Peninsula Corridor Electrification Update Meeting
San Jose Community Meeting
March 15, 2018

Agenda
• Project Overview Recap
• Project Update
  – Progression & Changes
  – Construction Activities
• Electrification Infrastructure
  – San Jose 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

1997: 20,000
2000: 25,000
2003: 30,000
2006: 35,000
2009: 40,000
2012: 45,000
2015: 50,000
2018: 55,000
2021: 60,000
2024: 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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<tr>
<td>F40PH-2</td>
<td>5</td>
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<tr>
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<td>26</td>
<td>162</td>
<td>1665-1687</td>
<td>Nippon Sharyo</td>
<td>2015-2017</td>
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<tr>
<td>Gallery Trailer</td>
<td>16</td>
<td>148</td>
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<td>Nippon Sharyo</td>
<td>2015-2017</td>
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<td>120</td>
<td>1699-2000</td>
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<td>2030</td>
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<td>Gallery Cab (Blue)</td>
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<td>120</td>
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<td>2015-2017</td>
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<td>79</td>
<td>1699-2000</td>
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<td>97</td>
<td>1665</td>
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<td>2015</td>
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<tr>
<td>Bi-Level Trailer*</td>
<td>16</td>
<td>149</td>
<td>1997</td>
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<td>140</td>
<td>2008</td>
<td>Bombardier</td>
<td>2038</td>
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</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>
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</thead>
<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>
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## Service Benefits

<table>
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<tr>
<th>Metric</th>
<th>Today</th>
<th>PCEP</th>
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<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>
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<tr>
<td>Example Redwood City Station</td>
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<td></td>
</tr>
<tr>
<td>Train stops / peak hour</td>
<td>3</td>
<td>5</td>
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</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%
- **Ridership Daily**: 111,000
- **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 Progressing w/ Additional Public Input
  - Completed: Exterior design, Seat colors, Bike Storage, ADA restroom
• 2018 Virtual Reality 360 Tour
Construction Phasing

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

Field Work Progression

Work Completed
- Utility Survey
- Geotechnical Investigations
- Disposal of Soil from Geotechnical Investigations
- Soil Resistivity Testing
- Site Surveys
- Signal Cable Inspections

Ongoing and Upcoming Work
- Tree Pruning/Removal
- Potholing
- Foundation Installation

Future Work
- Overhead Contact System Pole Installation
- Overhead Contact System Wire Installation
- Traction Power Substation (TPS)
- TPS Interconnection
San Jose – Work Segment 4

San Jose Project Area 5.38 miles

Future Construction Activities

San Jose

<table>
<thead>
<tr>
<th>Date</th>
<th>Work Activity</th>
<th>Expected Duration*</th>
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</thead>
<tbody>
<tr>
<td>Spring 2018</td>
<td>Foundation Installation</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 Station (North San Jose)</td>
<td>12 months</td>
</tr>
<tr>
<td>August 2018</td>
<td>TPS Interconnection</td>
<td>4-5 months</td>
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</tbody>
</table>

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

Pole Installation San Jose

Poles planned for San Jose Diridon Station and CEMOF
Stringing Wire

On-track Equipment

Traction Power Substation

- 10 Traction Power Facilities Installed throughout Corridor
  - 1 Traction Power Substation installed in San Jose
  - 1 Paralleling Station in San Jose
  - 300 ft. x 143 ft. site footprint
    - Gantry structures up to 50’
- Provides electrical power to electric trains through the Overhead Contact System (OCS)
- Unmanned station
- Day and weekend construction work 6:30am - 5:00pm
- Limited night work during construction
Traction Power Substation

Example Traction Power Substation
Traction Power Substation Interconnection

- Overhead aerial transmission lines.
  - Will route from PG&E Substation south of Interstate 880
- Construction expected to be completed in 2019
- Tree pruning and removal may be required
Test Track Information

- Approximately 1.5 miles of existing track
- Located between Santa Clara Station and Caltrain CEMOF facility
- Foundations, poles and wires to be installed prior to electric train testing

Test Track Information

- New electric trains will be tested on track
- Testing to occur between Summer 2019 to Fall 2021
- Testing anticipated to be during daytime
Test Track Location

CEMOF Modifications

• Service and Inspection Pit Extension
• Indoor Platforms for Pantograph Inspection
• Pantograph Camera
• Spare Parts Building
• Construction to begin Summer 2018
Overall 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

Station Impacts

- Some trains will single track through work areas
- Platforms may be closed during these times
- Look up and listen for station announcements for the latest information
Public Outreach

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

• Additional Community Meetings
  – Pole and Wire Installation
  – Traction Power Interconnection
  – CEMOF Modifications
  – EMU Testing

• 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 |

| 2121 S. El Camino Real, Suite A-100 |
| San Mateo, CA 94403 |
| 9 a.m. - 5 p.m. Monday - Friday |

www.calmod.org