Caltrain Electrification
Project Update

Joint Powers Board
Agenda Item #7e(i)
Program Overview
Program Overview

- San Francisco to San Jose (Tamien Station)
- 51 miles
- Project Cost: $2.44B
- Revenue Service: Fall 2024
Project Elements

- Electrification
  - Overhead Contact System (OCS)
  - Traction Power Facilities
  - Signal System

- Electric Trains
  - 19 7-car train sets (133 cars)

(Note: 96 cars funded by project; 37 cars funded by State TIRCP)
Project Benefits

- Improved Train Performance, Increased Service and Greater Capacity
- Improved Regional Air Quality and Reduced Greenhouse Gas Emissions
- Job Creation Locally and Across the Country
- Reduced Engine Noise Emanating from Trains
Project Summary
Highlights

• Revenue service date remains fall 2024
• No impact to new adopted budget
• No draw to BBII risk pool, contingency and incentive
• Funding team identified to pursue state and federal resources
• New team organization implemented
December Activities

• BBII rebaseline schedule
• Started weekly meetings with BBII to manage and mitigate shared risk
• Partnering
  - First executive partnering held December 2021
  - Project level partnering starts in January 2022
• JPB/BBII organization change to address shift from civil to systems integration and testing
• Segment 4 Readiness Review workshop
## Upcoming Milestones

<table>
<thead>
<tr>
<th>Item</th>
<th>Date</th>
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</thead>
<tbody>
<tr>
<td>Finalize FTA Recovery Plan</td>
<td>January 2022</td>
</tr>
<tr>
<td>All Foundations Installed</td>
<td>Winter 2022</td>
</tr>
<tr>
<td>Energization of Segment 4</td>
<td>Winter 2022</td>
</tr>
<tr>
<td>Major Signal System Cutovers in Segment 2</td>
<td>March 2022</td>
</tr>
<tr>
<td>Arrival of First Trainset</td>
<td>Spring 2022</td>
</tr>
<tr>
<td>Completion of Segment 4</td>
<td>Spring 2022</td>
</tr>
<tr>
<td>Revenue Service Date</td>
<td>Fall 2024</td>
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</tbody>
</table>
Reset Program Organization

- Resources focused on System Integration & Rail Activation
- New executive leadership
  - Acting Executive Director
  - Project Chief
- Legal representation Olsen Remcho
- New Program Director and responsible functions:
  - System Integration & Testing
  - Project Delivery
  - Program Controls
  - Rail Activation and Startup
Safety and Security

<table>
<thead>
<tr>
<th>Time Period</th>
<th>Reportable Injury Rate</th>
</tr>
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<tbody>
<tr>
<td>Year-to-Date</td>
<td>1.48</td>
</tr>
<tr>
<td>Since Project Start (2017 to Today)</td>
<td>1.95</td>
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</table>

Note: National Average Reportable Injury Rate is 2.50

- Public awareness safety campaign January 2022
- Caltrain employees OCS safety awareness training January 2022
- BBII OCS safety awareness training (Look Up and Live) February 2022
- OCS awareness included in TASI roadway worker protection training
- OCS awareness training transit police
- Continued collaboration with San Jose / Santa Clara Fire Departments
- Contractors / subcontractors COVID-19 plans meeting federal, state and local requirements
Construction Update
Construction Segments

Segment 1
San Francisco to Brisbane

Segment 2
South San Francisco to Atherton

Segment 3
Menlo Park to Santa Clara

Segment 4
Santa Clara to Tamien
Overhead Contact System

- **Foundations (3,092 total)**
  - All Foundations Complete
- **Poles (2,587 total)**
  - Segments 3, 4 and CEMOF: Complete
  - Segments 1 and 2: 758 Poles Remaining
- **Wire (1.5M linear feet total)**
  - Segments 3 and 4: Complete
  - Segments 1 and 2: 571K Linear Feet Remaining

As of January 20, 2021
Traction Power Facilities and PG&E

- **Traction Power Facilities (10 Facilities)**
  - Approximately 80% Complete
  - Work Remaining: Energization, Commissioning, Testing
  - All work is anticipated to be completed by fall 2022

- **PG&E**
  - Single Phase Study
  - Availability of temporary power
  - Availability of permanent power
  - Completion of interconnect testing

As of December 15, 2021
Signal System and Communication
(2 Speed Check)

- Segment 4
  - Complete

- Segment 2
  - Major cutover mid-March
  - Complete remaining activities November 2022

- Segments 1 and 3
  - Work remaining: power drops, field installation, testing and cutover
  - Signal and communication work anticipated to be complete by winter 2023

As of January 21, 2022
Signal System and Communication
(2 Speed Check) – Major Signal Work in March

- Installation of 2 Speed Check hardware and software at 17 grade crossings in Burlingame and San Mateo
- Dates: March 14th to April 2nd
- City Coordination
- Public Outreach Campaign
- Changes to Revenue Service during three-week work period
  - 88 trains on weekdays (down from the current 104)
  - Peak service reduced to 3 different limited trains each hour per direction (down from 4)
  - Baby Bullet service will be suspended
  - No changes to midday, evening, and weekend schedule
Electric Trains

- Completion of 4,000 mile testing first trainset in Pueblo, CO
- First trainset to be shipped March 2022
- Rebaseline of production schedule
- 14th trainset anticipated arrival winter 2023 for revenue service fall 2024
- 19th trainset anticipated arrival fall 2024
Crossing Optimization Project
Project Goal

- Implement wireless activation system
- Improve grade crossing warning system performance
- Reduce crossing system activations
- Reduce gate down time
Work Completed to Date

• Concept of Operations including FRA reviews
• Submitted crossing optimization test request for FRA approval
  (public comment period ends February 2022)
• Completed throughput & communications readiness studies
• Completed optimization on-board system design
Upcoming Major Activities

• Proof of Concept: Perform pilot cutover at Virginia and Auzerais crossings Winter 2022
• Review, negotiate and approve additional work proposal with Wabtec
• Seek Change Management Board approval February 2022
• Finalize implementation schedule and total project cost March 2022
Program Management
## Program Master Schedule

Revenue Service Date Remains Fall 2024

### PCEP Timeline Summary

<table>
<thead>
<tr>
<th>Event Description</th>
<th>2020</th>
<th>2021</th>
<th>2022</th>
<th>2023</th>
<th>2024</th>
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<tbody>
<tr>
<td><strong>Q1</strong></td>
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<tr>
<td>Electrification - BBII OCS</td>
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<td><strong>Q2</strong></td>
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<td>Electrification - BBII TPF</td>
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<td><strong>Q3</strong></td>
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<td>Electrification - BBII Signal</td>
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<td><strong>Q4</strong></td>
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<td>Electrification - BBII Integrated Testing &amp; Final Acceptance</td>
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<td><strong>Q1</strong></td>
<td>02/01/21</td>
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<tr>
<td><strong>Q2</strong></td>
<td>03/07/21</td>
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<td><strong>Q3</strong></td>
<td>04/17/21</td>
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<td><strong>Q4</strong></td>
<td>05/09/21</td>
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<tr>
<td>SCADA - Arinc</td>
<td>01/30/22</td>
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<td>CEMOF - ProVen</td>
<td>01/09/20</td>
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<td>Tunnel Modifications - ProVen</td>
<td>06/29/20</td>
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<td>Permanent Power - PG&amp;E</td>
<td>07/26/20</td>
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<td>EMU - Stadler</td>
<td>08/17/20</td>
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<tr>
<td>Revenue Service Date (RSD Period)</td>
<td>08/12/21</td>
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**Key Events**

- **Construction Start Date - Sept 6, 2016**
- **OCS Foundation Start Date**: 02/01/21
- **TPF Start Date - 03/07/21**
- **Substantial Completion**: 07/31/24
- **Final Acceptance**: 07/31/24
- **Target RSD - 04/1/2024**
- **OCS Tie-in**: 06/17/22
- **TPF 2 Permanent Power**: 02/28/22
- **Equipment Cutover**: 03/15/22
- **On-Site Support & Final Acceptance**: 04/01/24
- **Period Range (potential delay)**: 01/01/24 - 04/01/24
- **Substantial Completion**: 07/31/24

**Data Date** as of 11/30/2021

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Caltrain - Peninsula Corridor Electrification Program (PCEP)

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**Critical Path**

- **Contingency (6 Months)**
- **Baseline**
- **Dependency**
- **Period Range**
- **Actual**
- **Forecast**
- **Target RSD - 04/1/2024**
- **FFGA RSCD with contingency**: 09/26/24
## Top Risks

<table>
<thead>
<tr>
<th>Green = Mitigations/actions identified and no impact to budget/schedule</th>
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<tbody>
<tr>
<td>Delay of two speed check design, installation and testing</td>
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<tr>
<td>$410M funding gap</td>
</tr>
<tr>
<td>Single Phase Study approval delay may impact testing and energization of Segment 4</td>
</tr>
<tr>
<td>Delays in parts supply chain affecting vehicle production</td>
</tr>
<tr>
<td>System integration and interface with existing operational systems testing duration and resources</td>
</tr>
<tr>
<td>Different site condition resulting duct bank construction delay impacting signal cutover schedule</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Yellow = Mitigations/actions identified and potential impact to budget/schedule</th>
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</table>

<table>
<thead>
<tr>
<th>Red = Impact to budget/schedule</th>
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25
# Program Budget

<table>
<thead>
<tr>
<th>Description of Work</th>
<th>Current Budget (1)</th>
<th>Cost for Month (2)</th>
<th>Cost to Date (3)</th>
<th>Estimate to Complete</th>
<th>Project Total</th>
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<tbody>
<tr>
<td>Electrification</td>
<td>$1,749,139,438</td>
<td>$38,595,734</td>
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<td>$664,199,946</td>
<td>$1,749,139,438</td>
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<tr>
<td>EMU</td>
<td>$693,551,258</td>
<td>$6,686,809</td>
<td>$317,117,736</td>
<td>$376,433,523</td>
<td>$693,551,258</td>
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<tr>
<td>Program Total</td>
<td>$2,442,690,696</td>
<td>$45,282,542</td>
<td>$1,402,057,228</td>
<td>$1,040,633,468</td>
<td>$2,442,690,696</td>
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</tbody>
</table>

Notes:
1 “Current Budget” includes executed change orders and awarded contracts
2 "Cost This Month" represents cost of work performed November 2021
3 "Cost To Date" includes actuals (amount paid) and accruals (amount of work performed) as of November 2021
# Contingency, Risk and Incentive

<table>
<thead>
<tr>
<th></th>
<th>Project Contingency</th>
<th>BBI Shared Risk Pool</th>
<th>BBII Incentive Pool*</th>
<th>Total</th>
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<tbody>
<tr>
<td><strong>Baseline Amount</strong></td>
<td>$40.0M</td>
<td>$50.0M</td>
<td>$18.5M</td>
<td>$108.5M</td>
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<td><em>as of 12/6/21</em></td>
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<tr>
<td><strong>Usage</strong></td>
<td>($0.0M)</td>
<td>($0.0M)</td>
<td>($0.0M)</td>
<td>($0.0M)</td>
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<td><em>through 12/31/21</em></td>
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<tr>
<td><strong>Remaining Balance</strong></td>
<td>$40.0M</td>
<td>$50.0M</td>
<td>$18.5M</td>
<td>$108.5M</td>
</tr>
</tbody>
</table>

*Note: Total incentive includes carryover from original budget and $15M from BBII global settlement*
Funding Update

• Develop $410M Funding Plan
  - Identified consultant support and prepare federal /state funding action plan
  - Developing collateral materials (jobs map, etc.)

• Federal Update
  - Tracking Notice of Funding Availability (NOFA) / administration push for significant awards in 2022
  - Continuing to meet with federal delegation and funding agencies regarding project need
  - Seeking clarity on Capital Investment Grants funding eligibility
  - Advocating for FY22 appropriations language to maximize funding for Full Funding Grant Agreement projects in need
Funding Update, cont.

• State Update
  - Tracking Notice of Funding Availabilities (NOFAs)
  - Meeting with state delegation and funding agencies regarding project need
  - Governor’s Budget Included $9.1B for transportation
  - Discussion with Budget Chairs underway geographic targets and existing funding formula vs TIRCP language flexibility
Upcoming Board Actions

• No upcoming JPB actions forecasted
• Future reporting items
  - Draw down of contingency, risk and incentive
  - Contract capacity/budget actions