Peninsula Corridor Electrification Update Meeting
San Jose State Library
November 28, 2017

Agenda

• Caltrain System Overview
• Project Overview
• Electric Multiple Unit (EMU) Design
• San Jose and 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

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

Union Pacific owns

Ridership

Average Daily Ridership


20,000  25,000  30,000  35,000  40,000  45,000  50,000  55,000  60,000  65,000
At Capacity Today

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

Aging Fleet

<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>F40PH-2</td>
<td>5</td>
<td>na</td>
<td>1980</td>
<td>GM - EMD</td>
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<td>MP56PH-3C</td>
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<td>2003</td>
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<td>2033</td>
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Passenger Cars

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>Gallery Trailer</td>
<td>14</td>
<td>120</td>
<td>1989-2000</td>
<td>Nippon Sharyo</td>
<td>2030</td>
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<td>Gallery Cab (Bike)</td>
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<td>100</td>
<td>1985-1987</td>
<td>Nippon Sharyo</td>
<td>2015-2017</td>
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<td>1989-2000</td>
<td>Nippon Sharyo</td>
<td>2030</td>
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<tr>
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<td>1985</td>
<td>Nippon Sharyo</td>
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<td>1987</td>
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<td>2037</td>
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<td>Bi-Level Trailer</td>
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<td>144</td>
<td>2002</td>
<td>Bombardier</td>
<td>2032</td>
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<tr>
<td>Bi-Level Trailer (Blue)</td>
<td>2</td>
<td>114</td>
<td>2002</td>
<td>Bombardier</td>
<td>2032</td>
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<tr>
<td>Bi-Level Trailer (Blue)</td>
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<td>114</td>
<td>2001-2002</td>
<td>Bombardier</td>
<td>2031-2033</td>
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<tr>
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<td>2006</td>
<td>Bombardier</td>
<td>2036</td>
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<td>127</td>
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<td>2032</td>
</tr>
<tr>
<td>Bi-Level Trailer</td>
<td>6</td>
<td>140</td>
<td>2006</td>
<td>Bombardier</td>
<td>2036</td>
</tr>
</tbody>
</table>

*Trains recently acquired from Metrolink with refurbishment ongoing.
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>
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)

Note: 2013 BAC Report, generates $2.5B economic activity and 9,600 jobs
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
- 2018 Virtual Reality 360 Tour

Electric Train Exterior Design Public Poll

- **1** (42.1%)
- **2** (12.9%)
- **3** (25%)
- **4** (20.1%)
Electric Train Exterior Design

WINNING DESIGN: OPTION 1

Electric Train Seat Design

WINNING DESIGN: OPTION B

SEAT POLL RESULTS

<table>
<thead>
<tr>
<th>Option</th>
<th>Votes</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>1007</td>
</tr>
<tr>
<td>B</td>
<td>1538</td>
</tr>
</tbody>
</table>

2549 TOTAL VOTES

<table>
<thead>
<tr>
<th>Option</th>
<th>Votes</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>39.7%</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>60.3%</td>
<td></td>
</tr>
</tbody>
</table>
Electric Train Onboard Bike Storage Outreach

Station Outreach with Samples: August 8 to September 1

FEEDBACK COLLECTION PROCESS

- BICYCLE ADVISORY COMMITTEE (BAC)
- BIKE COALITION INPUT
- ONLINE BIKE POLL
- STATION OUTREACH
- RIDER COMMENTS

Thanks to everyone at the Silicon Valley Bike Commit to help test our new bike options.

Remember to vote on calmodtrain.com.
Electric Train
Onboard Bike Storage Design

- Maximizes capacity
- Accommodates variety of bike types
- Recommended by:
  - Bicycle Advisory Committee
  - Bike Coalitions (SF and Silicon Valley)

Construction
Work Segment 4
- San Jose
- Santa Clara  (South of De La Cruz Blvd.)
### 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

#### Work In Progress and Upcoming
- Foundation Potholing
- Tree Pruning and Removal
- Foundation Construction
- Pole Installation
- Wire Installation

#### Future Work
- OCS Pole Installation
- OCS Wire Installation

### Potholing
Future Construction Activities

San Jose and Santa Clara (Work Segment 4)

<table>
<thead>
<tr>
<th>Date</th>
<th>Work Activity</th>
<th>Expected Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>December 2017</td>
<td>Tree Pruning/Removal</td>
<td>1-3 months</td>
</tr>
<tr>
<td>Early 2018</td>
<td>Foundation Construction</td>
<td>3-5 months</td>
</tr>
<tr>
<td>Early 2018</td>
<td>Traction Power Substation (San Jose only)</td>
<td>1 year</td>
</tr>
<tr>
<td>Late 2018</td>
<td>Wire Installation</td>
<td>3-4 months</td>
</tr>
</tbody>
</table>

Future Construction Activities

Santa Clara (Work Segment 3)

- North of De La Cruz Blvd.
- Tree Work Expected Mid-2018
- Foundation Work Expected Late-2018
- Poles and Wires Expected 2019

Note: Schedule Subject to Change Based on Design
Tree Pruning and Replacement

- Vegetation cleared for Electrical Safety Zone

Trees Removed
- 20 in City of San Jose Right of Way
- 10 in Public Property
- 0 in Private Property

Trees Pruned >25%
- 16 in City of San Jose Right of Way
- 8 in Public Property
- 0 in Private Property

Trees Pruned <25%
- 33 in City of San Jose Right of Way
- 17 in Public Property
- 0 in Private Property

Note: Information may change as the design progresses.
Santa Clara: Tree Pruning and Replacement Plan

<table>
<thead>
<tr>
<th>City of Santa Clara</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>

Note: Information may change as the design progresses

Foundation Construction

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

- Approx. 460 poles installed in San Jose
- Approx. 60 poles installed in Santa Clara
- Pole size varies from 30’ to 45’
- Pole spacing approx. 180’ apart

Note: Schedule Subject to Change

Foundation Construction

Will take place on and off track

DrillTech on track foundation train

DrillTech off-track OCS Drill Rig
Pole Installation

On/off-track crane for installation

Wide flange & square poles

Wire Installation

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
- Social Media
- Construction Outreach Office
Public Outreach

• Physical Notices

Construction Contact Information

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

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

www.caltrain.com/pcepconstruction