTERNATIVE





#### IDENTIFYING A PREFERRED ALTERNATIVE



## STATE'S PREFERRED ALTERNATIVE CRITERIA

#### System Performance, Operations, & Costs

- Alignment Length
- Operational Speed
- Proximity to Transit Corridors
- Travel Time
- Capital Costs
- Operations & Maintenance Costs

Preferred Alternative Criteria

#### **Environmental Factors**

- Biological Resources and Wetlands and Other Waters of the U.S.
- Parks and Recreation Areas
- Built Environment Historic Resources

#### **Community Factors**

- Displacements
- Agricultural Lands
- Aesthetics and Visual Quality
- Land Use and Development
- Noise
- Traffic
- Emergency Vehicle Access/ Response Time



### ALTERNATIVE 4 – Staff-Recommended State's Preferred Alternative Conclusions of Technical Analysis





Fewest displacements

Fewest road closures

Fewest impacts on wetlands and habitats



Good access to transit systems and services



Fewest impacts on natural resources



Fewest visual impacts

Marginal increase in system travel time

More noise (if no quiet zones)



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Lowest capital cost

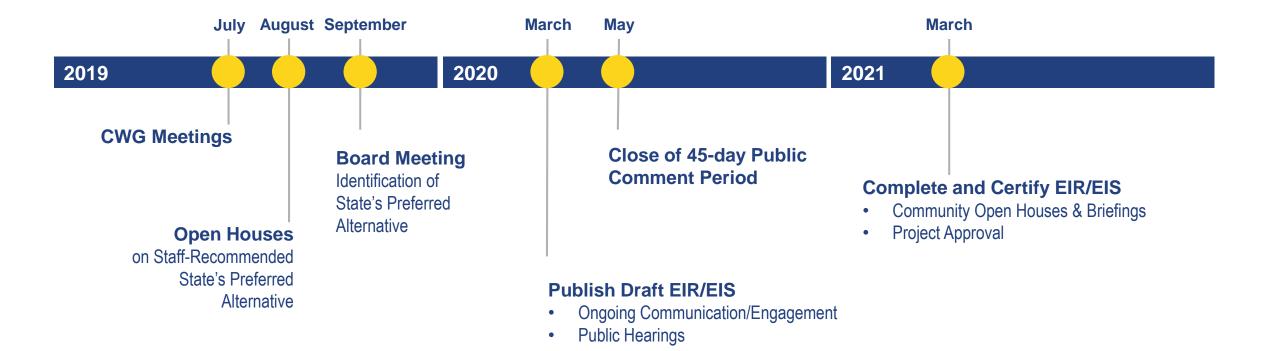
Allows for extension of electrified Caltrain service to Gilroy



# **NEXT STEPS**







### **UPCOMING MEETINGS**

#### **Community Working Groups**

Morgan Hill-Gilroy CWG July 10, 6:00 – 8:00 pm Morgan Hill Community and Cultural Center Morgan Hill, CA

San Jose CWG July 16, 6:00 – 8:00 pm Leininger Center San Jose, CA

San Francisco CWG July 22, 6:00 – 8:00 pm Bay Area Metro Center San Francisco, CA

San Mateo County CWG July 24, 6:00 – 8:00 pm Burlingame Library Burlingame, CA

#### **Open Houses**

South Peninsula Open House August 6, 5:00 to 8:00 p.m. Adrian Wilcox High School Santa Clara, CA

#### San Francisco Open House August 12, 5:00 to 8:00 p.m. Bay Area Metro Center San Francisco, CA

San Mateo Open House August 19, 5:00 to 8:00 p.m. Sequoia High School Redwood City, CA

#### **Gilroy Open House**

August 8, 5:00 to 8:00 p.m. Gilroy Portuguese Hall Gilroy, CA

#### San Jose Open House

August 15, 5:00 to 8:00 p.m. City Hall Council Chambers San Jose, CA *\*Hosted by Sen. Beall* 

#### Los Banos Open House

August 21, 5:00 to 8:00 p.m. Los Banos Community Center Los Banos, CA





### REQUEST FOR COMMUNITY FEEDBACK CALIFORNIA HIGH-SPEED RAIL

Please share the information presented today with your communities and give us your feedback.

- Comments will be accepted through **August 22**, **2019** to be included in the staff report to the Authority Board.
- Comments can be submitted via email to <u>San.Francisco\_San.Jose@hsr.ca.gov</u> or via mail to: Northern California Regional Office California High-Speed Rail Authority 100 Paseo De San Antonio, Suite 300 San Jose, CA 95113

### OR

• Share feedback in person at an upcoming Open House or at the Authority Board meeting on September 17 in San Jose, CA.



Headquarters California High-Speed Rail Authority 770 L Street, Suite 620 Sacramento, CA 95814 www.hsr.ca.gov

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Northern California Regional Office California High-Speed Rail Authority 100 Paseo De San Antonio, Suite 300 San Jose, CA 95113

# **APPENDIX A – TECHNICAL ANALYSIS**

# SAN FRANCISCO TO SAN JOSE PROJECT SECTION



## SYSTEM PERFORMANCE, OPERATIONS AND COSTS<sup>1</sup>

System Performance, Operations and Costs

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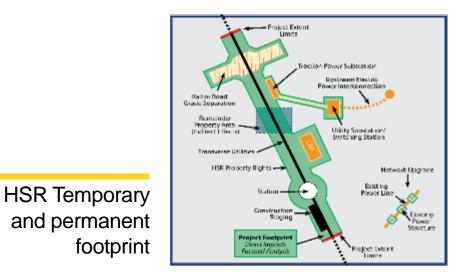
#### **Bold text** in tables indicates best-performing alternative(s).

CRITERIA	ALT A	ALT B
Alignment length (miles)	42.9	
Maximum Operating Speed (mph)	Up to 110	
HSR Peak Hour Average Representative Travel Time San Francisco to San Jose (minutes)	47	45
Proposition 1A Service Travel Time Compliance	$\checkmark$	$\checkmark$
Estimated Capital Costs (2017\$) \$2.6 billion		\$3.5 billion
Estimated Annual Operations and Maintenance Costs (2017\$)	\$78 million	
Caltrain Peak Hour Average Representative Travel Time (minutes)	63	65



#### **Bold text** in tables indicates best-performing alternative(s).

CRITERIA	ALT A	ALT B
Residential displacements (number of units)	10	19
Commercial and industrial displacements (# of businesses)	29	108
(square feet)	211,261	466,084
Community and public facilities displacement (number of units)	2	4



Example: overlay of footprint in urban area



#### DENTIFYING A PREFERRED ALTERNATIVE

### **AESTHETICS AND VISUAL QUALITY**

#### **Bold text** in tables indicates best-performing alternative(s).

CRITERION	ALT A	ALT B
Number of key viewpoints with decreased visual quality	3	5



#### IDENTIFYING A PREFERRED ALTERNATIVE

## LAND USE AND DEVELOPMENT

- Both alternatives potentially reduce available land for development at Brisbane Baylands
- Alternative B would convert 8 acres of land at Icehouse Hill and area containing endangered butterfly habitat that is designated for open space conservation





### Alternative A



Impacts 93 acres planned commercial and 2 acres planned mixed use (with residential permitted)



#### **Alternative B**



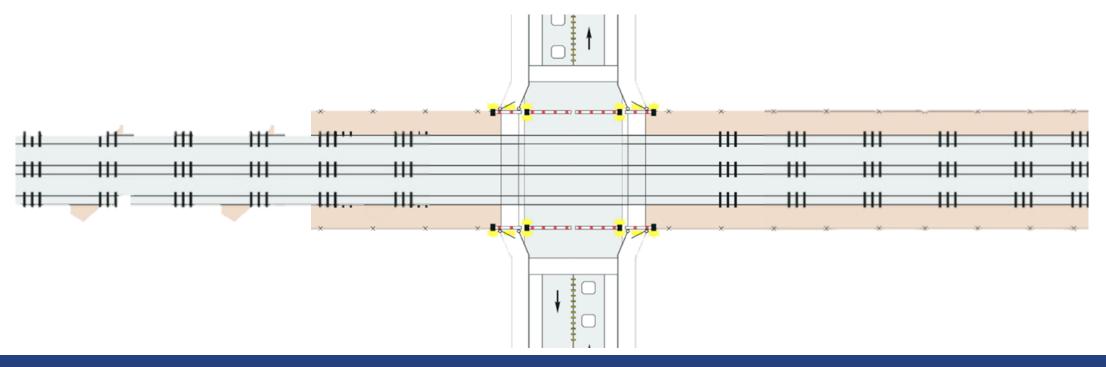
Community Factors

Impacts 90 acres planned commercial and 21 acres planned mixed use (with residential permitted)

#### IDENTIFYING A PREFERRED ALTERNATIVE

#### **Bold text** in tables indicates best-performing alternative(s).

CRITERIA	ALT A	ALT B
Temporary interference with local vehicle circulation	No Change	Along El Camino Real during passing track construction
Pedestrian Access from Downtown San Carlos to Caltrain Station	No Change	Reduced pedestrian access due to the relocation of the station 2,260 feet south of current location



#### IDENTIFYING A PREFERRED ALTERNATIVE

Community Factors

#### **Bold text** in tables indicates best-performing alternative.

CRITERION	ALT A	ALT B
Temporary increases in emergency vehicle access/response time in south San Mateo, Belmont, San Carlos, and northern Redwood City due to short-term road closures and construction traffic associated with passing track construction	None	Yes

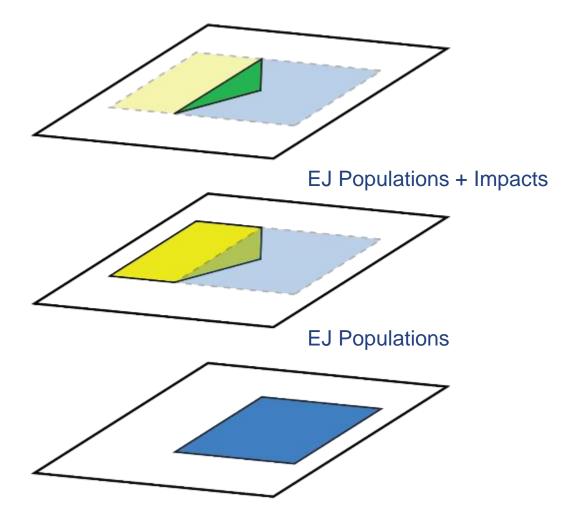




### **ENVIRONMENTAL JUSTICE**

**Bold text** in tables indicates best-performing alternative(s).

CRITERIA	ALT A	ALT B
Construction-related disruption to Caltrain Service	Less than Alt. B due to no passing track construction	More than Alt. A due to passing track construction
Permanent Effect on Planned Mixed Use Development (residential uses allowed) in Brisbane (acres)	2	21



Adverse & Beneficial Impacts



Community Factors

### **BIOLOGICAL AND AQUATIC RESOURCES**



**Bold text** in tables indicates best-performing alternative(s).

CRITERIA	ALT A	ALT B
Total permanent impacts on wetlands and other waters of the U.S. (acres)	8.8	12.8
Permanent Impacts on endangered callippe silverspot butterfly habitat (acres)	0.0	8.0





### SUMMARY OF ALTERNATIVES EVALUATION – SYSTEM PERFORMANCE, OPERATIONS, AND COST FACTORS

CRITERIA	ALT A	ALT B
Alignment length (miles)	No Difference	
Maximum Operating Speed (mph)	No Difference	
HSR Peak Hour Average Representative Travel Time San Francisco to San Jose (minutes)		
Proposition 1A Service Travel Time Compliance	$\checkmark$	$\checkmark$
Estimated Capital Costs (2017\$)		
Estimated Annual Operations and Maintenance Costs (2017\$)	No Difference	
Caltrain Peak Hour Average Representative Travel Time (minutes)		

#### Best-performing alternative

#### IDENTIFYING A PREFERRED ALTERNATIVE

## SUMMARY OF ALTERNATIVES EVALUATION – COMMUNITY FACTORS

CRITERIA	ALT A	ALT B
Residential displacements		
Commercial and industrial displacements		
Community and public facilities displacement		
Number of key viewpoints with decreased visual quality	•	
Temporary interference with local vehicle circulation	•	
Pedestrian Access from Downtown San Carlos to Caltrain Station		
Temporary increases emergency response time in south San Mateo, Belmont, San Carlos, and northern Redwood City due to short-term road closures		
Environmental Justice: Construction-related disruption to Caltrain Service		
Environmental Justice: Permanent Effect on Planned Mixed Use Development (residential uses allowed) in Brisbane		

Best-performing alternative (fewest/least community impacts)

### SUMMARY OF ALTERNATIVES EVALUATION – ENVIRONMENTAL FACTORS

CRITERIA	ALT A	ALT B
Total permanent impacts on wetlands and other waters of the U.S.	•	
Permanent Impacts on endangered callippe silverspot butterfly habitat		



Best-performing alternative (fewest environmental impacts)



## **CALTRAIN BUSINESS PLAN**

2040 Baseline Growth Scenario



### Features

- Blended service with up to 10 TPH north of Tamien (6 Caltrain + 4 HSR) and up to 10 TPH south of Tamien (2 Caltrain + 8 HSR)
- Three skip stop patterns with 2 TPH most stations are served by 2 or 4 TPH, with a few receiving 6 TPH
- Some origin-destination pairs are not served at all

### Passing Track Needs

 Less than 1 mile of new passing tracks at Millbrae associated with HSR station plus use of existing passing tracks at Bayshore and Lawrence

### **Options & Considerations**

- Service approach is consistent with PCEP and HSR EIRs
- Opportunity to consider alternative service approaches later in Business Plan process



## **Appendix B – Supplemental**

## SAN FRANCISCO TO SAN JOSE PROJECT SECTION



## **INTERFACING WITH NORTHERN CALIFORNIA AGENCIES**

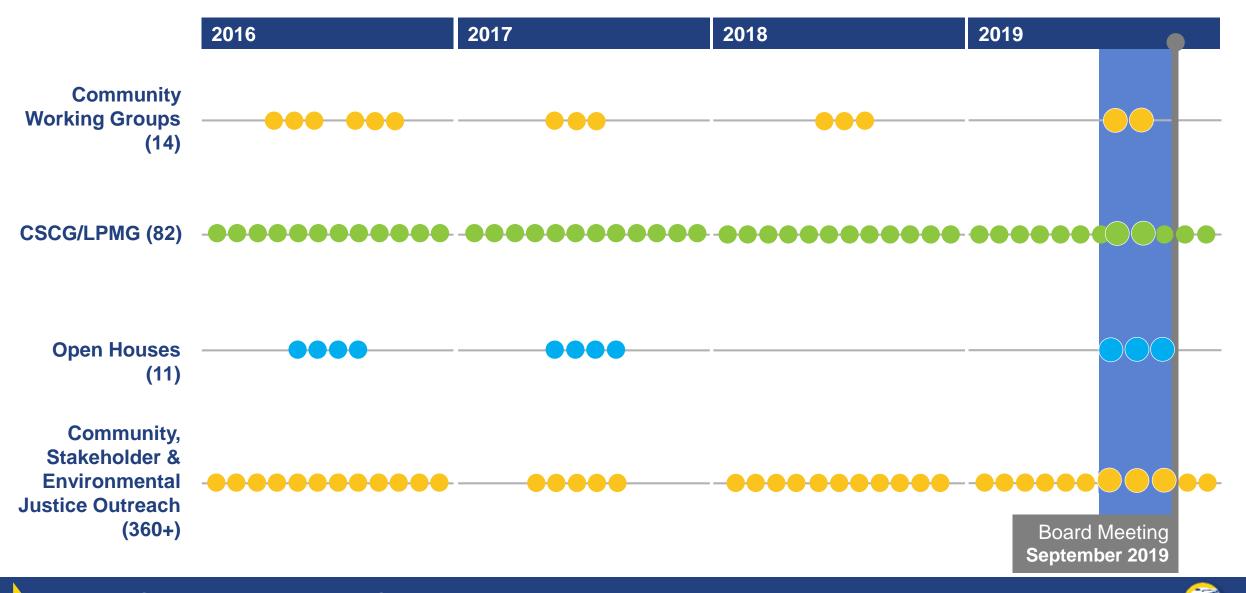
Topics covered in 2018 - 2019

	ALIGNMENTS	WATER MANAGEMENT	TRANSPORTATION/ ROADS	ENGINEERING/ DESIGN	LAND USE	JOINT OUTREACH	2018 BUSINESS PLAN
Bay Area Rapid Transit	•			•			•
California Strategic Growth Council	•			•			•
Caltrain	•			•			•
Caltrans District 4	•						•
City and County Staff (throughout corridor)	•			•			•
Floodplain Administrators and Managers	•			•			•
Metropolitan Transportation Commission	•						•
Mineta San Jose International Airport	•						•
San Francisco Bay Conservation and Development Commission	•						•
San Francisco International Airport	•			•			•
Santa Clara Valley Transportation Authority	•						•
Transbay Joint Powers Authority							

REFINING THE ALTERNATIVES: Collaboration with Partner Agencies, Stakeholders, and Members of the Public

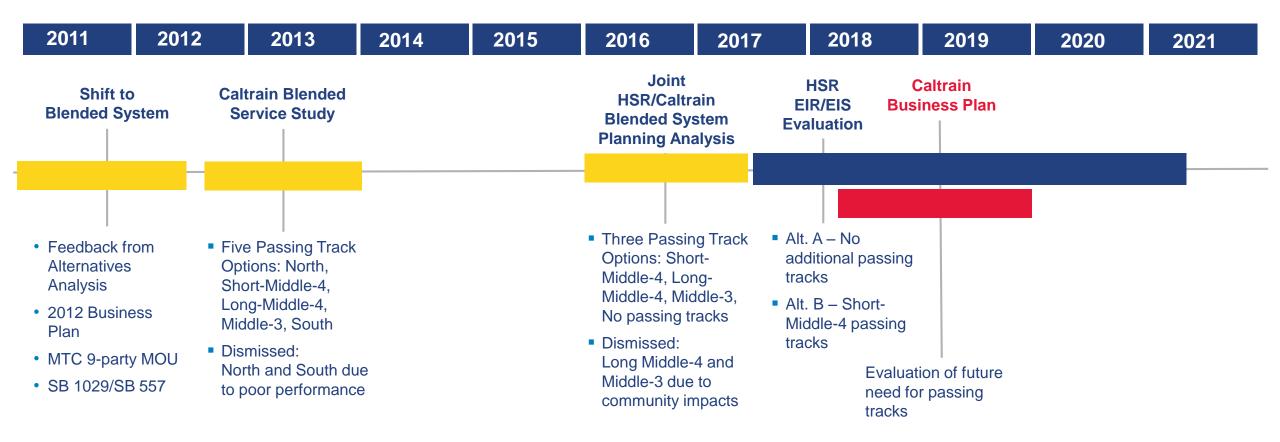


# SAN FRANCISCO TO SAN JOSE COMMUNITY OUTREACH



REFINING THE ALTERNATIVES: Collaboration with Partner Agencies, Stakeholders, and Members of the Public

## PASSING TRACKS EVALUATION TIMELINE



## **PASSING TRACKS**

Alternatives Eliminated

- Long Middle 3-Track Passing Track Option (16 miles)
- » San Mateo to Palo Alto
- » Greatest community impacts and costs
- » Impacts 16 at-grade crossings
- » Adjacent to 8.3 miles of residential uses
- Long Middle 4-Track Passing Track Option (8 miles)
- » San Mateo to Southern Redwood City
- » Moderate community impacts and costs
- » Impacts 6 at-grade crossings
- » Adjacent to 2.3 miles of residential uses

Note: "Middle" means middle of the corridor



## **PASSING TRACKS**

Alternatives Carried Forward

- Alternative A: No Additional Passing Track Option
- Alternative B: Short-Middle 4-Track Passing Track Option (6 miles)
- » San Mateo to Redwood City
- » Adjacent to 1.8 miles of residential uses
- » Relocates San Carlos Caltrain station



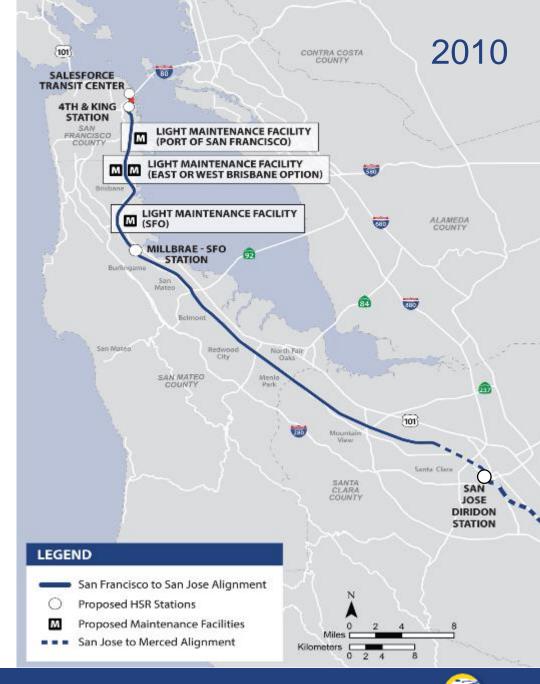


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## LIGHT MAINTENANCE FACILITY

Alternatives Considered

- Port of San Francisco
- East Brisbane/West Brisbane
- San Francisco International Airport



## LIGHT MAINTENANCE FACILITY

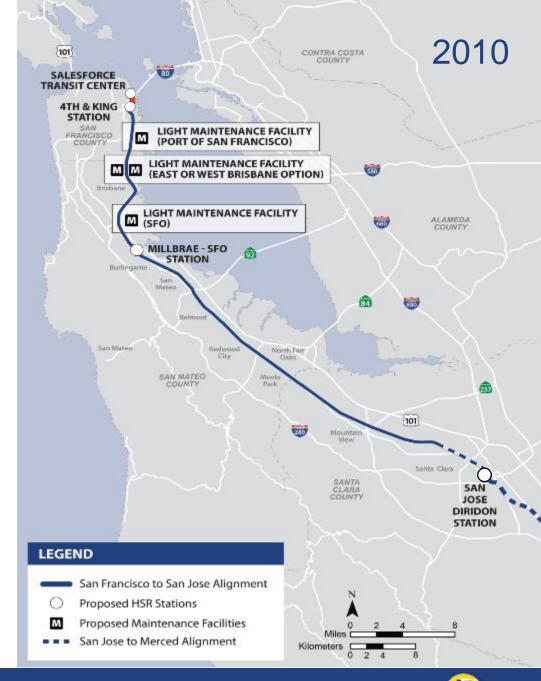
Alternatives Eliminated

### Port of San Francisco

- » Regionally and locally important infrastructure
- » Permanent disruption to major circulation elements
- » Displaces Marine Eco-Industrial Center planned uses
- » More wetland/water impacts than Brisbane East LMF
- » Substantially higher costs than Brisbane LMF options

### San Francisco International Airport

- » Regionally important facility
- » Displaces airport operational land uses
- » Airport constrained from expansion by San Francisco Resolution 69.08
- » More wetland/water impacts than Brisbane East LMF
- » Substantially higher costs than Brisbane LMF options



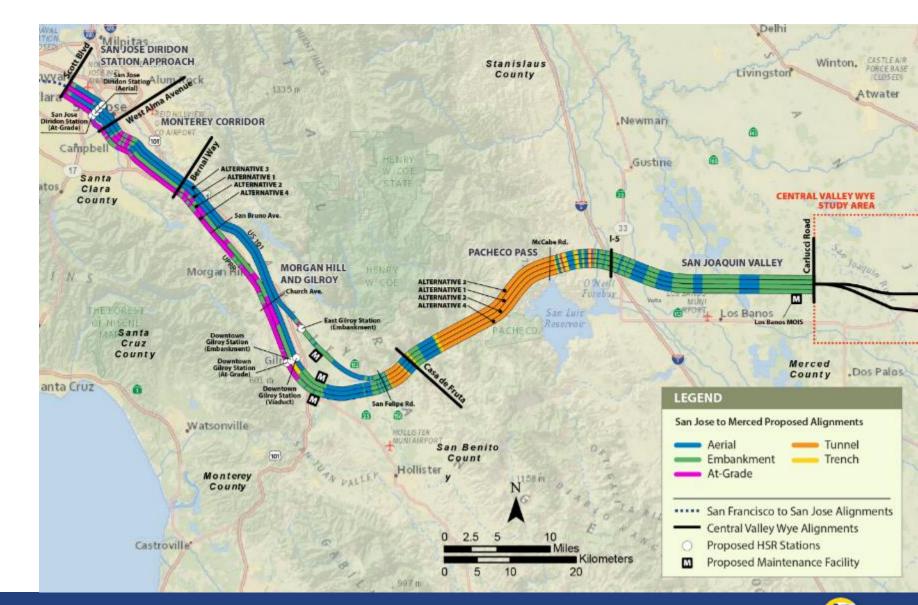
## **Appendix C – TECHNICAL ANALYSIS**

## SAN JOSE TO MERCED PROJECT SECTION



## SAN JOSE TO MERCED RANGE OF ALTERNATIVES

- San Jose to Merced Project
  Section
- 4 end-to-end alternatives
- Some alternatives are the same for a part of the route



### SUMMARY OF ALTERNATIVES EVALUATION – SYSTEM PERFORMANCE, OPERATIONS, & COSTS

System Performance, Operations and Costs

CRITERIA	ALT 1	ALT 2	ALT 3	ALT 4	
Alignment length					
Operational Speed — San Jose to Gilroy					
Operational Speed — Gilroy to Central Valley Wye		No diff	erence		
Proximity to existing transit corridors					
Travel time — San Jose and Gilroy					
Proposition 1A service travel time compliance	✓	~	✓	✓	
Estimated capital costs				•	
Estimated annual operations and maintenance costs	No difference				

### Best-performing alternative



# SUMMARY OF ALTERNATIVES EVALUATION – COMMUNITY FACTORS

Community
Factors

CRITERIA	ALT 1	ALT 2	ALT 3	ALT 4
Residential displacements				
Commercial displacements (#)				
Agricultural displacements (#)				
Community or public facilities displacements				
Commercial displacements (square footage)				
Agricultural structure displacements (square footage)				
Permanent conversion of important farmland				
Visual quality effects				
Consistency with Gilroy General Plan				
Noise impacts with noise barrier mitigation				

CRITERIA	ALT 1	ALT 2	ALT 3	ALT 4
Increase in 2040 peak travel time on Monterey Road (NB — AM/PM, SB — AM/PM)				
Permanent road closures				
Amount of mitigation needed to minimize emergency vehicle delays				
EJ proportion of total impacts on local views				
EJ proportion of total residential displacements				
EJ proportion of total business displacements				
Amount of mitigation required to address effects on emergency vehicle response times (EJ)				
EJ proportion of total noise impacts				

Best-performing alternative (fewest environmental impacts)

# SUMMARY OF ALTERNATIVES EVALUATION – ENVIRONMENTAL FACTORS



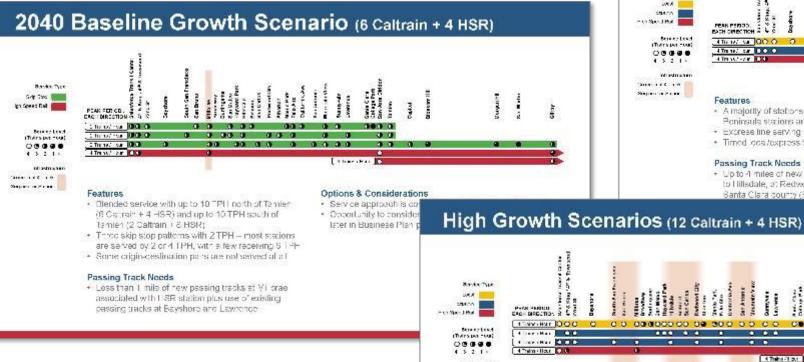
CRITERIA	ALT 1	ALT 2	ALT 3	ALT 4
Waters and wetlands				
Habitat for listed plant species				
Habitat for listed wildlife species (California tiger salamander)				
Wildlife corridor impacts				
Conservation areas				
Permanent use of 4(f)/6(f) park resources				
Permanent adverse effects on NRHP-listed/eligible resources				
Permanent significant impacts on CEQA-only historic resources				

Best-performing alternative (fewest environmental impacts)



## **CALTRAIN BUSINESS PLAN**

**Growth Scenarios** 



### Moderate Growth Scenario (8 Caltrain + 4 HSR)



- A majority of stations served by 4 TPH local stop line, but Mid. Peninsula stations are serviced with 2 TPH skip stop pattern.
- Express line serving major markets some stations receive & TPH
- + Timed loca/express transfer at Rodwood City

#### Passing Track Needs

 Up to 4 miles of new 4-track segments and stations: Hayward Hark. to Hillsdale, at Redwood City, and a 4 track station in northern Santa Clara county (Palo Abo, California Ave, San Antonio or

#### **Options & Considerations**

- To minimize passing track requirements, each local patient can only stop twice between San Brund and Hiledale
- Each local pattern can only stop once between. Hillsdale and Redwood City
- Alheiton, College Park, and San Martin served. on an hourly or exception basis

13

Redwood City, and northern Santa Clara County.

(shown: California /wenue to north of Mountain View)

between Palo Alto and Mountain View stations.



 Atherton, College Park, and San Martin served on an hourly or exception casis