

Caltrain Electrification Project Update

Peninsula Corridor Joint Powers Board
September 7, 2023
Agenda Item #13



Project Highlights

Project Highlights

- Schedule: No change to revenue service date - fall 2024
- Budget: No change to project budget - \$2.44B
 - \$1.76M draw from \$50M Shared Risk Pool in July 2023
 - No draw from \$40M Project Contingency in July 2023
- Construction
 - Nineteen weekend shutdowns complete
 - All poles installed
 - Completion of final signal cutover
 - Live Run Tests between Mountain View and San Jose
 - Energization of Traction Power Substation 1 in South San Francisco
- Electric Trains
 - Next two trainset expected Fall 2023

Safety and Security

Time Period	Reportable Injury Rate
January 1 to July 31, 2023	1.37
Since Project Start (2017)	1.62

Note: National Average Reportable Injury Rate is 2.50.

- **No reportable injuries for July 2023**
- Project Safety Awareness trainings ongoing for Local Fire and Police Departments
- Completed 25kV training for all TASI and tenant railroad staff
- Development of emergency responder safety presentation for local first responders

Project Contingency and Shared Risk Pool

Item	Amount	Executed in July 2023	Executed To Date	Amount Remaining
BBII Shared Risk Pool	\$50.00M	\$1.76M	\$9.82M	\$40.18M
Project Contingency	\$40.00M	\$0.00M	\$3.52M	\$36.48M
Total	\$90.00M	\$1.76M	\$13.34M	\$76.66M

Top Risks

- Timely Completion of Integrated Testing and Live Runs
- Contractor Overhead Contact System Productivity on Regulations
- Traction Power Energization and Short Circuit Testing (TPS-1)
- Contractor Quality Control and Quality Assurance
- Theft of Impedance Bonds Cables

Live Run Tests

- Live run tests ensure overhead wires, trains, and system are functioning properly
- Multiple test runs needed for each segment
- Tests start at 5mph and increase speed at each subsequent test, up to 79mph
- Residents may hear additional noise from horns, bells, and crossing gates during train movements
- Tests planned for Friday and Saturday nights after Caltrain revenue service

1,000 Mile Burn-in Tests

- Each of the 19 trainsets need to be tested for 1,000 miles
- Burn-in testing starts late September with first four trainsets
- Additional trainsets delivered Fall 2023 – Summer 2024
- Residents may hear additional noise from horns, bells, and crossing gates during train movements
- Test trains will run during evening/night hours to increase efficiency and reduce impact revenue service trains

Train Testing Schedule

Mountain View to San Jose (20 miles)

Activity	Start Date
Live Run Tests	August 2023
Burn-in Tests	Late September 2023

San Francisco to San Jose (50 miles)

Activity	Start Date
Live Run Tests	December 2023
Burn-in Tests	January 2024



Service Changes and Customer Experience

February to August 2023 – Weekend Shutdowns

Area (Phase)	Work Activity	Weekends	Number of Weekends
San Francisco to Millbrae (Phase 1)	OCS Construction	February 11-12 February 25-26 March 4-5 March 11-12	4
Millbrae to Hillsdale (Phase 2)	OCS Construction	March 25-26 April 1-2	2
Belmont to Menlo Park (Phase 3)	OCS Construction	April 8-9 April 15-16	2
Menlo Park to Santa Clara (Phase 4)	Signal Installation OCS Testing System Integration Testing	April 22-23 April 29-30 May 5-6 May 13-14	4
San Francisco to Millbrae (Phase 5)	OCS Construction Signal Installation	June 10-11 June 17-18	2
Hillsdale to Palo Alto (Phase 6)	OCS Construction	July 15-16 July 22-23	2
San Francisco to Millbrae (Phase 7)	Signal Installation	August 12-13 August 19-20 August 26-27	2
San Francisco to Millbrae (Phase 8)	OCS Testing	October 7-8 October 14-15	2
Millbrae to Menlo Park (Phase 9)	OCS Testing	October 21-22	2

- Additional shutdowns planned for November - December

Safety Campaign

- Community Meetings/Mailers
- Onboard Outreach
- School Campaign
- Public Service Announcements
- Right-of-way outreach



The flyer features a black header with the Caltrain logo. The main text is in blue and black. At the bottom, there is a yellow and black diagonal hazard stripe.

Caltrain

STAY SAFE BY KNOWING THESE SIMPLE SAFETY TIPS:

CALTRAIN IS ENERGIZED:
The Caltrain system is now electric. Wires and ground cables carry 25,000 volts of electricity and can be dangerous. **Never approach or touch overhead wires or equipment with things like ladders, antennas, and most importantly, yourself!**

ALWAYS EXPECT A TRAIN:
New electric trains are quieter and faster than you think. They can run on any track, at any time, from either direction. Stay safe and stay off the tracks.

CROSS ONLY AT DESIGNATED CROSSINGS:
The only safe place to cross tracks is at designated public crossings with a crossbuck, flashing red lights or a gate. Crossing anywhere else is illegal.

Right-of-Way Flyer



The mailer has a yellow background with a black and yellow hazard stripe at the top. It includes three circular illustrations showing safety scenarios: a train at a crossing, a person near overhead wires, and a damaged wire. The Caltrain logo is in the top right corner.

STAY AWARE, STAY SAFE.

Caltrain

Caltrain is getting an upgrade: out with diesel, in with electricity! While this change means big improvements for the Caltrain community, it also means new electric overhead wires will be installed to power the new trains. Electric overhead wires can be **dangerous and even life-threatening**. The new electric trains will also be much quieter than the diesel trains. You can stay safe by following a few easy rules:

Always wait for the gate
Even if you can't hear the new trains coming, make sure to wait for the gate to fully rise before crossing.

Be mindful of overhead wires
Caltrain's electric overhead wires carry 25,000 volts of electricity and can be dangerous. Never approach overhead wires with things like ladders, antennas, balloons, and most importantly, yourself!

Stay away from damaged wires
If you see a downed or otherwise damaged overhead wire, stay at least 25 feet away and call the Transit Police at 1.877.SAF.RAIL (1.877.723.7245).

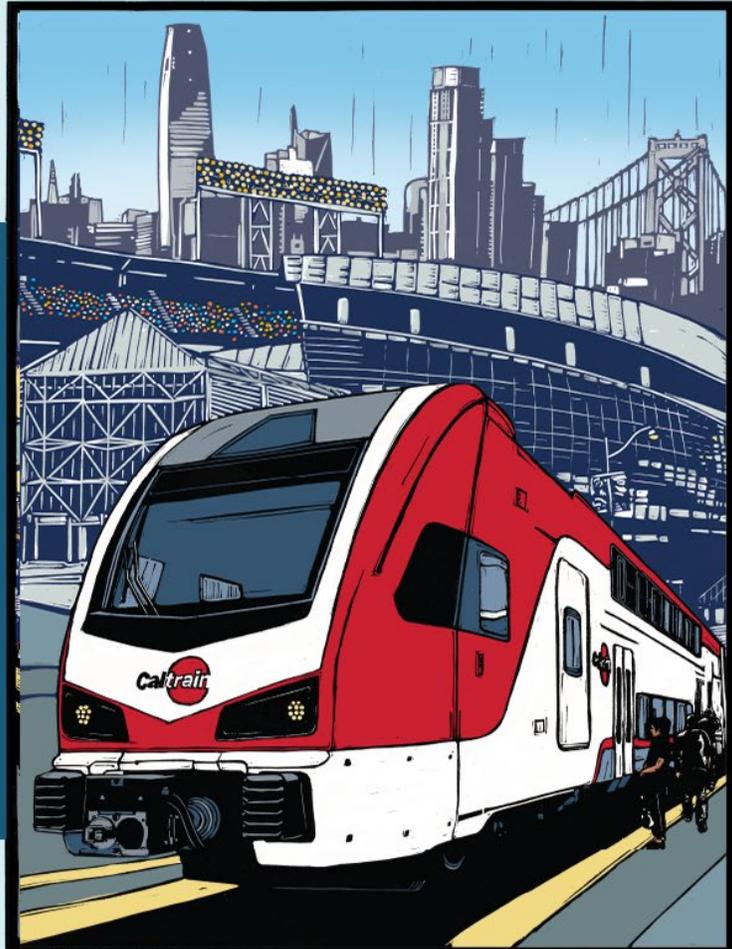
Caltrain Caltrain.com/safety

CALL 1.877.SAF.RAIL
for any emergency on Caltrain, to report suspicious activity, or if you see a damaged electrical wire.

Residential Mailer



Electric Train Tour



© 3 Fish Studios www.3fishstudios.com

Caltrain's Electric Train Tour *San Francisco Station*

September 23rd, 2023

10am – 2pm

caltrain.com/tour

San Jose Tour Recap:
<https://www.youtube.com/watch?v=0FEWylx6Qr4&t=2s>

Upcoming Board Items

Upcoming Board Items

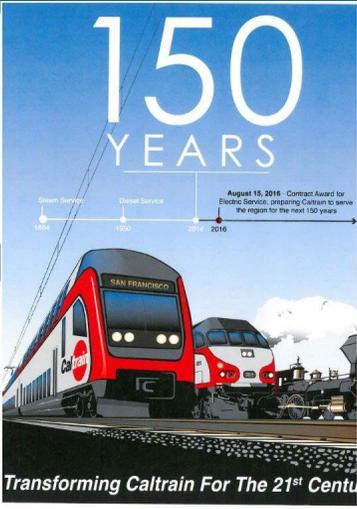
- Monthly Updates on Construction Progress and Service Changes
- Increase Contract Authority Within Existing Budget for Consultant Services
 - Hatch LTK (November 2023)

September 7, 2023

Caltrain Board of Directors Update

ZEROHARM

Balfour Beatty
Infrastructure Inc.



Focus Areas

- Continue viewing everything thru the Zero Harm lens – Improving RIR – 1.03
- Milestone 1 Delivery – (CP Mayfield MP-33.5 to Diridon MP 47.53)
- OCS Production - Regulation
- TPS1 Loadbank Test
- Short Circuit Test Preparation
- Punchlist Execution
- Closeout Execution
- Training Schedule
- Preparing As-Built & O&M Manuals
- Improve communication & collaboration at all levels
- Measuring what we do every day

Overall OCS Production

Balfour Beatty Infrastructure, Inc								
Caltrain Peninsula Corridor Electrification Project								
Construction Progress Tracker						Week Completed		
						Week Planning		
						Updated		
Commodity	Total Quantity	Job to Date % Complete	Total Quantity Remaining Starting Week 6	Planned Work from Week 6	Actual Installed form week 6	Delta	% Achieved against Bus Bridge Plan (week 6)	Remaining Quantity to Install
Pole	2,568	100%	73	64	73	9	114%	-
All Beams	958	100%	88	72	88	16	122%	-
Cantilevers & Drop Tubes	5,896	100%	1,114	998	1,109	111	111%	5
Feeder & Static Wire Assemblies	4,855	99%	1,242	1,229	1,190	(47)	97%	52
Messenger Wire	771,077	95%	256,576	200,505	220,610	20,104	110%	35,967
Contact Wire	782,985	95%	272,762	234,134	233,547	(587)	100%	39,215
Feeder Wire	486,189	95%	122,047	82,409	98,177	15,768	100%	23,870
Static Wire	604,799	97%	108,990	63,812	90,579	26,767	142%	18,411
Regulation	5,768	80%	3,063	1,862	1,914	52	103%	1,149
	2,645,050	88.6%	760,375	580,860	642,912	62,193	117.4%	117,463
					110.7%			

OCS Progress Since Last Caltrain Board Meeting

	Plan Since August Board Meeting	Actual Since August Board Meeting	Total % Complete
Pole	2	7	350%
All Beams	2	3	150%
Cantilevers & Drop Tubes	79	94	119%
Feeder & Static Wire Assemblies	112	58	52%
Messenger Wire	39,461	50,308	127%
Contact Wire	43,629	55,480	127%
Feeder Wire	12,297	8,018	65%
Static Wire	13,474	12,454	92%
Regulation	410	398	97%
Total Wire Pull Plan vs. Actual	108,861	126,260	131%

OCS Interim Milestone Management

OCS Segment Milestone Matrix				
Activity	Segment 1	Segment 2**	Segment 3	Segment 4 *
Poles	4/30***	7/31***	Done	Done
All Beams	4/30***	7/31***	Done	Done
Cantilevers & Drop Tubes	30-May	31-Aug	Done	Done
Feeder & Static Wire Assemblies	30-May	31-Aug	Done	Done
Messenger Wire	16-Jun	25-Sep	Done	Done
Contact Wire	16-Jun	25-Sep	Done	Done
Feeder Wire	16-Jun	18-Sep	Done	Done
Static Wire	16-Jun	18-Sep	Done	Done
Regulation	10/6/2023	11/7/2023	Done	Done
High Pot Testing	10/6 - 10/7	10/13 - 10/14	5/6 - 5/7	Done
Sectionalization Testing	10/14 - 10/15	10/22/2023	5/13 - 5/14	Done
SC TPS Testing	10/21 - 12/1	10/21 - 12/1	5/19 - 5/21	10/29 - 11/18
Pull Away Test			11/10/2023	
(SIT)Live Run Test	12/1 - 12/18	12/1 - 12/18	6/26 - 9/15	6/5 - 6/19
Start BBII Pre-Punch List/Walks	8/31/2023	9/15/2023	3/20/2023	Done
Complete BBII Punch List Work	9/30/2023	10/15/2023	5/19/2023	Done
Start BBI/JPB Joint Punch List Walks	10/1/2023	10/16/2023	5/9/2023	Done
Complete BBI/JPB Punch List Work	12/31/2023	12/31/2023	7/31/2023	7/31/2023
Contractual Overall Substantial Completion	4/1/2024	4/1/2024	4/1/2024	4/1/2024
Contractual Final Acceptance	7/31/2024	7/31/2024	7/31/2024	7/31/2024

* Excludes Guadalupe Bridge - End of September

*** Coordinating with PG&E OH Shutdowns

TPS Interim Milestone Management

TPS1 Milestone Matrix	
Activity	TPS1
MRS Com Equipment & Testing	10-May
Set Final Battery House	28-Apr
Interlocking Test	15-Jul
EPS Testing	26-Apr
PG Energization 115 Kv transformers	20-Aug
TPS1 Lockdown Substation 115 Kv Transformer	26-Aug
Loadbank Pre-Test	9/7 - 9/14
Short Circuit Testing - SC 1 & 2	10/29 - 11/18

TPS2 Milestone Matrix	
Activity	TPS2
Uplodad & Test New Relay Settings	21-Apr
3rd Party Wire Inspection - NETE	28-Apr
Load bank Pre-Test	5/3 - 5/5
Short Circuit Testing	5/19 - 5/22
Short Circuit Testing - SC 3, 4, 5	10/21 - 12/1

FOR MORE INFORMATION

WWW.CALTRAIN.COM

