Peninsula Corridor Electrification Update Meeting
Caltrain Electrification Public Outreach Office
September 13, 2017

Agenda

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

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

Average Daily Ridership

Ridership

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

Union Pacific owns
At Capacity Today

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

Aging Fleet

<table>
<thead>
<tr>
<th>Table 1.2: Caltrain Fleet Inventory</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SERIES</strong></td>
</tr>
<tr>
<td><strong>Locomotives</strong></td>
</tr>
<tr>
<td>F40PH-2</td>
</tr>
<tr>
<td>F40PH-2 (DC)</td>
</tr>
<tr>
<td>MP60PH-3</td>
</tr>
<tr>
<td><strong>Passenger Cars</strong></td>
</tr>
<tr>
<td>Gallery Trailer</td>
</tr>
<tr>
<td>Gallery Cab (Blue)</td>
</tr>
<tr>
<td>Gallery Cab (Blue)</td>
</tr>
<tr>
<td>Gallery Cab (Blue)</td>
</tr>
<tr>
<td>Bi-Level Trailer</td>
</tr>
<tr>
<td>Bi-Level Trailer</td>
</tr>
<tr>
<td>Bi-Level Trailer (Blue)</td>
</tr>
<tr>
<td>Bi-Level Trailer (Blue)</td>
</tr>
<tr>
<td>Bi-Level Trailer (Blue)</td>
</tr>
<tr>
<td>Bi-Level Trailer (Blue)</td>
</tr>
<tr>
<td>Bi-Level Trailer</td>
</tr>
</tbody>
</table>

*Trains recently acquired from Metrolink with refurbishment ongoing.*
Project Description

<table>
<thead>
<tr>
<th>Area</th>
<th>Project</th>
<th>Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>51 miles</td>
<td>Electrification:</td>
<td>Up to 79 mph</td>
</tr>
<tr>
<td>San Francisco to San Jose</td>
<td>• Overhead Contact System (OCS)</td>
<td>Service Increase</td>
</tr>
<tr>
<td>(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>
</tbody>
</table>

Mixed-fleet service (interim period)
Continue tenant service
• ACE, Capital Corridor, Amtrak, Freight

Key Regional Benefits (2040)

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 Train Arrives
- Passenger Service with Electric Trains
- Additional Caltrain Capacity Improvements

Electrification Infrastructure Construction and Final System Testing

Note: Schedule Subject to Change

Electric Train Design & Public Input
Peninsula Corridor Electrification Project
Electric Train Outreach: Phased

- 2016 Capacity Board Decision (bike to seat ratio, onboard bathrooms, upper doors)

- 2017 Design Progressing, Additional Public Input (bike storage, seat colors, signage content, etc.)

- 2018 Virtual Reality 360 Tour

Outreach Tool: Dedicated Website

www.calmodtrains.com
Next Steps

• Capture feedback on design elements
• Continue rollout of key design features for public input and education
  – Exterior / Interior Sign Content: Dec. 2017
• Public feedback paired with technical analysis
• Virtual Reality Tour: 2018

Construction
Work Segment 2

- San Mateo
Field Work Status

| Work Completed to Date      | • Utility Survey  
|                            | • Geotechnical Investigations  
|                            | • Soil Resistivity Testing  
|                            | • Site Surveys  
| Work In Progress and Upcoming | • Overhead Contact System (OCS) Foundation Potholing  
|                            | • Signal Cable Potholing  
|                            | • Disposal of Soil from Geotechnical Investigations  
|                            | • Signal Cable Inspections  
|                            | • Tree Pruning and Removal  
|                            | • OCS Foundation Construction  
| Future Work                | • OCS Pole Installation  
|                            | • OCS Wire Installation  

Potholing
Future Construction Activities

San Mateo

<table>
<thead>
<tr>
<th>Date</th>
<th>Work Activity</th>
<th>Expected Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>September 2017</td>
<td>Tree Pruning/Removal</td>
<td>2 months</td>
</tr>
<tr>
<td>Winter 2017</td>
<td>Foundation Construction</td>
<td>3-4 months</td>
</tr>
<tr>
<td>Mid-2018</td>
<td>Overhead Wiring Pole and Wire Installation</td>
<td>3 months</td>
</tr>
<tr>
<td>Summer/Fall 2018</td>
<td>Traction Power Substation</td>
<td>12 months</td>
</tr>
</tbody>
</table>

Tree Pruning and Replacement

- Vegetation cleared for Electrical Safety Zone
Tree Pruning and Replacement

JPB Property
• 1:1 replacement for any non-riparian tree in JPB right-of-way (ROW)

Public or Private Property
• 1:1 City/County replacement ratio for trees being removed on public or private property
  – In San Mateo a replacement ration of 1:1 is used for both heritage trees* and non-heritage trees
• 1:1 replacement for any tree pruned over 25%**

Environmental Permit Requirements
• 6:1 replacement for any riparian oaks removed
• 3:1 replacement for any other native riparian species removed
• 1:1 replacement for any non-native riparian species removed

*Any bay, buckeye, oak, cedar, or redwood tree having a diameter of 10 inches or more, or any other tree with a trunk diameter of 16 inches or more.
**Trees pruned over 25% will remain in place and will not be removed. A replacement tree will also be planted.

San Mateo: Tree Pruning and Replacement Plan

San Mateo
Total Number of Trees Assessed in San Mateo = 186

<table>
<thead>
<tr>
<th>San Mateo</th>
<th>Total Number of Trees Assessed in San Mateo = 186</th>
</tr>
</thead>
<tbody>
<tr>
<td>JPB ROW</td>
<td>Caltrain Right of Way</td>
</tr>
<tr>
<td>Trees Impacted</td>
<td>Replacement Ratio</td>
</tr>
<tr>
<td>Trees Preserved</td>
<td>34</td>
</tr>
<tr>
<td>Tree Removed</td>
<td>37</td>
</tr>
<tr>
<td>Tree Pruned &gt;25%</td>
<td>5*</td>
</tr>
<tr>
<td>Tree Pruned &lt;25%</td>
<td>48</td>
</tr>
</tbody>
</table>

*Includes 1 riparian tree replaced at 1:1 per Project’s permits

Note: Information may change as the design progresses
San Mateo: Tree Pruning and Replacement Plan

**Private Property**

<table>
<thead>
<tr>
<th>San Mateo</th>
<th>Total Number of Trees Assessed in San Mateo = 186</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Trees Impacted</td>
</tr>
<tr>
<td><strong>Private Property</strong></td>
<td></td>
</tr>
<tr>
<td>Trees Preserved</td>
<td>9</td>
</tr>
<tr>
<td>Tree Removed</td>
<td>0</td>
</tr>
<tr>
<td>Tree Pruned &gt;25%</td>
<td>0</td>
</tr>
<tr>
<td>Tree Pruned &lt;25%</td>
<td>22</td>
</tr>
</tbody>
</table>

Note: Information may change as the design progresses.

---

San Mateo: Tree Pruning and Replacement Plan

**Public Property**

<table>
<thead>
<tr>
<th>San Mateo</th>
<th>Total Number of Trees Assessed in San Mateo = 186</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Trees Impacted</td>
</tr>
<tr>
<td><strong>Public Property</strong></td>
<td></td>
</tr>
<tr>
<td>Trees Preserved</td>
<td>7</td>
</tr>
<tr>
<td>Heritage Tree Removed</td>
<td>1</td>
</tr>
<tr>
<td>Non-Heritage Tree Removed</td>
<td>0</td>
</tr>
<tr>
<td>Heritage Tree Pruned &gt;25%</td>
<td>4</td>
</tr>
<tr>
<td>Non-Heritage Tree Pruned &gt;25%</td>
<td>1</td>
</tr>
<tr>
<td>Tree Pruned &lt;25%</td>
<td>18</td>
</tr>
</tbody>
</table>

*Any bay, buckeye, oak, cedar, or redwood tree having a diameter of 10 inches or more, or any other tree with a trunk diameter of 16 inches or more.

Note: Information may change as the design progresses.
Foundation Work

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

Foundation Specifics

- Approx. 270 poles installed in San Mateo
- Foundation size varies from 30” to 42”
- Foundation spacing approx. 180’ apart
Pole Foundation Work

Will take place on and off track

DrillTech on track foundation train

DrillTech off-track OCS Drill Rig

Pole Installation

• 36’ Pole Height
• Flat bed material transport
  – Rail and street
• Wide flange & square poles
  – San Mateo station square poles
• On & off-track crane installation
Pole Installation

- On/off-track crane for installation
- Wide flange & square poles
- Foundation Rebar Cage

Overhead Contact System (OCS)

- Will take place on-track
Construction Impacts

• Daytime work and night work from 8 p.m.- 6 a.m.
• Some 24 hour weekend work
• Crews will utilize acoustical barrier blankets and position lights away from homes
• Dedicated hotline for construction complaints

Public Outreach

• Subscribe to Weekly Updates
  – Visit caltrain.com/pcepconstruction
• Additional Community Meetings
  – Pole and Wire Installation
• Construction Outreach Office
Public Outreach

• Physical Notices

Construction Contact Information

Email: calmod@caltrain.com
Phone: 650.399.9659
Toll Free: 800.660.4287

2121 S. El Camino Real, Suite A-100
San Mateo, CA 94403
9 a.m. - 6 p.m. Monday-Friday

www.caltrain.com/pcepconstruction