

Caltrain Electrification Project Update

Peninsula Corridor Joint Powers
Board
June 2, 2022



Project Overview

Project Overview

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



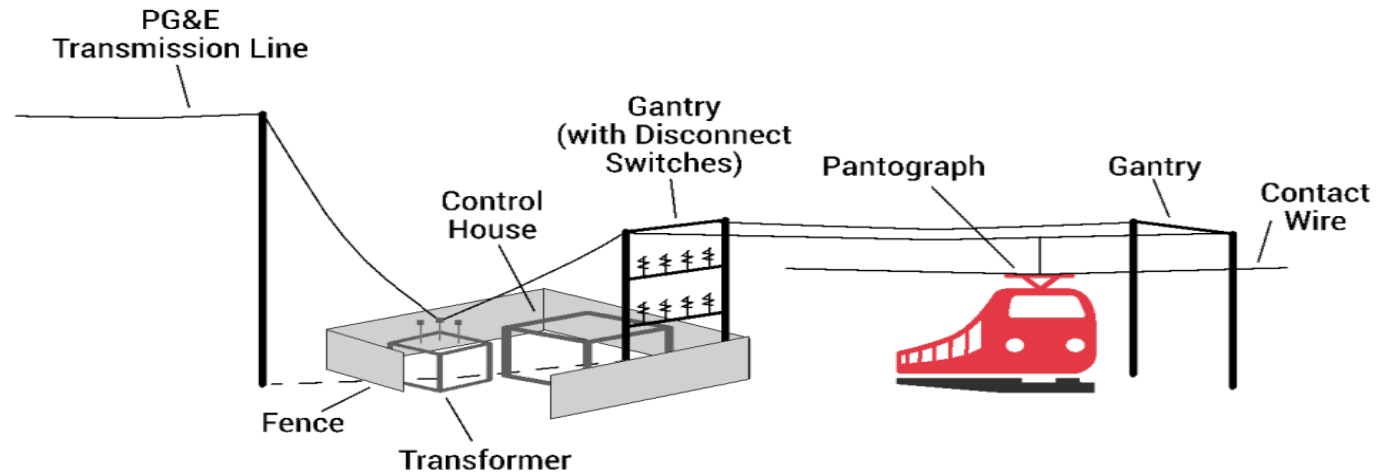
Project Elements

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

- Electric Trains

- 19 7-car train sets (133 cars)
- 75% replacement diesel fleet

(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 Highlights

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- Schedule: No change to revenue service date - Fall 2024
- Budget: No change to project budget - \$2.44B
 - No new draw from project contingency, incentive, risk pool
 - ICAP reevaluation / CHSRA review continuing
- Construction
 - Early completion of 2 Speed Check signal work in Burlingame and San Mateo
 - Progress with PG&E coordination on Single Phase Study
- Electric Trains
 - Started static testing of the electric trains

Safety and Security

Time Period	Reportable Injury Rate
January 1 to April 30, 2022	2.37
Since Project Start (2017)	1.74

Note: National Average Reportable Injury Rate is 2.50.

- Completed Tabletop Emergency Exercise with San Jose Fire and Police Departments
- National Construction Safety Week first week in May
 - Completed entire Caltrain and BBI team safety stand down

Construction Update

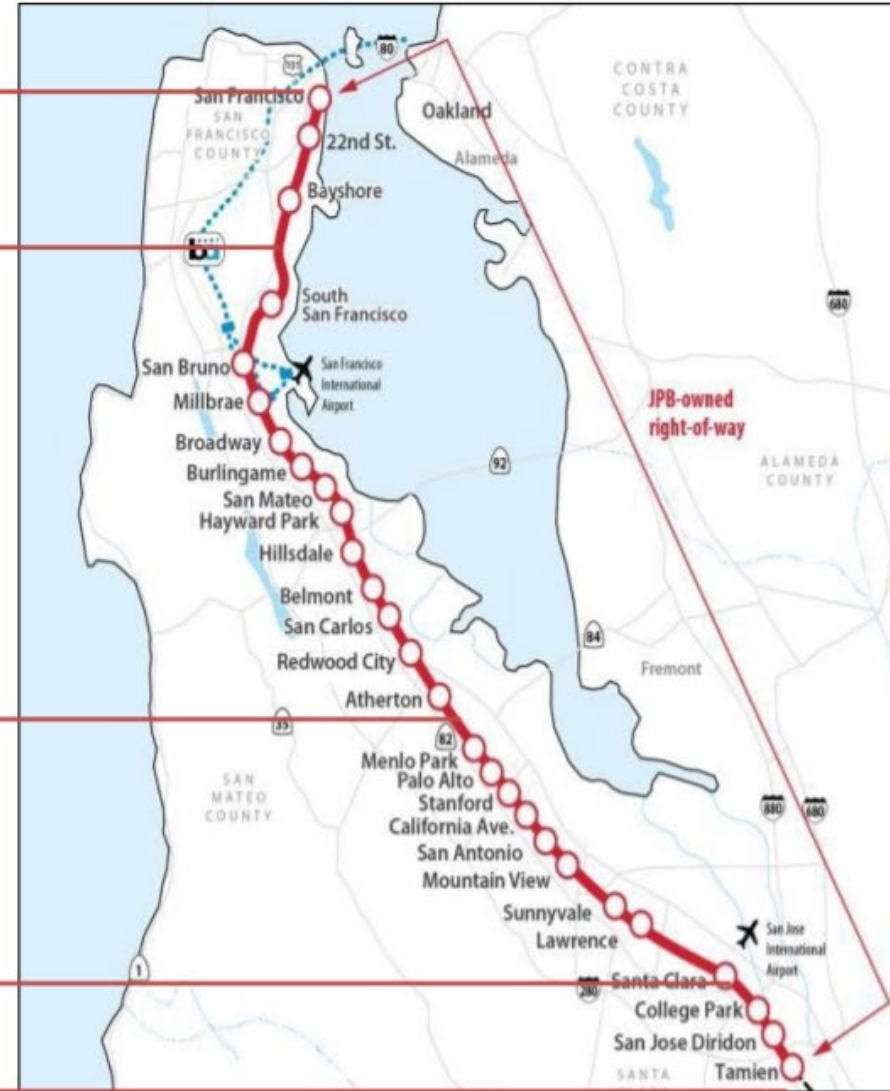
Construction Segments

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



Construction Update

Construction is currently on schedule and on budget

Overhead Contact System

Component	Segment	Installed in April	Remaining
Foundations (3,092 total)	Segments 4, 3, 2, 1	Complete	0
Poles (2,587 total)	Segments 4 / 3	Complete	0
	Segments 2 / 1	4	538
Wire (1.5M linear feet total)	Segments 4 / 3	Complete	0
	Segments 2 / 1	9,763	843K Linear Feet

Traction Power Facilities

Component	Percentage Completed in April	Total Percent Complete
Traction Power Facilities (10 total)	1%	89%



Electric Trains

- 111 car shells from Switzerland shipped
 - 97 arrived at Salt Lake City facility
 - 14 in transit
- Trainsets arrive to Caltrain every 2-3 months
- 14th trainset anticipated arrival fall 2023
- 19th trainset anticipated arrival fall 2024
- Trainset testing at CEMOF has commenced



Signal System and Communication

- 2 Speed Check
 - Segment 4
 - Progress made on punch list
 - Segment 2
 - Early completion of 2 Speed Check signal work in Burlingame and San Mateo
 - Lessons learned will benefit future work in Segment 2
 - Segments 1 and 3 work remaining

Crossing Optimization Project

(outside of PCEP scope)

- Complete deployment to first six pilot locations:
 - San Jose: Auzerais Avenue, Virginia Street,
 - Millbrae: Center Street, Santa Paula Ped.
 - San Francisco: Mission Bay Drive, and 16th Street.

Signal Work Schedule

City	Number of Crossings	2 Speed Check Installation	Crossing Optimization (Wireless) Installation (outside PCEP scope)
San Jose	2	January 2021	May 2022
Millbrae	1	December 2021	May 2022
Burlingame	6	May 2022	Fall 2022
San Mateo	9	May 2022	Fall/Winter 2022
South San Francisco	1	Summer 2022	Winter 2022/2023
San Bruno	1	Summer 2022	Winter 2022/2023
Redwood City	6	Fall 2022	Spring/Summer 2023
Atherton	2	Fall 2022	Spring 2023
Menlo Park	4	Fall 2022	Summer 2023
Palo Alto (Alma and Churchill)	2	Fall 2022	Summer 2023
Palo Alto (Charleston and East Meadow)	2	Spring 2023	Summer 2023
Mountain View	2	Spring 2023	Spring 2023
Sunnyvale	2	Spring 2023	Fall 2023
San Francisco	2	Fall 2023	Spring 2024

Notes: Dates subject to change

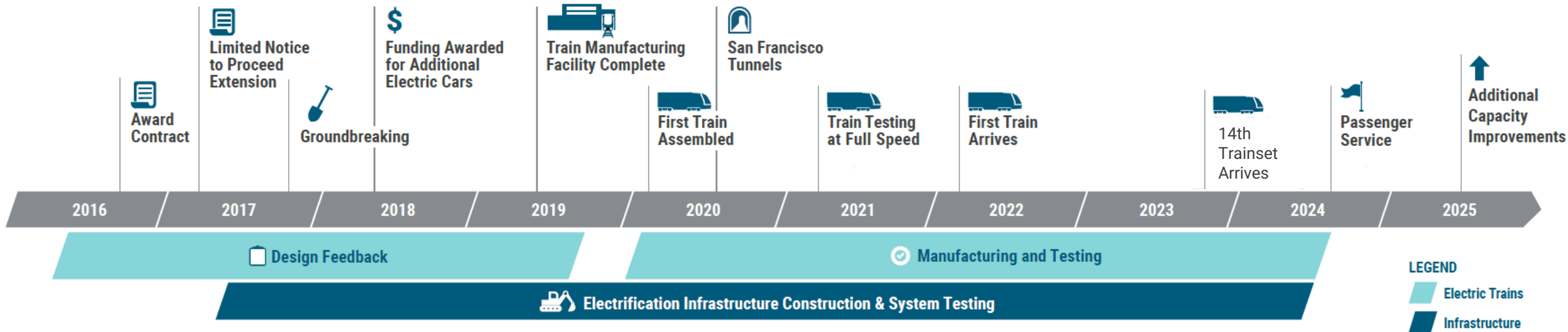
Signal Work at UPRR owned crossing in Santa Clara to be determined



Program Management

Program Master Schedule

Revenue Service Fall 2024



Key Milestones

No delay to the critical path compared to the December 2021 project re-baseline schedule.

Item	Rebaseline Date	Current Forecasted Date
Completion of Signal System Cutovers in Segment 2	November 2022	November 2022
Segment 4 Integrated Testing with EMU	May 2022	November 2022
Completion of Signal System Work (Critical Path)	September 2023	September 2023
Acceptance of 14 th Trainset	January 2024	January 2024
BBII Electrification Substantial Completion	April 2024	April 2024
Revenue Service Date	September 2024	September 2024

Top Risks

	Risk	Mitigation	Critical Date
	OCS installation delay due to low productivity	<ul style="list-style-type: none"> Additional BBII OCS crew training for regulation and variance in the OCS design/installation due to redesign and accommodations to resolve foundation DSC issues. Hiring additional BBII OCS staff members to prevent schedule slippage and help in future installation planning. Hold OCS construction scheduling recovery workshop for remaining OCS installation and testing. 	June 2022
	Equipment procured and installed (e.g., wayside cubical batteries and TPS cables) are not in compliance with contractual requirement or not in compliance with issue for construction (IFC) design	<ul style="list-style-type: none"> Assigned focus group including technical lead and delivery director for issue resolution. Commence joint task force (designer, builder and PCEP Team) for quality audit with focus on wayside equipment and TPS; findings report out will be done in May. Timely address design change notice and design variance requests. Perform root cause analysis and correction actions to avoid future mishaps. 	June 2022
	Timely completion of TPS 2 battery replacement; timely completion of Single-Phase Study and execution of PG&E Transmission Operating Load Agreement (TOLA) will impact Segment 4 energization to OCS/TPS Commissioning and EMU Testing	<ul style="list-style-type: none"> The technical team meets with PG&E weekly to finalize the number of cases required to complete Single-Phase Study. Expedite battery replacement effort; choose battery enclosure option and complete PG&E witness testing by 7/1/22. Additional resources have been brought in to expedite Single-Phase Study effort. Caltrain leadership met with PG&E representatives to outline the path forward. Both management teams meet weekly to track the status. Caltrain and PG&E jointly reviewed TOLA comments and will finalize agreement by June 2022. 	September 2022
	Funding of \$410 million program gap	<ul style="list-style-type: none"> Special task force is in place to identify federal and state grant opportunities to pursue. Targeted advocacy is ongoing. Prepare earmarks grant scope and application. 	June 2023
	Project skilled resources (Contractor and Caltrain) availability	<ul style="list-style-type: none"> Design-builder brought experienced project director, construction manager, systems Engineer from UK to the project. More Traction Power technical support is on its way. Caltrain continues reaching out to the industry to interview and secure key resources for testing, Rail Activation and project acceptance. Develop specialized staff plan for operations and maintenance. 	Ongoing

Green = Mitigations/actions identified and no impact to budget/schedule

Yellow = Mitigations/actions identified and potential impact to budget/schedule

Red = Impact to budget/schedule



Program Budget

	(B)	(C)	(D)	(E)	(F) = (D) + (E)
Description of Work	Re-Baseline Budget	Cost This Month	Cost To Date	Estimate To Complete	Estimate At Completion
Electrification	\$1,097,149,881	\$7,527,892	\$746,861,460	\$350,288,421	\$1,097,149,881
EMU Procurement	\$556,072,601	\$0	\$287,690,365	\$268,514,601	\$556,204,966
Minor Construction Contracts (SSF, 25th Grade, Tunnel, CEMOF, SCADA, Non-BBI OCS)	\$67,055,072	\$6,663,814	\$63,908,220	\$3,146,852	\$67,055,072
Real Estate Acquisition & Support	\$34,914,177	\$34,668	\$23,607,670	\$11,306,507	\$34,914,177
PG&E, Utilities	\$132,088,995	\$2,587,555	\$194,273,742	-\$62,184,748	\$132,088,995
Management Oversight & Support	\$312,699,697	\$2,600,144	\$236,509,134	\$76,190,563	\$312,699,697
TASI Support	\$114,488,767	\$850,849	\$75,639,315	\$38,849,451	\$114,488,767
Finance Charges	\$9,898,638	\$746,019	\$8,648,821	\$1,249,817	\$9,898,638
Insurance	\$6,581,851	\$0	\$4,581,851	\$2,000,000	\$6,581,851
Other Required Projects & Services	\$9,084,176	\$262,980	\$2,758,803	\$6,325,373	\$9,084,176
Environmental Mitigation	\$14,438,866	\$0	\$1,205,404	\$13,233,462	\$14,438,866
Caltrain Capital Overhead (ICAP)	\$48,217,887	\$1,110,892	\$18,478,460	\$29,739,427	\$48,217,887
Contingency	\$40,000,089	\$0	\$0	\$39,867,724	\$39,867,724
Total	\$2,442,690,697	\$22,384,814	\$1,664,163,246	\$778,527,450	\$2,442,690,697

Notes:

1 "Current Budget" includes executed change orders and awarded contracts

2 "Cost This Month" represents cost of work performed April 2022

3 "Cost To Date" includes actuals (amount paid) and accruals (amount of work performed) as of April 2022



Contingency, Risk and Incentive Details

	Project Contingency	BBII Shared Risk Pool	BBII Incentive Pool*	Total
Baseline Amount <i>as of 12/6/21</i>	\$40.0M	\$50.0M	\$18.5M	\$108.5M
Usage / Add <i>through 4/30/22</i>	(\$0.0M)	(\$0.376M)	(\$0.0M)	(\$0.376M)
Remaining Balance	\$40.0M	\$49.62M	\$18.5M	\$108.12M

Notes: *Total incentive includes carryover from original budget and \$15M from BBII global settlement

Funding Update

- **Federal Targets (\$150M)**

- Meetings in DC with Administration and Delegation
- Advocate for infrastructure funding for Capital Investment Grants Full Funding Grant Agreement (FFGA) projects (FTA)
- Advocate for Federal State Partnership for Intercity Rail grant program in partnership with HSR (FRA)
- Advocate for “Community Project” funding opportunities
- MTC adopted strategy that is consistent with these efforts

- **State Targets (\$260M)**

- Governor’s May Revise outlined nearly \$100B in State budget surplus funds
- Advocate for funding through State budget process
- AB 2197 (Mullin) for \$260M project funding effort directed to State budget process
- Assess CTC Solutions for Congested Corridors Program for eligibility and competitiveness
- Meetings with delegation and key committee staff as well as business /advocacy groups

Upcoming Board Actions

- ARINC Change Order – Tentative Summer
- Consultant Contract Change Order Assessment - TBD

FOR MORE INFORMATION

WWW.CALTRAIN.COM

