CALTRAI IN ELECTRIFICATION UPDATE

JPB WPLP Committee Meeting
November 24, 2021
PROJECT OVERVIEW
• Caltrain Electrification
• San Francisco to San Jose (Tamien Station)
• 51 miles
• Project Cost: $2.31B (based on FTA risk refresh)
• Revenue Service: Sept. 2024
**PROJECT ELEMENTS**

**Electric Trains**
- 19 7-car train sets (133 cars)
  (Note: 96 cars funded by project; 37 cars funded by State TIRCP)

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

- Improved Train Performance, Increased Service and Greater Capacity
- Improved Regional Air Quality and Reduced Greenhouse Gas Emissions
- Positive Economic Benefits for the Region
- Reduced Engine Noise Emanating from Trains
LONG-TERM SERVICE VISION

- Electrification sets foundation for future growth of system
- Meet projected regional growth in jobs and housing in the Bay Area
- Triple ridership, increase peak and off-peak service
- Carry equivalent of 5.5 lanes of US 101 highway traffic
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
OVERVIEW

- Current progress supports 2024 revenue service date
- Overhead Contact System (OCS)
  - Foundations 95% complete (92% last month)
  - Poles 71% complete (67% last month)
  - Segment 4 Wire 90% complete (78% last month)
- Traction Power Facilities
  - Transformer installed at 10 of 10 facilities
  - Traction Power Substation 1 98% complete
  - Traction Power Substation 2 100% complete (96% last month)
  - Paralleling Station 7 99% complete (96% last month)
- Electric Trains (133 cars total)
  - 88 shipped
  - 73 in Salt Lake City manufacturing facility
  - Trainset 1 in Pueblo for on-track testing
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<thead>
<tr>
<th>Segment</th>
<th>Foundations Required</th>
<th>Foundations Remaining</th>
<th>Installation Percent Complete</th>
<th>Completed Last Month</th>
<th>Anticipated Completion Date</th>
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Data as of October 31, 2021
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<th>Segment</th>
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<th>Installation Percent Complete</th>
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Data as of October 31, 2021
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<tr>
<th>Segment</th>
<th>Installation Percent Complete</th>
<th>Completed Last Month (in feet)</th>
<th>Anticipated Installation Completion</th>
<th>Testing Percent Complete</th>
<th>Anticipated Testing Completion</th>
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Data as of October 31, 2021
## SIGNAL SYSTEM

Data as of October 31, 2021

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<th>Segment</th>
<th>95% Design Percent Complete</th>
<th>Anticipated 95% Design Complete</th>
<th>Installation Percent Complete</th>
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### Traction Power Facilities

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<th>Facility</th>
<th>Sitework</th>
<th>Substation Building</th>
<th>Low / High Voltage Equipment</th>
<th>Transformer</th>
<th>Gantry</th>
<th>Total Completion</th>
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<td>TPS-1 (SSF)</td>
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<td>80%</td>
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<td>TPS-2 (San Jose)</td>
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<td>PS-1 (SF)</td>
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<td>100%</td>
<td>86%</td>
<td>87%</td>
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<td>PS-2 (SF/Brisbane)</td>
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<td>80%</td>
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<td>100%</td>
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<td>PS-3 (Burlingame)</td>
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<td>PS-4 (San Mateo)</td>
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<td>PS-5 (Palo Alto)</td>
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<td>PS-6 (Sunnyvale)</td>
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#### Wayside Power Cabinets

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<tr>
<th>Required</th>
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<td>27</td>
<td>23</td>
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Data as of November 15, 2021
• Production
  - COVID-19-related global safety measures have slowed production
  - Salt Lake City assembly delayed
  - Trainsets 3 to 15 in various states of production

• Testing
  - Dynamic type testing on schedule in Pueblo on trainset 1
  - HVAC type testing trainset 2 ongoing
  - Routine testing trainsets 3 through 6 being performed in SLC

• Schedule
  - First trainset to Caltrain 1st Quarter 2022
  - Acceptance of 14 of 19 trainsets 2nd Quarter 2023
• 2 Speed Check
  - Segment 4 data collection in progress
  - December 2021 / March 2022: 17 cutovers from Burlingame to Hillsdale
  - Cutovers require reduced revenue service for 3 weeks
  - Cutovers critical to meeting revenue service date

• Signal Optimization (Wireless)
  - Proof of concept test anticipated January 2022
TESTING & SAFETY
Segment 4 (Q4 2021 / Q1 2022)
• Procured 2 electric locomotives from Amtrak to be used for testing
• Ensure infrastructure is ready for new electric trains
- First, traction power facilities in San Jose tested then powered on
- Then overhead electric lines tested then powered on
- Overhead wires tested in sections
• Each trainset tested for ~3 months
• Last trainset scheduled to arrive spring 2024
• Testing on remaining segments when electrified
BE AWARE OF OVERHEAD WIRES

Caltrain's electric overhead wires carry 25,000 volts of electricity and can be dangerous. Treat all overhead wires as live.
KEEP YOURSELF AND OBJECTS AWAY

Never approach overhead wires with things like ladders, antennas, balloons, and most importantly, yourself!
If you see a downed or otherwise damaged overhead wire, stay at least 25 feet away. For emergencies or suspicious activity on Caltrain, call the Transit Police at 1.877.SAF-RAIL (1.877.723.7245).
LEARN MORE

Visit CalMod.org/safety for more information about how to stay safe around the new electric overhead wires.
PROJECT UPDATE
### SCHEDULE (KEY MILESTONES)

**Revenue Service September 2024**

#### Contract Baselines vs. Forecast

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<th>Year</th>
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#### Milestones

- **Electrification - BBII**
  - OCS: 10/09/17
  - OCS Foundation: 02/03/22
  - OCS 07/15/22
- **Electrification - BBII**
  - TPF: 12/01/17
  - TPF 06/10/22
- **Electrification - BBII Signal**
  - Signals: 09/30/23
- **Electrification - BBII Integrated Testing**
  - 7/01/21
  - Integrated Testing: 12/31/23
- **Permanent Power (PG&E)**
  - 03/17/17
  - Permanent Power 06/13/22
- **EMU (Stadler)**
  - 09/06/16
  - Arrival of First Trainset at JPB: Feb 2022
  - Arrival of 14th Trainset at JPB: Aug 2023

**Data Date**

- RSD Period: 01/01/24 - 05/31/24

**Contingency**

- Contingency: 09/26/24

**Data Date as of 09/30/2021**

**Critical Path**

**Actual**

**Forecast**
As of August 31, 2021
December update subject to BBI negotiations and budget refresh

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<thead>
<tr>
<th>Total Project Cost</th>
<th>$2.31B</th>
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<td>($1.98B Previous Project Cost)</td>
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<td>Carryover Contingency (Previous Budget)</td>
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<td>Additional Reserve*</td>
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*Note: Total $333M additional cost recommended by FTA
• Resolve BBII contract commercial issues
• BBII requests for change orders / claims
• Delays in parts supply chain affecting vehicle production schedule
• Continue to mitigate underground site conditions and assist BBII with redesign efforts
• PG&E Single Phase Study impact on Segment 4 Testing
• Priority funding opportunities
  - State Budget (Bay Area coordination)
  - Federal FY22 appropriations
  - Federal Infrastructure Bill
• Other sources
  - Federal Consolidated Rail Infrastructure and Safety Improvement (CRISI)
IMMEDIATE NEXT STEPS

• November/December
  - Resolve BBII contract commercial issues
  - Reset project resources
  - Reset cost and schedule milestones

• JPB Meeting December 2, 2021
  - Construction / CMB update
  - Monthly report

• JPB Special Meeting December 6, 2021
  - BBII settlement and project rebaseline
  - Funding strategy
  - Budget amendment / Change order approvals
QUESTIONS