Peninsula Corridor Electrification Update Meeting
San Jose Community Meeting
March 5, 2018

Agenda

• Caltrain System Overview
• Project Overview
• Electric Train Design
• San Jose 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

<table>
<thead>
<tr>
<th>Year</th>
<th>Average Daily Ridership</th>
</tr>
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<tbody>
<tr>
<td>1997</td>
<td>21,000</td>
</tr>
<tr>
<td>2000</td>
<td>22,000</td>
</tr>
<tr>
<td>2003</td>
<td>23,000</td>
</tr>
<tr>
<td>2006</td>
<td>24,000</td>
</tr>
<tr>
<td>2009</td>
<td>25,000</td>
</tr>
<tr>
<td>2012</td>
<td>26,000</td>
</tr>
<tr>
<td>2015</td>
<td>65,000</td>
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</table>
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>Manufacturer</th>
<th>Retire Date</th>
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<tbody>
<tr>
<td>F40PH-2</td>
<td>5</td>
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<td>GM-EMD</td>
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<td>F40PH-2C</td>
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<td>MP56PH-3C</td>
<td>6</td>
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<td>2003</td>
<td>Motive Power</td>
<td>2033</td>
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Passenger Cars

<table>
<thead>
<tr>
<th>Series</th>
<th>Quantity</th>
<th>Number of Seats</th>
<th>Year of Manufacture</th>
<th>Manufacturer</th>
<th>Retire Date</th>
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<tbody>
<tr>
<td>Gallery Trailer</td>
<td>11</td>
<td>120</td>
<td>1999-2000</td>
<td>Nippon Sharyo</td>
<td>2030</td>
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<tr>
<td>Gallery Cab</td>
<td>6</td>
<td>78</td>
<td>1999-2000</td>
<td>Nippon Sharyo</td>
<td>2030</td>
</tr>
<tr>
<td>Gallery Cab</td>
<td>21</td>
<td>97</td>
<td>1985</td>
<td>Nippon Sharyo</td>
<td>2015</td>
</tr>
<tr>
<td>Bi-Level Trailer</td>
<td>18</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>
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<td>2032</td>
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<td>Bi-Level Trailer</td>
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<td>114</td>
<td>2002</td>
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<td>2032</td>
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<tr>
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<td>114</td>
<td>2001-2002</td>
<td>Bombardier</td>
<td>2031-2033</td>
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<td>2008</td>
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<td>Bi-Level Trailer</td>
<td>1</td>
<td>127</td>
<td>2002</td>
<td>Bombardier</td>
<td>2032</td>
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<td>Bi-Level Trailer</td>
<td>6</td>
<td>140</td>
<td>2008</td>
<td>Bombardier</td>
<td>2038</td>
</tr>
</tbody>
</table>

*Trailers 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>
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<tbody>
<tr>
<td>51 miles San Francisco to San Jose (Tamien Station)</td>
<td>Electrification:</td>
<td>Up to 79 mph</td>
</tr>
<tr>
<td></td>
<td>- Overhead Contact System (OCS)</td>
<td>Service Increase</td>
</tr>
<tr>
<td></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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</thead>
<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**: 111,000
- **More Service**: Up to 97% clean air daily, ridership daily, improved frequency/ quicker trips

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

MILESTONES

- 1999
- 2015
- 2016
- 2017
- 2018
- 2019
- 2020
- 2021
- 2022

- 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 Design & Public Input
Peninsula Corridor Electrification Project
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
- 2018 Virtual Reality 360 Tour

Electric Train Exterior Design Public Poll

<table>
<thead>
<tr>
<th>Exterior Design Poll Results</th>
<th>6331 Total Votes</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>2665</td>
</tr>
<tr>
<td>2</td>
<td>814</td>
</tr>
<tr>
<td>3</td>
<td>1580</td>
</tr>
<tr>
<td>4</td>
<td>1272</td>
</tr>
</tbody>
</table>

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

A 1007 39.7%
B 1538 60.3%
2549 TOTAL VOTES
Electric Train Onboard Bike Storage Outreach

FEEDBACK COLLECTION PROCESS

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

- 51 Miles Corridor
- 4 Work Segments
- 3,000 Poles
- 10 Traction Power Facilities

San Jose – Work Segment 4

San Jose Project Area 5.38 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

Work In Progress and Upcoming
- Foundation Potholing
- Tree Pruning and Removal
- Foundation Construction

Future Work
- Overhead Contact System Pole Installation
- Overhead Contact System Wire Installation
- Traction Power Substation (TPS) – North San Jose Only
- TPS Interconnect
- Paralleling Station – South San Jose Only

Future Construction Activities

San Jose (Work Segment 4)

<table>
<thead>
<tr>
<th>Date</th>
<th>Work Activity</th>
<th>Expected Duration*</th>
</tr>
</thead>
<tbody>
<tr>
<td>In Process</td>
<td>Potholing</td>
<td>3-5 months</td>
</tr>
<tr>
<td>In Process</td>
<td>Tree Pruning/Removal</td>
<td>3-4 months</td>
</tr>
<tr>
<td>Spring 2018</td>
<td>Foundation Construction</td>
<td>3-5 months</td>
</tr>
<tr>
<td>Summer 2018</td>
<td>Pole/Wire Installation</td>
<td>2-3 months</td>
</tr>
<tr>
<td>Spring 2018</td>
<td>Traction Power Substation (North San Jose)</td>
<td>1 year</td>
</tr>
<tr>
<td>Late Summer/Fall 2018</td>
<td>Paralleling Station (South San Jose)</td>
<td>1 year</td>
</tr>
</tbody>
</table>

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

Foundation Construction

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

On and Off Track Equipment

Pole Information

- 3,000 Installed throughout Corridor
  - 460 poles installed in San Jose
- San Jose Pole Types*
  - Single-Track Cantilever (30’-35’ height)
  - Two-Track Cantilever (45.5’ height)
  - Center Poles (30’-35’ height)
  - Portals (35’-40’ height)
  - Headspan (35’-40’ height)
- Pole Spacing: ~180’ apart
- Black poles at San Jose Stations

* Currently 95% Design
Pole Installation San Jose

Example of Poles Currently Planned for Use in San Jose

Single Track Cantilever  Two Track Cantilever  Center

Portal  Headspan
Stringing Wire

On-track Equipment

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 www.calmod.org/get-involved

• Additional Community Meetings
  – Pole and Wire Installation

• Social Media

• Construction Outreach Office

Public Outreach

• Physical Notices
### Construction Contact Information

<table>
<thead>
<tr>
<th>Email: <a href="mailto:calmod@caltrain.com">calmod@caltrain.com</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Phone: 650.399.9659</td>
</tr>
<tr>
<td>Toll Free: 800.660.4287</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2121 S. El Camino Real, Suite A-100</th>
</tr>
</thead>
<tbody>
<tr>
<td>San Mateo, CA 94403</td>
</tr>
<tr>
<td>9 a.m. - 5 p.m. Monday - Friday</td>
</tr>
</tbody>
</table>

www.calmod.org