Agenda

• Caltrain System Overview
• Project Overview
• Electric Train Design
• Santa Clara Construction Activities
• Questions
Caltrain System

- 32 Stations Gilroy to San Francisco
- 92 Weekday Trains
- At-Grade Crossings, viaducts, and bridges
- Intermodal Connections
- Bike Commuters

JPB owns right-of-way from SF to San Jose

Union Pacific owns
Ridership

AVERAGE DAILY RIDERSHIP

1998 2018
At Capacity Today

Bi-directional commute with riders standing on trains going southbound and northbound
### Aging Fleet

#### Table 1.2: Caltrain Fleet Inventory

<table>
<thead>
<tr>
<th>SERIES</th>
<th>QUANTITY</th>
<th>NUMBER OF SEATS</th>
<th>YEAR OF MANUFACTURE</th>
<th>MAKE</th>
<th>RETIRE DATE</th>
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<tbody>
<tr>
<td><strong>Locomotives</strong></td>
<td></td>
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<tr>
<td>F40 PH-2</td>
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<td>GM - EMD</td>
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<td><strong>Passenger Cars</strong></td>
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<tr>
<td>Gallery Trailer</td>
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<td>120</td>
<td>1999-2000</td>
<td>Nippon Sharyo</td>
<td>2030</td>
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<tr>
<td>Gallery Cab (Bike)</td>
<td>10</td>
<td>108</td>
<td>1985-1987</td>
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<td>2015-2017</td>
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<td>78</td>
<td>1999-2000</td>
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<td>2030</td>
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<tr>
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<td>97</td>
<td>1985</td>
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<td>2015</td>
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<td>Bi-Level Trailer*</td>
<td>16</td>
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<tr>
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<td>2032</td>
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<td>Bi-Level Trailer (Bike)</td>
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<td>2001-2002</td>
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<td>2031-2032</td>
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<tr>
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<td>2008</td>
<td>Bombardier</td>
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<td>2032</td>
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<td>140</td>
<td>2008</td>
<td>Bombardier</td>
<td>2038</td>
</tr>
</tbody>
</table>

*Trailers recently acquired from Metrolink with refurbishment ongoing.

**At Retirement Age: 20/29 loco; 73/134 cars**
Regional Transportation Needs

- US 101 and Interstate 280 Congested
- Corridor supports growing economy
- 75% Caltrain riders commute to work
- 60% are choice riders
# Project Description

<table>
<thead>
<tr>
<th>Area</th>
<th>Project</th>
<th>Service</th>
</tr>
</thead>
</table>
| 51 miles San Francisco to San Jose (Tamien Station) | Electrification:  
  - Overhead Contact System (OCS)  
  - Traction Power Facilities  
  Electric Trains  
  - 75 percent of fleet | Up to 79 mph  
  Service Increase  
  - 6 trains / hour / direction  
  - More station stops / reduced travel time  
  - Restore Atherton & Broadway service  
  Mixed-fleet service (interim period)  
  Continue tenant service  
  - ACE, Capital Corridor, Amtrak, Freight |
# Service Benefits

<table>
<thead>
<tr>
<th>Metric</th>
<th>Today</th>
<th>PCEP</th>
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<tbody>
<tr>
<td>Example Baby Bullet Train</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retain 5-6 stops</td>
<td>60 minutes</td>
<td>45 minutes</td>
</tr>
<tr>
<td>Retain SF to SJ 60 minutes</td>
<td>6 stops</td>
<td>13 stops</td>
</tr>
<tr>
<td>Example Redwood City Station</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Train stops / peak hour</td>
<td>3</td>
<td>5</td>
</tr>
</tbody>
</table>

Note: Prototypical Train and Schedule
Key Regional Benefits (2040)

- Greenhouse gases annual: 176,000 metric tons of CO₂
- Daily traffic congestion: 619,000 vehicle miles
- Engine noise: reduced

- Up to 97% clean air daily
- 111,000 ridership daily
- More service
- Improved frequency / quicker trips

Note: 2013 BAC Report, generates $2.5B economic activity and 9,600 jobs
Schedule

MILESTONES

- Caltrain strategic plan makes electrification a priority
- Environmental Clearance
- Award Contract
- Groundbreaking
- First Electric Train Arrives
- Passenger Service with Electric Trains
- Additional Capacity Improvements

*Electrification Infrastructure Construction*  
*Final System Testing*

*Please keep in mind that testing and construction will overlap as each Segment will be tested individually, prior to final system testing.*

Note: Schedule Subject to Change
Electric Train

• 2016 Capacity Board Decision (bike to seat ratio, onboard bathrooms, upper doors ‘not precluded’)

• 2017 Design Progressing w/ Additional Public Input
  - Completed: Exterior design, Seat colors, Bike Storage, ADA restroom

• 2019 Virtual Reality 360 Tour
• 51 Miles Corridor
• 4 Work Segments
• 3,000 Poles
• 10 Traction Power Facilities
# Field Work Status

<table>
<thead>
<tr>
<th>Pre-Construction Work Completed</th>
<th>Pre-Construction Work In Progress</th>
<th>Future Work</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Utility Survey</td>
<td>• Foundation Potholing</td>
<td>• Foundation Installation</td>
</tr>
<tr>
<td>• Geotechnical Investigations</td>
<td>• Tree Pruning and Removal</td>
<td>• Overhead Contact System Pole Installation</td>
</tr>
<tr>
<td>• Disposal of Soil from Geotechnical Investigations</td>
<td></td>
<td>• Overhead Contact System Wire Installation</td>
</tr>
<tr>
<td>• Soil Resistivity Testing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Site Surveys</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Signal Cable Inspections</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Future Construction Activities

### Santa Clara

<table>
<thead>
<tr>
<th>Date</th>
<th>Work Activity</th>
<th>Expected Duration*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summer/Fall 2018</td>
<td>Tree Pruning/Removal</td>
<td>2-3 months</td>
</tr>
<tr>
<td>Fall 2018</td>
<td>Potholing</td>
<td>2-4 months</td>
</tr>
<tr>
<td>Spring/Summer 2019</td>
<td>Foundation Installation</td>
<td>2-4 months</td>
</tr>
<tr>
<td>Summer/Fall 2019</td>
<td>Pole/Wire Installation</td>
<td>4-5 months</td>
</tr>
</tbody>
</table>

*Expected duration indicates first and last day of activity. Number of actual work days will be fewer.*
Potholing
Tree Pruning and Replacement

Cross Section View

Electrical Safety Zone

Vegetation Clearance Zone:
No vegetation overhang beyond trim lines or within 10 feet of electrical components.

Note: This figure depicts worst case scenario vegetation clearance with side poles.

Overhead Contact System
New Electrification Infrastructure

Vegetation trimmed line

Note: Tree pruning will be done in compliance with ANSI Z133 standards and best practices, therefore limb cuts will be made beyond the vegetation trim line, as determined by the project Certified Arborist.

Vegetation cleared for Electrical Safety Zone
<table>
<thead>
<tr>
<th></th>
<th>Caltrain Right of Way</th>
<th>Public Property</th>
<th>Private Property</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trees Removed</td>
<td>12</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Trees Pruned &gt;25%</td>
<td>14</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Trees Pruned &lt;25%</td>
<td>39</td>
<td>1</td>
<td>23</td>
</tr>
</tbody>
</table>

35 Trees will be replaced per the Santa Clara Tree Replacement Plan

Note: Information may change as the design progresses
Foundation Construction

- Excavation
- Rebar and Anchor Installation
- ElectricalGrounding
- Concrete Fill
Foundation Installation

On Track Equipment
Pole Installation

• 3,000 Installed throughout Corridor
  • Approx. 150 Poles in Santa Clara

• Pole Height: 30-45.5’

• Pole Spacing: ~180’ apart
Example Pole Types

- Single Track Cantilever
- Two Track Cantilever
- Portals
Pole Installation

Current Pole Installation
Stringing Wire

On-track Equipment
Santa Clara Test Track

- Approximately 1.5 miles of track
- Located between Santa Clara Station and Caltrain CEMOF facility
- Foundations, poles and wires to be installed prior to electric train testing
Santa Clara Test Track

- New electric trains will be tested on track
- Testing to occur between Summer 2019 to Fall 2021
- Testing anticipated to be during daytime
Overall Construction Information

- Work will occur during day and night
- Some 24 hour weekend work
- Crews will utilize acoustical barrier blankets and position lights away from homes
- Dedicated hotline for construction complaints
SF Weekend Caltrain Closures

• Weekends - Oct 6, 2018 to Late Spring 2019
  – Caltrain service north of the Bayshore Station will be suspended on the weekends
  – Bus service will be provided from Bayshore to 4th and King and 22nd Street stations
• Weekday service will remain unchanged
• Caltrain service south of Bayshore will remain unchanged
• Bus schedule available at caltrain.com
Public Outreach

• Subscribe to Weekly Updates
  – Visit www.calmod.org/get-involved

• Additional Community Meetings
  – Pole and Wire Installation

• Social Media

• Construction Outreach Office
Public Outreach

Physical Notices
CALMOD CONTACT INFORMATION

WEBSITE  CalMod.org

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