Caltrain Electrification Update
San Carlos Community Meeting
December 12, 2018

Agenda
• Project Overview Recap
• Project Update
• Electrification Infrastructure
  – San Carlos Activities
• Questions
Caltrain System

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

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

Union Pacific owns

Ridership

<table>
<thead>
<tr>
<th>AVERAGE DAILY RIDERSHIP</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998</td>
</tr>
<tr>
<td>2008</td>
</tr>
<tr>
<td>2018</td>
</tr>
</tbody>
</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>Make</th>
<th>Retire Date</th>
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<tbody>
<tr>
<td>Locomotives</td>
<td></td>
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<tr>
<td>F40 PH-2</td>
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<td>GM - EMD</td>
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<td>F40 PH-2C</td>
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<tr>
<td>MP15PH-2D</td>
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<td>Motive Power</td>
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<td>Passenger Cars</td>
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<tr>
<td>Gallery Trailer</td>
<td>14</td>
<td>120</td>
<td>1999-2000</td>
<td>Nippon Sharyo</td>
<td>2030</td>
</tr>
<tr>
<td>Gallery Cab (Bi-ke)</td>
<td>10</td>
<td>138</td>
<td>1985-1987</td>
<td>Nippon Sharyo</td>
<td>2015-2017</td>
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<tr>
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<td>78</td>
<td>1999-2000</td>
<td>Nippon Sharyo</td>
<td>2030</td>
</tr>
<tr>
<td>Gallery Cab (Bi-ke)</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>16</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>2001-2002</td>
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<td>2031-2032</td>
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<td>Bi-Level Trailer (Bi-ke)</td>
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<td>Bombardier</td>
<td>2038</td>
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<td>Bombardier</td>
<td>2032</td>
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<tr>
<td>Bi-Level Trailer</td>
<td>6</td>
<td>140</td>
<td>2008</td>
<td>Bombardier</td>
<td>2038</td>
</tr>
</tbody>
</table>

*Trains 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>
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</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:</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, Capitol 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 min</td>
<td>45 min</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**: Up to 97%
- **Clean Air Daily**: 111,000 daily
- **Ridership Daily**: Improved frequency / quicker trips
- **More Service**: Note: 2013 BAC Report, generates $2.5B economic activity and 9,600 jobs
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
- 2019 Virtual Reality 360 Tour
**CalMod** Construction Phasing

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

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**San Carlos**

San Carlos Project Area 1.9 miles
Field Work Progression

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

Work In Progress
- Potholing
- Foundation Installation

Future Work
- Pole Installation
- Wire Installation

Future Construction Activities

<table>
<thead>
<tr>
<th>Date</th>
<th>Work Activity</th>
<th>Expected Duration*</th>
</tr>
</thead>
<tbody>
<tr>
<td>In Progress</td>
<td>Potholing</td>
<td>2-3 months</td>
</tr>
<tr>
<td>In Progress</td>
<td>Foundation Construction</td>
<td>3-4 months</td>
</tr>
<tr>
<td>Late 2018</td>
<td>Pole Installation</td>
<td>2-3 months</td>
</tr>
<tr>
<td>Spring 2019</td>
<td>Wire Installation</td>
<td>2-3 months</td>
</tr>
</tbody>
</table>

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

Pole Information

- 3,000 Installed throughout Corridor
  - 130 poles in San Carlos
- Pole Height: 30-50’
- Pole Spacing: ~180’ apart
Pole Types San Carlos

Single Track Side

Two-Track Cantilever

Example of Poles Currently Planned for Use in San Carlos

Pole Installation

Current Pole Installation
Stringing Wire

4 overhead wires per track: Feeder, Contact, Messenger, and Static

Construction Impacts

• Work will occur during day and night
• Some 24 hour weekend work
• Crews will utilize acoustical barrier blankets and position lights away from homes
• Dedicated hotline for construction complaints
San Francisco Tunnel Work

- Within the four San Francisco Tunnels:
  - Overhead Contact System Installation
  - Grouting and Notching
  - Drainage and Track Work

SF Weekend Caltrain Closures

- Weekends - Oct 6, 2018 to Spring 2019
  - Caltrain service north of the Bayshore Station will be suspended on the weekends
  - Bus service will be provided from Bayshore to 4th and King and 22nd Street stations
- Weekday service will remain unchanged
- Caltrain service south of Bayshore will remain unchanged
- Schedule at caltrain.com/SFWeekendClosure
Public Outreach

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

• Social Media

• Construction Outreach Office

Public Outreach
Physical Notices
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