# CALIFORNIA HIGH-SPEED RAIL NORTHERN CALIFORNIA REGION

Staff-Recommended State's Preferred Alternative

San Francisco County Transportation Authority Board Tuesday, July 23, 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.

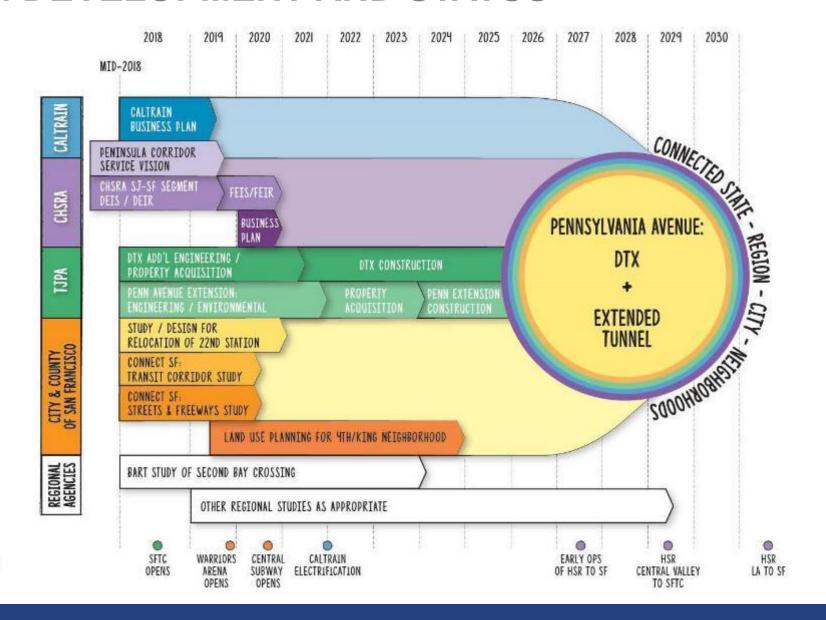
# SAN FRANCISCO TO SAN JOSE PROJECT SECTION

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

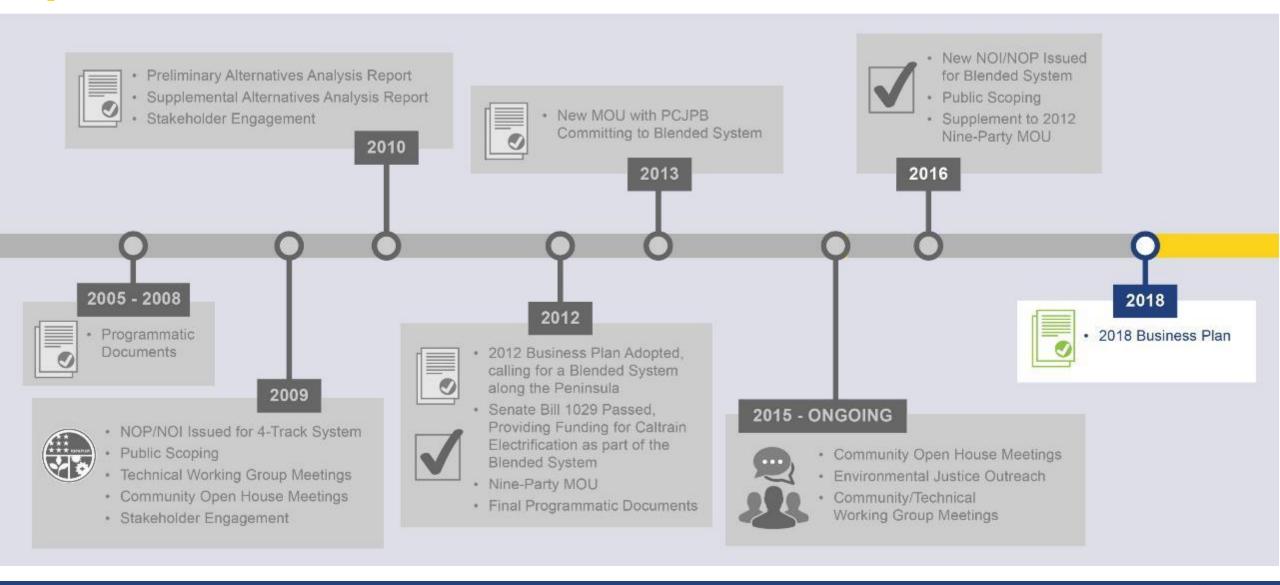
## PROGRAM DEVELOPMENT AND STATUS

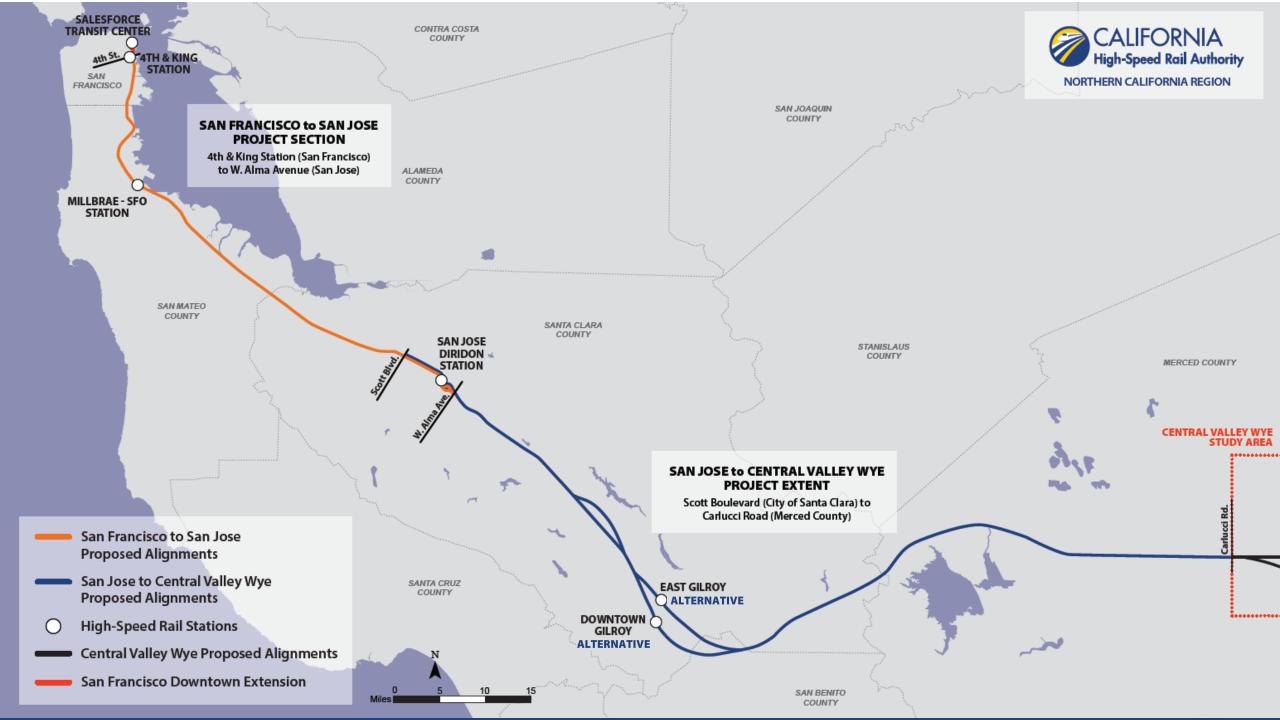
Approximate schedules,

subject to change



### HIGH-SPEED RAIL ALTERNATIVES DEVELOPMENT





# SAN FRANCISCO TO SAN JOSE PROJECT SECTION

# **ALTERNATIVES OVERVIEW**



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

San Francisco to San Jose Project Section

Alternative A Features

East Option Light Maintenance Facility
No Additional Passing Tracks

Alternative B Features

West Option Light Maintenance Facility
Additional Passing Tracks

HSR Stations

San Jose to Merced Alignments

Downtown Extension





# LIGHT MAINTENANCE FACILITY

**Alternatives Carried Forward** 

### **Brisbane**



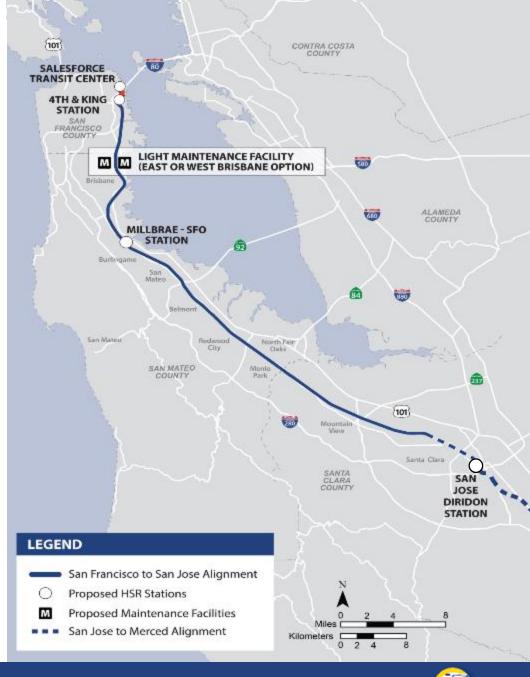
Alternative A

M East



Alternative B

West



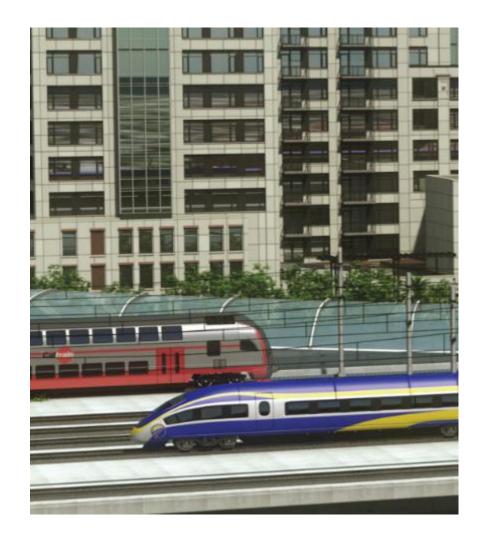
## SAN FRANCISCO TO SAN JOSE

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
- y 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

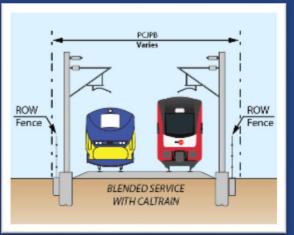
Common Project Elements – Alternatives A & B

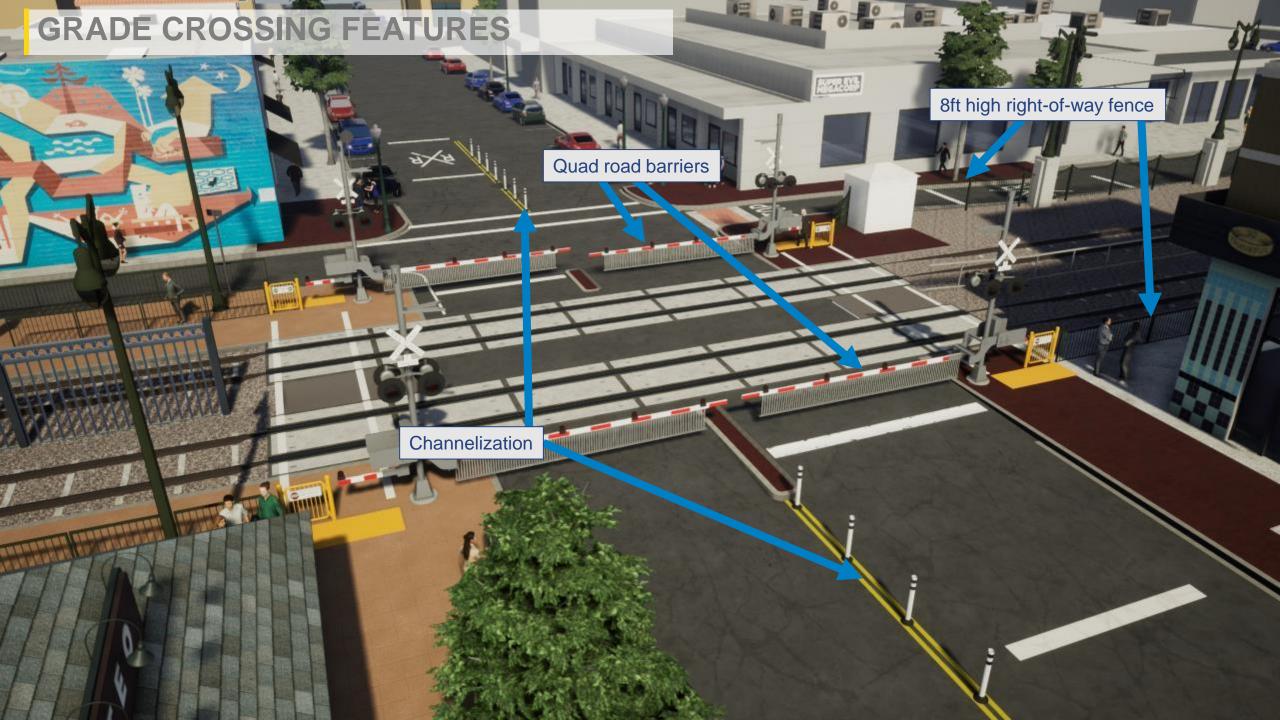
- Remove hold-out rule at Broadway and Atherton Caltrain Stations
- Safety modifications at Caltrain-only stations and at-grade crossings
- Corridor fencing



#### 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**





#### ALTERNATIVES EVALUATION CALIFORNIA FOR SAN FRANCISCO TO 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.

#### HOW WERE THE ALTERNATIVES EVALUATED?

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



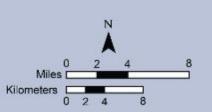
#### System Performance, Operations, and Costs. The best-performing alternative is bold.

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
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 San Francisco to San Jose Alignments Alternative A HSR Stations Maintenance Facility San Jose to Merced Alignments





## 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



#### **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 impacts on natural resources



Fewest displacements



Lowest capital cost



Fewest road closures



Slower HSR, faster Caltrain peak hour travel time



Fewest impacts on wetlands and habitats

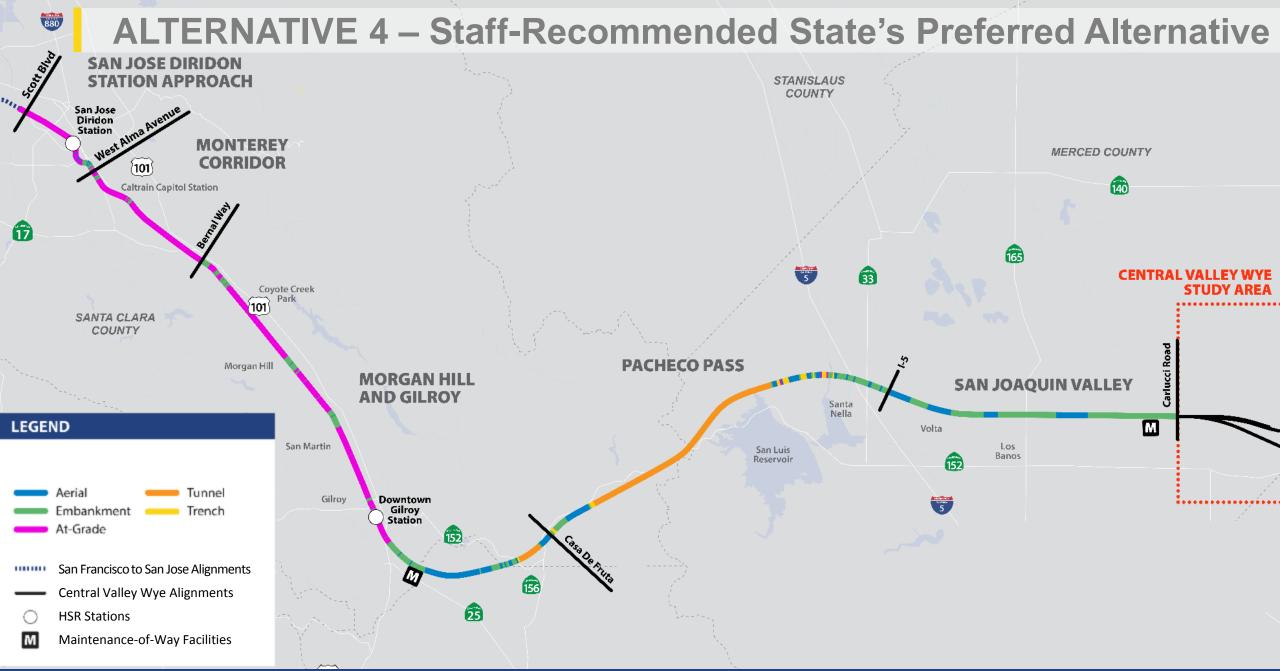


Policy-level alignment with the Caltrain Business Plan

# SAN JOSE TO MERCED PROJECT SECTION

# IDENTIFYING A PREFERRED ALTERNATIVE

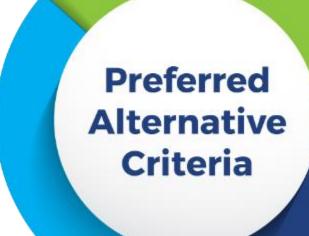




#### STATE'S PREFERRED ALTERNATIVE CRITERIA

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

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



#### **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)



Lowest capital cost

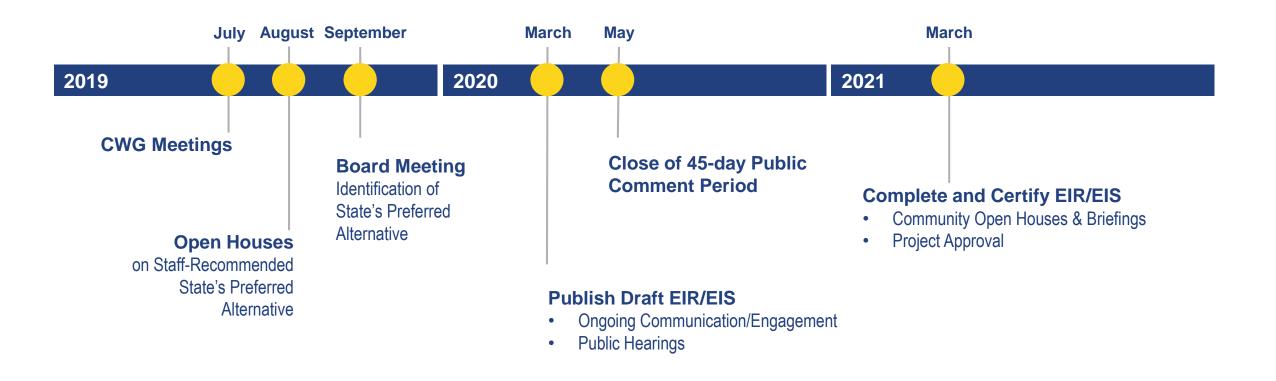


Allows for extension of electrified Caltrain service to Gilroy

# **NEXT STEPS**



## **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









### **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>



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

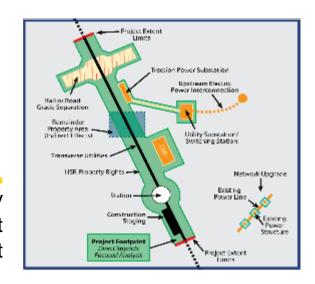
CRITERIA	ALT A	ALT B
Alignment length (miles)	42.9	
Maximum Operating Speed (mph)	Up to 110	
HSR Peak Hour Average Representative Travel Time San Francisco to San Jose (minutes)	47	45
Proposition 1A Service Travel Time Compliance	✓	✓
Estimated Capital Costs (2017\$) \$2.6 billion		\$3.5 billion
Estimated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

## **DISPLACEMENTS**



**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



HSR Temporary and permanent footprint

## **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





### 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**

M East

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



#### **Alternative B**

M West

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

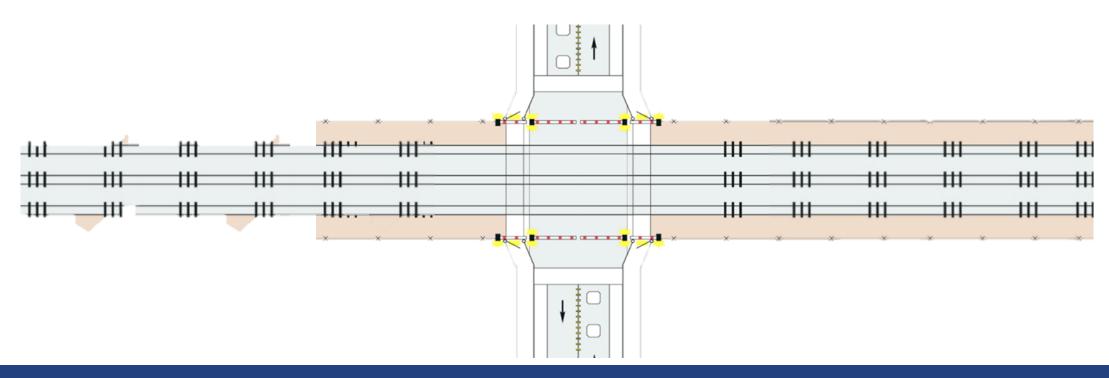


#### **TRANSPORTATION**



**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



## **EMERGENCY VEHICLE ACCESS/RESPONSE TIME**



**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

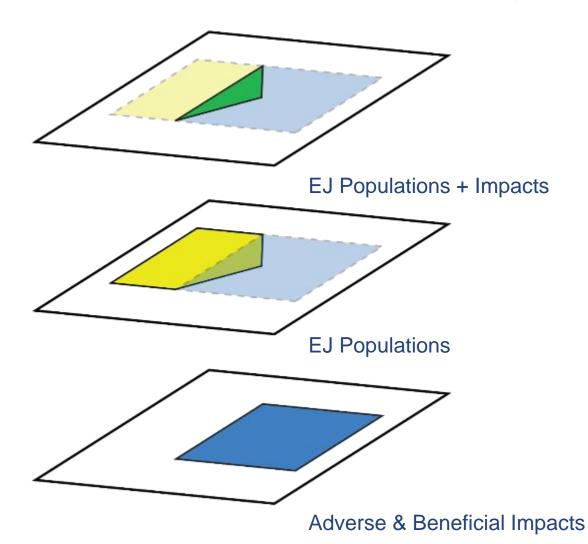


### **ENVIRONMENTAL JUSTICE**



**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



## **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	✓	✓
Estimated Capital Costs (2017\$)		
Estimated Annual Operations and Maintenance Costs (2017\$)	No Difference	
Caltrain Peak Hour Average Representative Travel Time (minutes)		

= Best-performing 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

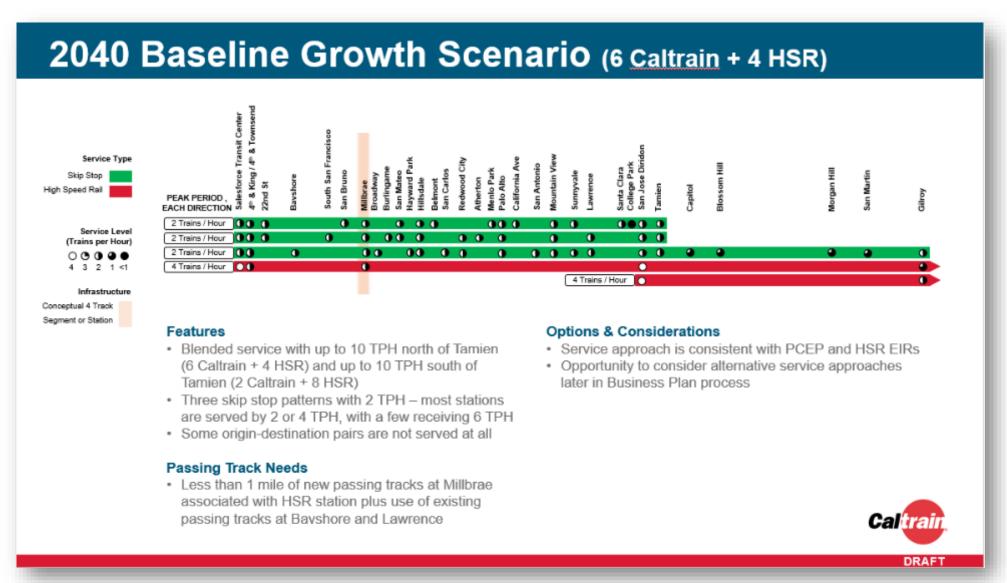
CRITERIA	ALT A	ALT B
Total permanent impacts on wetlands and other waters of the U.S.		
Permanent Impacts on endangered callippe silverspot butterfly habitat		



= Best-performing alternative (fewest environmental impacts)

# **CALTRAIN BUSINESS PLAN**

2040 Baseline Growth Scenario



# Appendix B – Supplemental

# SAN FRANCISCO TO SAN JOSE PROJECT SECTION



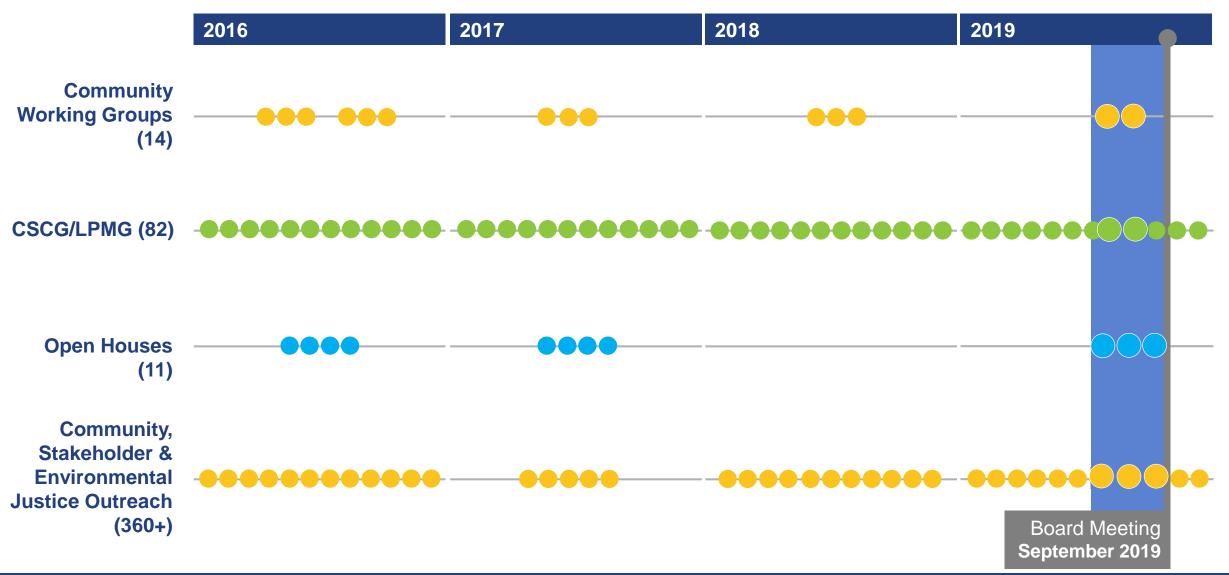
# INTERFACING WITH NORTHERN CALIFORNIA AGENCIES

Topics covered in 2018 - 2019

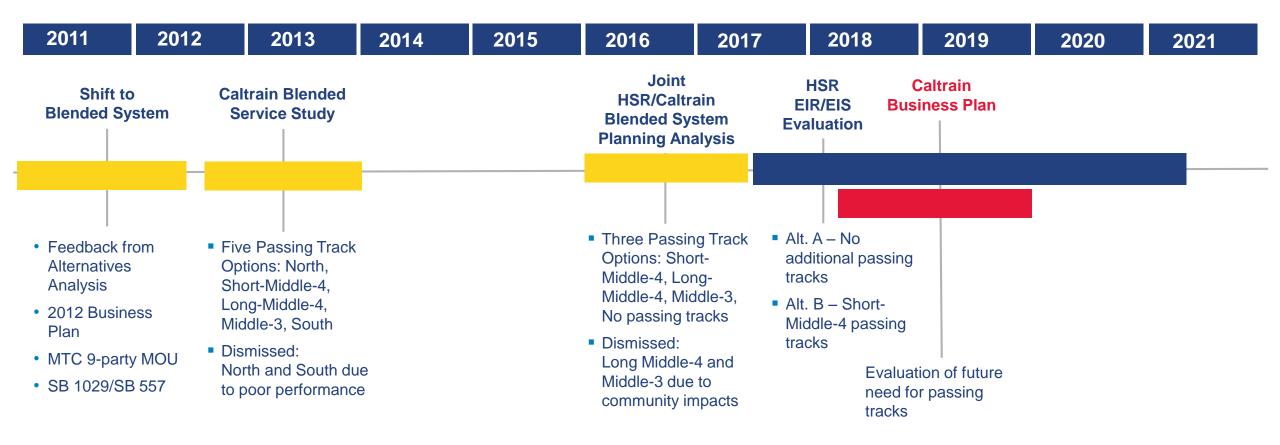
	ALIGNMENTS	WATER MANAGEMENT	TRANSPORTATION/ ROADS	ENGINEERING/ DESIGN	LAND USE	JOINT OUTREACH	2018 BUSINESS PLAN
Bay Area Rapid Transit							
California Strategic Growth Council							
Caltrain							
Caltrans District 4							
City and County Staff (throughout corridor)							
Floodplain Administrators 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							

# SAN FRANCISCO TO SAN JOSE COMMUNITY OUTREACH

2016 - 2019



## 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

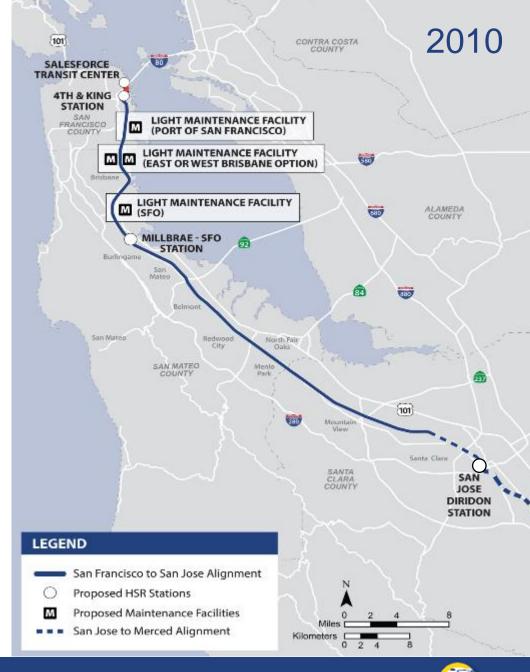
Note: "Middle" means middle of the corridor



# LIGHT MAINTENANCE FACILITY

**Alternatives Considered** 

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



# LIGHT MAINTENANCE FACILITY

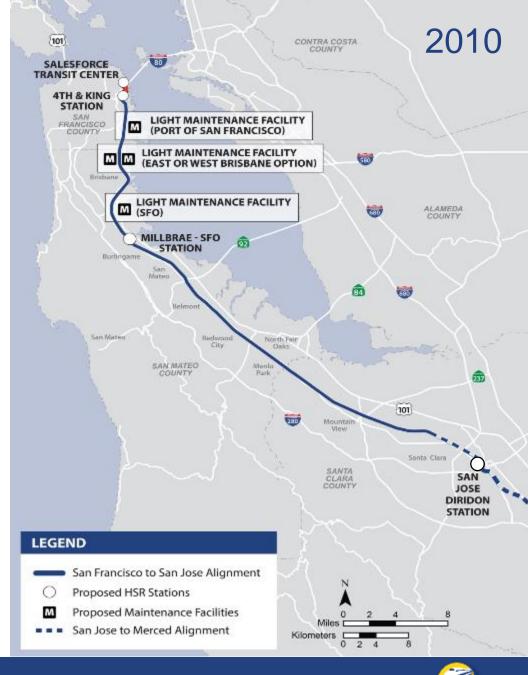
Alternatives Eliminated

#### 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



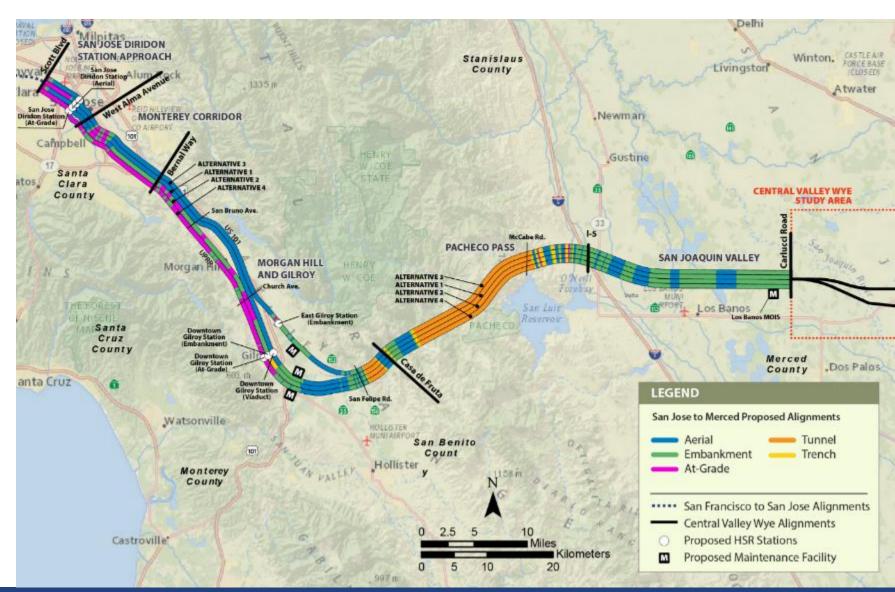
# Appendix C – TECHNICAL ANALYSIS

# 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



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 difference					
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



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** 

#### 2040 Baseline Growth Scenario (6 Caltrain + 4 HSR) Smith Type 54t 2xx ign Speed Ball (See 1 ht 10/ mar | 00 0 Beinteltert 2 hors/rea 00 0 0 0 00 0 0 0 0 (Theirs per rough 00000 4 Transid Aur CO 4 3 2 1 4 of astronomy Sme 1 6 6 1 0 Stephen in France Features Options & Considerations Diended service with up to 10 TPH north of Tamien. Service approach is con (6 Catrain + 4 HSR) and up to 10 TPH south of Departurity to consider Tamien (2 Caltrain + 8 HSR) later in Business Plan ( Throd skip stop patterns with 2 TPH – most stations are served by 2 or 4 TPH, with a few receiving 5 TPH

#### Moderate Growth Scenario (8 Caltrain + 4 HSR) DOM: SERVICE | - chillen I Had 4 To 107 va. QQ Q (Theirs per nous) 4 Transit par 0.0 0 00000 -times/-or CO of astronomy Ship 174 19 Stephen in France Options & Considerations A majority of stations served by 4 TPH local stop line, but Mid. · To min mize passing track requirements, each Peninsula stations are serviced with 2 TPH skip stop pattern. local patiern can only stop twice between San

#### Excress line serving major markets – some stations receive 8 TPH.

- + Tirried local/express transfer at Redwood City.

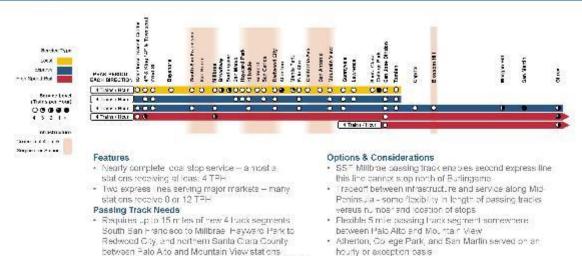
#### Passing Track Needs

 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

- Brund and Hilledale
- Each local pattern can only stop once between Hillsdale and Redwood City
- Alheiten, Oblege Park, and San Martin served. on an hourly or exception basis

### High Growth Scenarios (12 Caltrain + 4 HSR)

(snown: California Avenue to north of Mountain View)



Some origin-destination pans are not served at all.

. Less than I mile of new passing tracks at VI brae

passing tracks at Bayshore and Lawrence

associated with USR station plus use of existing

Passing Track Needs