Peninsula Corridor Electrification Update Meeting
South Beach | Rincon | Mission Bay Neighborhood Assoc.
September 10, 2018
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
At Capacity Today

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

Average Daily Ridership

1998 - 2018
## Aging Fleet

### Table 1.2: Caltrain Fleet Inventory

<table>
<thead>
<tr>
<th>SERIES</th>
<th>QUANTITY</th>
<th>NUMBER OF SCNAT</th>
<th>YEAR OF MANUFACTURE</th>
<th>MAKE</th>
<th>RETIRE DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Locomotives</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F40 PH-2</td>
<td>5</td>
<td>na</td>
<td>1985</td>
<td>GM - EMD</td>
<td>2015</td>
</tr>
<tr>
<td>F40 PH-2C</td>
<td>3</td>
<td>na</td>
<td>1998</td>
<td>Boise Locomotive</td>
<td>2028</td>
</tr>
<tr>
<td>MP36PH-3C</td>
<td>6</td>
<td>na</td>
<td>2003</td>
<td>Motive Power</td>
<td>2033</td>
</tr>
</tbody>
</table>

| **Passenger Cars** |          |                 |                     |                     |                   |
| Gallery Cab (Bike)| 14       | 120             | 1989-2000           | Nippon Sharyo       | 2030              |
| Gallery Cab (Bike)| 10       | 108             | 1985-1987           | Nippon Sharyo       | 2015-2017         |
| Gallery Cab (Bike)| 6        | 78              | 1999-2000           | Nippon Sharyo       | 2030              |
| Gallery Cab (Bike)| 21       | 97              | 1985                | Nippon Sharyo       | 2015              |
| Bi-Level Trailer* | 16       | 149             | 1997                | Bombardier          | 2027              |
| Bi-Level Trailer  | 9        | 144             | 2002                | Bombardier          | 2032              |
| Bi-level Trailer (Bike)| 2 | 114 | 2002 | Bombardier | 2032 |
| Bi-level Trailer (Bike)| 5 | 114 | 2001-2002 | Bombardier | 2031-2032 |
| Bi-level Trailer (Bike)| 2 | 114 | 2008 | Bombardier | 2038 |
| Bi-level Trailer (Bike)| 1 | 127 | 2002 | Bombardier | 2032 |
| Bi-Level Trailer  | 6        | 140             | 2008                | Bombardier          | 2038              |

*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>
<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>
<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>
</tbody>
</table>

- **Electrification:**
  - Overhead Contact System (OCS)
  - Traction Power Facilities

- **Electric Trains (EMUs):**
  - 75 percent of fleet
## 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

- Up to 97% clean air daily
- 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

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 Progressed w/ Additional Public Input (exterior design, seat colors, bike storage, ADA restroom)

• 2018 Virtual Reality 360 Tour
Electric Train Exterior Design
Public Poll

Exterior Design Poll Results

<table>
<thead>
<tr>
<th>Design</th>
<th>Votes</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2665</td>
<td>42.1%</td>
</tr>
<tr>
<td>2</td>
<td>814</td>
<td>12.9%</td>
</tr>
<tr>
<td>3</td>
<td>1580</td>
<td>25%</td>
</tr>
<tr>
<td>4</td>
<td>1272</td>
<td>20.1%</td>
</tr>
</tbody>
</table>

6331 Total Votes
Electric Train Exterior Design

WINNING DESIGN: OPTION 1
Electric Train Seat Design

WINNING DESIGN: OPTION B

SEAT POLL RESULTS
2549 TOTAL VOTES

A

B

1007

1528

0

1000

2000

39.7%

60.3%
Electric Train Onboard Bike Storage Outreach
Construction Phasing

- 51 Miles Corridor
- 4 Work Segments
- 3,000 Poles
- 10 Traction Power Facilities
San Francisco – Work Segment 1

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
  – 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 in 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.

Cross Section View

Electrical Safety Zone

Overhead Contact System/ New Electrification Infrastructure

Limb cuts

Vegetation Trim Line

Not to Scale
# 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
4th and King Tree Information

- 16 public street trees along King Street are planned for removal
- Tree replacement locations have been coordinated with the City and County of San Francisco
- Will be planted in areas that are not affected by Electrical Safety Zone
Foundation Installation

- Excavation
- Rebar and Anchor Installation
- Electrical Grounding
- Concrete Fill
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 STREET CLOSURE NOTICE | March 2018

UPCOMING ACTIVITIES AND CLOSURE

Friday, March 2, 2018 - Sunday, June 30, 2018

Crews will close Scott Street between 5:00 a.m. and 6:00 a.m. on weekdays from March 2, 2018 to June 30, 2018. The street will remain closed to all through traffic.

CONSTRUCTION ACTIVITIES

• Crews will close Scott Street between 5:00 a.m. and 6:00 a.m. on weekdays from March 2, 2018 to June 30, 2018.

PUBLIC INFORMATION OFFICE

Call 800-853-2001 or email Caltrain.com/NECDP for more information.

Caltrain.com/NECDP

650-399-9039

caltrain.com/ScottSt

Para transacciones llame al 1-800-660-4287.

Dear Caltrain Neighbor,

Over the next three months, Caltrain will be performing work on the railroad corridor in your area to improve Caltrain service as part of the Peninsula Corridor Electrification Project. The anticipated activities during this time include replacing underground utilities, which will affect access to our equipment, and will temporarily impact the daily commute.

The construction project will allow Caltrain to operate quieter, cleaner, more frequent and faster trains to meet the growing demand for more service. Electrified trains are scheduled to be operational in 2021.

As a Caltrain Neighbor you might experience some noise and other impacts during nighttime activities. The field team will utilize state-of-the-art construction equipment and will position lights away from residential, roadway, and business areas.

This information applies only to the above projects and is provided as a courtesy. For more information, please visit Caltrain.com/NECDP or call 1-800-853-2001. Thank you for your patience and cooperation.

For the latest project updates visit Caltrain.com/NECDP.

Day Time Work

08/28/17 - 09/1/17

Anticipated Work Hours

9:00 a.m. - 5:00 p.m.

Crews conducting work in your area due to the placement of new foundations, piles, and the installation of overhead electric wires. The piles will then be installed.

No noise from this activity.

No additional information available.

The information, including noise, applies only to the above project and is provided as a courtesy.

This information applies only to the above project and is provided as a courtesy.

For the latest project updates, please visit Caltrain.com/NECDP or call 1-800-853-2001.

Thank you for your patience and cooperation.
CALMOD CONTACT INFORMATION

WEBSITE  CalMod.org

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        800-660-4287 (Toll Free)

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        San Mateo, CA 94403
        9 a.m. - 5 p.m. Monday - Friday

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TWITTER  @caltrain