Peninsula Corridor Electrification Project
JPB Citizens Advisory Committee
April 18, 2018
Agenda Item #7
Caltrain System

- 77 Miles, 32 Stations
- 92 Weekday Trains
- Tenants (ACE, CC, Amtrak, Freight)

Caltrain owns (SF to SJ)

Union Pacific owns (SJ to Gilroy)
At Capacity Today

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

### Table 1.2: Caltrain Fleet Inventory

<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>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Locomotives</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>F40 PH-2</td>
<td>5</td>
<td>na</td>
<td>1985</td>
<td>GM - EMD</td>
<td>2015</td>
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<tr>
<td>F40 PH-2C</td>
<td>3</td>
<td>na</td>
<td>1998</td>
<td>Boise Locomotive</td>
<td>2028</td>
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<td>MP36PH-3C</td>
<td>6</td>
<td>na</td>
<td>2003</td>
<td>Motive Power</td>
<td>2033</td>
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<tr>
<td><strong>Passenger Cars</strong></td>
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<td></td>
<td></td>
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<td></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>
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<tr>
<td>Gallery Cab (Bike)</td>
<td>10</td>
<td>108</td>
<td>1985-1987</td>
<td>Nippon Sharyo</td>
<td>2015-2017</td>
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<tr>
<td>Gallery Cab (Bike)</td>
<td>6</td>
<td>78</td>
<td>1999-2000</td>
<td>Nippon Sharyo</td>
<td>2030</td>
</tr>
<tr>
<td>Gallery Cab (Bike)</td>
<td>21</td>
<td>97</td>
<td>1985</td>
<td>Nippon Sharyo</td>
<td>2015</td>
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<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>
<td>Bombardier</td>
<td>2032</td>
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<tr>
<td>Bi-level Trailer (Bike)</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 (Bike)</td>
<td>5</td>
<td>114</td>
<td>2001-2002</td>
<td>Bombardier</td>
<td>2031-2032</td>
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<tr>
<td>Bi-level Trailer (Bike)</td>
<td>2</td>
<td>114</td>
<td>2008</td>
<td>Bombardier</td>
<td>2038</td>
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<td>Bi-level Trailer (Bike)</td>
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<td>127</td>
<td>2002</td>
<td>Bombardier</td>
<td>2032</td>
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<tr>
<td>Bi-Level Trailer</td>
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<td>140</td>
<td>2008</td>
<td>Bombardier</td>
<td>2038</td>
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</tbody>
</table>

*Trailers recently acquired from Metrolink with refurbishment ongoing.

At Retirement Age: 20/29 loco; 73/134 cars
## Electrification Project

<table>
<thead>
<tr>
<th>Area</th>
<th>Project</th>
<th>Service</th>
</tr>
</thead>
</table>
| 51 miles<br>San Francisco to San Jose (Tamien Station) | Electrification:  
  - Overhead Wiring  
  - Traction Power Facilities  
  Electric Trains (EMUs)  
  - 75 percent of fleet | Up to 79 mph  
Service Increase  
  - 6 trains / hour / direction  
  - More station stops / reduced travel time  
  - Restore Atherton & Broadway service  
  Mixed-fleet service (interim period)  
  Continue tenant service  
  - ACE, Capital Corridor, Amtrak, Freight |
## 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
Capacity Increase

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

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

Elected Officials & Local, State Support
California Governor Jerry Brown (Link to Letter)
Utah Governor's Office of Economic Development
U.S. Senator Diane Feinstein (February 3, 2017)
U.S. Senator Kamala Harris (February 3, 2017)
U.S. Democratic Leader Nancy Pelosi (Link to Letter)
U.S. Congresswoman Anna Eshoo (Feb. 2, 2017)
U.S. Congresswoman Zoe Lofgren (Link to Letter)
U.S. Congresswoman Jackie Speier (Link to Letter)
U.S. Congressman Pete Aguilar (Link to Letter)
U.S. Congresswoman Karen Bass (Link to Letter)
U.S. Congressman Ami Bera (Link to Letter)
U.S. Congresswoman Julia Brownley (Link to Letter)
U.S. Congressman Salud Carbajal (Link to Letter)
U.S. Congressman Tony Cardenas (Link to Letter)
U.S. Congresswoman Judy Chu (Link to Letter)
U.S. Congressman Luis Correa (Link to Letter)
U.S. Congressman Jim Costa (Link to Letter)
U.S. Congresswoman Susan Davis (Link to Letter)
U.S. Congressman Mark DeSaulnier (Link to Letter)
U.S. Congresswoman Nanette Diaz Barragan (Link to Letter)
U.S. Congresswoman John Garamendi (Link to Letter)
U.S. Congressman Jared Huffman (Link to Letter)
U.S. Congressman Ro Khanna (Link to Letter)
U.S. Congresswoman Barbara Lee (Link to Letter)
U.S. Congressman Ted Lieu (Link to Letter)
U.S. Congresswoman Alan Lowenthal (Link to Letter)
U.S. Congresswoman Doris Matsui (Link to Letter)
U.S. Congressman Jerry McNerney (Link to Letter)
U.S. Congresswoman Grace Napolitano (Link to Letter)
U.S. Congressman Jimmy Panetta (Link to Letter)
U.S. Congressman Scott Peters (Link to Letter)
U.S. Congresswoman Loebsall Allard (Link to Letter)
U.S. Congressman Raul Ruiz (Link to Letter)
U.S. Congresswoman Linda Sanchez (Link to Letter)
U.S. Congressman Adam Schiff (Link to Letter)
U.S. Congressman Brad Sherman (Link to Letter)
U.S. Congressman Eric Swalwell (Link to Letter)
U.S. Congresswoman Mark Takano (Link to Letter)

Over 250 Entities

By electrifying the line, we can run more trains, cut commute times, save fuel costs, improve air quality, reduce noise, and ease traffic congestion by more than half-a-million vehicle miles each day, all while creating manufacturing jobs from Florida to Texas to Utah.

I urge you to let this great move forward.

March 9, 2017
Caltrain Electrification Groundbreaking
July 2017

Salt Lake City Vehicle Plant Groundbreaking
October 2017
Construction Phasing

- Segments 2 & 4 followed by 1 & 3
- 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
Construction Activities

Drilling of Foundations

Loading Reinforcing Steel Cages
Construction Activities Cont.

- Lowering Reinforcement Cage
- Final Alignment of Anchor Bolts
Construction Activities Cont.

Concrete Placement with Pump

Foundation Concrete Quality Testing
Construction Activities Cont.

Final Finishing of Exposed Concrete Foundations

Restoration of Ballast and Area Around Foundation
Construction Outreach

• Tools: Community meetings, direct mailers, door hangers, weekly website / email update, social media, project phone & email, outreach office

• New Project Website: calmod.org
Electric Train (EMU)

• Stadler
  – Preliminary Designs Reviews for all major systems conducted being finalized
  – Carshell extrusions in production
  – Carbbody subassemblies being fabricated
  – Carshell structures being welded
  – Manufacturing and Final Assembly Facility beginning construction in Salt Lake City area
Electric Train Activities

Exterior Paint Test Samples on Sidewall Extrusion

Cab End Underframe
Electric Train Activities

Machined part

Cruciform joint fillet weld

Side wall
Electric Train Activities

Upper Deck Assembly

Middle Underframe in Welding
Electric Train Activities

Upper and Lower Carbody Subassemblies Coming Together
Electric Train Outreach

- 2015 Capacity Board Decision (bike to seat ratio, onboard bathrooms, upper doors)
- 2017 Design Progressing, Additional Public Input
  - Completed: Exterior design, Seat colors, Bike Storage
- 2018 Virtual Reality 360 Tour
Budget $1.98B
### Budget & Expenditures (in millions)

<table>
<thead>
<tr>
<th></th>
<th>Budget</th>
<th>Current Budget*</th>
<th>Q2 Costs</th>
<th>Costs to Date</th>
<th>Estimate at Completion</th>
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<tbody>
<tr>
<td>Electrification</td>
<td>$696.6</td>
<td>$696.7</td>
<td>$26.7</td>
<td>$183.9</td>
<td>$696.7</td>
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<tr>
<td>SCADA</td>
<td>$0.0</td>
<td>$3.4</td>
<td>$0.0</td>
<td>$0.0</td>
<td>$3.4</td>
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<tr>
<td>EMU</td>
<td>$550.9</td>
<td>$551.8</td>
<td>$17.1</td>
<td>$60.7</td>
<td>$551.8</td>
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<tr>
<td>Separate Contract &amp; Support Costs</td>
<td>$417.2</td>
<td>$417.2</td>
<td>$20.5</td>
<td>$143.9</td>
<td>$417.2</td>
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<tr>
<td>Contingency</td>
<td>$315.5</td>
<td>$311.1</td>
<td>$0.0</td>
<td>$0.0</td>
<td>$269.6</td>
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<tr>
<td>Anticipated Changes</td>
<td>$0.0</td>
<td>$0.0</td>
<td>$0.0</td>
<td>$0.0</td>
<td>$41.5</td>
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<tr>
<td><strong>PCEP Total</strong></td>
<td>$1,980.3</td>
<td>$1,980.3</td>
<td>$64.4</td>
<td>$388.5</td>
<td>$1,980.3</td>
</tr>
</tbody>
</table>

* Includes executed change orders and awarded contracts
** Refer to Contingency Drawdown Table on next slide for details

Note: Budget / Expenditures as of December 31, 2017
Contingency Drawdown Curve

Contingency Hold Points (CHP)
- CHP01 - Determination of Baseline Budget Rev 4
- CHP02 - Entry into Engineering
- CHP03 - PG&E Substation Design Acceptance
- CHP04 - Finish Segment 4A All Disciplines
- CHP05 - OCS Acceptance Testing Completion - Segment 1
- CHP06 - Construction & Testing Completion - All Segments
- CHP07 - EMU Conditional Acceptance of 14th Trainset
- CHP08 - Pre-Revenue Testing Complete

Millions

CHP01 $315.5
CHP02 $289.6
CHP03 $231.7
CHP04 $193.1
CHP05 $154.5
CHP06 $115.8
CHP07 $77.2
CHP08 $38.6

- Minimum Contingency Level
- Actual Contingency Drawdown
- Anticipated Contingency Drawdown
Schedule

MILESTONES

- Caltrain strategic plan makes electrification a priority
- Environmental Clearance
- Award Contract
- Groundbreaking
- First Electric Train Arrives
- Passenger Service with Electric Trains


Electrification Infrastructure Construction
Final System Testing

Note: Schedule Subject to Change

*Please keep in mind that testing and construction will overlap as each Segment will be tested individually, prior to final system testing.
Questions