Agenda

• Caltrain System Overview
• Project Overview
• Electric Multiple Unit (EMU) Design
• San Francisco Construction Activities
• Questions
Caltrain System

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

JBP 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</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>
<td></td>
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<tr>
<td>F40 PH-2</td>
<td>5</td>
<td>na</td>
<td>1985</td>
<td>GM - EMD</td>
<td>2015</td>
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<td>MP36PH-3C</td>
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<td>2003</td>
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<td><strong>Passenger Cars</strong></td>
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<tr>
<td>Gallery Trailer</td>
<td>14</td>
<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>
<td>Nippon Sharyo</td>
<td>2015-2017</td>
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<td>Gallery Cab (Bike)</td>
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<td>78</td>
<td>1999-2000</td>
<td>Nippon Sharyo</td>
<td>2030</td>
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<tr>
<td>Gallery Cab (Bike)</td>
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<td>97</td>
<td>1985</td>
<td>Nippon Sharyo</td>
<td>2015</td>
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<tr>
<td>Bi-Level Trailer*</td>
<td>16</td>
<td>149</td>
<td>1997</td>
<td>Bombardier</td>
<td>2027</td>
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<tr>
<td>Bi-Level Trailer</td>
<td>9</td>
<td>144</td>
<td>2002</td>
<td>Bombardier</td>
<td>2032</td>
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<tr>
<td>Bi-level Trailer (Bike)</td>
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<td>114</td>
<td>2002</td>
<td>Bombardier</td>
<td>2032</td>
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<tr>
<td>Bi-level Trailer (Bike)</td>
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<td>2001-2002</td>
<td>Bombardier</td>
<td>2031-2032</td>
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<tr>
<td>Bi-level Trailer (Bike)</td>
<td>2</td>
<td>114</td>
<td>2008</td>
<td>Bombardier</td>
<td>2038</td>
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<tr>
<td>Bi-level Trailer (Bike)</td>
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<td>Bombardier</td>
<td>2032</td>
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<td>Bi-Level Trailer</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>
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<tbody>
<tr>
<td>51 miles</td>
<td>Electrification:</td>
<td>Up to 79 mph</td>
</tr>
<tr>
<td>San Francisco to San</td>
<td>• Overhead Contact System (OCS)</td>
<td>Service Increase</td>
</tr>
<tr>
<td>Jose (Tamien Station)</td>
<td>• Traction Power Facilities</td>
<td>• 6 trains / hour / direction</td>
</tr>
<tr>
<td></td>
<td>Electric Trains (EMUs)</td>
<td>• More station stops / reduced travel time</td>
</tr>
<tr>
<td></td>
<td>• 75 percent of fleet</td>
<td>• Restore Atherton &amp; Broadway service</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mixed-fleet service (interim period)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Continue tenant service</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• ACE, Capital Corridor, Amtrak, Freight</td>
</tr>
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</table>
## Service Benefits

<table>
<thead>
<tr>
<th>Metric</th>
<th>Today</th>
<th>PCEP</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Example Baby Bullet Train</strong></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><strong>Example Redwood City Station</strong></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

**Clean Air Daily**
- Up to 97%
- 111,000 ridership daily
- 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

*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 Progressed w/ Additional Public Input (exterior design, seat colors, bike storage, ADA restroom)
- 2018 Virtual Reality 360 Tour
CalMod

Construction Phasing

- 51 Miles Corridor
- 4 Work Segments
- 3,000 Poles
- 10 Traction Power Facilities
San Francisco Work Area 4.9 miles
# Field Work Status

| Pre-Construction Work Completed | • Utility Survey  
|                               | • Geotechnical Investigations  
|                               | • Disposal of Soil from Geotechnical Investigations  
|                               | • Soil Resistivity Testing  
|                               | • Site Surveys  
|                               | • Signal Cable Inspections  
| Pre-Construction Work In Progress | • Foundation Potholing  
| Future Work | • Tunnel Work  
|             | • Tree Pruning and Removal  
|             | • Foundation Installation  
|             | • Overhead Contact System Pole Installation  
|             | • Overhead Contact System Wire Installation  
|             | • Paralleling Stations  

## Future Construction Timeline

### San Francisco

<table>
<thead>
<tr>
<th>Date</th>
<th>Work Activity</th>
<th>Expected Duration*</th>
</tr>
</thead>
<tbody>
<tr>
<td>December 2018</td>
<td>Potholing</td>
<td>3-4 months</td>
</tr>
<tr>
<td>Fall 2018</td>
<td>Tunnel Work</td>
<td>7-8 months</td>
</tr>
<tr>
<td>Winter 2018</td>
<td>Tree Pruning/Removal</td>
<td>1-2 months</td>
</tr>
<tr>
<td>Spring 2019</td>
<td>Foundation Installation</td>
<td>2-3 months</td>
</tr>
<tr>
<td>Summer 2019</td>
<td>Pole/Wire Installation</td>
<td>4-5 months</td>
</tr>
<tr>
<td>Summer 2019</td>
<td>Paralleling Station Construction</td>
<td>3-5 months</td>
</tr>
</tbody>
</table>

*Expected duration indicates first and last day of activity. Number of actual work days will be fewer.
Potholing
San Francisco Tunnel Work

• Work on the four San Francisco Tunnels:
  – Overhead Contact System Installation
  – Grouting and Notching
  – Drainage and Track Work

• Pre-construction: September 2018

• 24 hour/day weekend work
Caltrain Service During Tunnel Work

- Weekends - Oct 6, 2018 to Late March 2019
  - Caltrain service north of the Bayshore Station will be suspended on 24 consecutive weekends
  - Bus service will be provided from Bayshore to 4th and King and 22nd Street stations

- Caltrain weekday service will remain unchanged

- Caltrain service south of Bayshore will remain unchanged

- Bus schedule will be available mid-September
Tree Pruning and Replacement

Vegetation cleared for Electrical Safety Zone

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

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.

Overhead Contact System/ New Electrification Infrastructure

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

Cross Section View

Limb cuts
City and County of San Francisco: Tree Pruning and Replacement Plan

<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>8</td>
<td>16</td>
<td>0</td>
</tr>
<tr>
<td>Trees Pruned &gt;25%</td>
<td>6</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>Trees Pruned &lt;25%</td>
<td>10</td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>

52 Trees will be replaced per the San Francisco Tree Replacement Plan

Note: Information may change as the design progresses
Foundation Installation

- Excavation
- Rebar and Anchor Installation
- Electrical Grounding
- Concrete Fill
Foundation Installation

On Track Equipment
Pole Installation

- 3,000 Installed throughout Corridor
  - Approx. 250 poles in San Francisco
- Pole Height: 30-45.5’
- Pole Spacing: ~180’ apart
Pole Installation

Current Pole Installation
Stringing Wire

On-track Equipment
Traction Power Facilities

• 10 Traction Power Facilities Installed throughout Corridor
  - 2 Paralleling Stations installed in San Francisco
  - Gantry structures up to 50’
• Provides electrical power to trains through the Overhead Contact System (OCS)
• Unmanned station
• Day and weekend construction work
• Limited night work during construction
Construction Impacts

- Daytime work and night work from 8 p.m. - 6 a.m.
- Some 24 hour/day work on weekends
- Crews will utilize acoustical barrier blankets and position lights away from homes
- Dedicated hotline for construction complaints
Public Outreach

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

• Additional Community Meetings Before:
  – Pole and Wire Installation
  – Paralleling Station Construction

• Social Media

• Construction Outreach Office
Public Outreach

Physical Notices

Peninsula Corridor Electrification

SCOTT ST STREET CLOSURE NOTICE | March 2018

UPCOMING ACTIVITIES AND CLOSURE

For the month of April 2018, crews will be working in the Scott Street area to perform construction activities as part of the Electrification project along the Peninsula Corridor. The work will include installing new utility poles, relocating utility lines, and constructing new substations in the area.

CONSTRUCTION ACTIVITIES

Electrification crews will be working on Scott Street to upgrade the existing electrical infrastructure. The work will involve the installation of new utility poles, the replacement of existing poles, and the relocation of utility lines.

PUBLIC INFORMATION OFFICE

For more information, visit the Caltrain Electrification website at catrail.com/electrification or contact the Project Information Office at 650-399-9909. Construction activities are expected to occur Monday through Friday from 7:00 a.m. to 6:00 p.m.

Caltrain.com/PECIP  650-399-9659
caltraininfo@caltrain.com

USING THE NEW ELECTRIC-Caltrain schedules

High-speed Caltrain service will begin in the spring of 2018, offering faster, more frequent service to and from the Peninsula. For more information, visit catrail.com/electrification or call 650-399-9659.

Crews Working in the Area

Crews will be working in the Scott Street area to perform the following activities:

- Installing new utility poles
- Relocating utility lines
- Constructing new substations

For more information, contact the Project Information Office at 650-399-9909.
CALMOD CONTACT INFORMATION

WEBSITE 🌐 CalMod.org

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