

# Caltrain Electrification Project Update

Peninsula Corridor Joint Powers Board

October 5, 2023

Agenda Item #10



# Project Highlights

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- Schedule: No change to revenue service date - fall 2024
- Budget: No change to project budget - \$2.44B
  - \$0.94M August 2023 draw from “\$50M Shared Risk Pool”
  - \$8.74M August 2023 draw from “\$40M Project Contingency”
- Construction
  - All OCS Wire Run complete
  - Load bank testing complete for Traction Power Facility 1
  - Complete Milestone 1 ( Diridon – San Antonio) - allow 1,000 mile EMU burn-in started
- Electric Trains
  - Successful test to 79mph maximum track speed
  - Next four trainset expected November 2023
- Electric Train San Francisco Public Tour

# Safety and Security

Time Period	Reportable Injury Rate
January 1 to August 31, 2023	1.48
Since Project Start (2017)	1.58

*Note: National Average Reportable Injury Rate is 2.50.*

- One (1) reportable injury for August 2023 (5 total for 2023)
- Project Safety Awareness trainings ongoing for Local Fire and Police Departments (534 emergency responders trained to date)
- 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 August 2023	Executed To Date	Amount Remaining
BBII Shared Risk Pool	\$50.00M	\$0.94M (1)	\$10.76M	\$39.24M
Project Contingency	\$40.00M	\$8.74M (2)	\$12.26M	\$27.74M
<b>Total</b>	<b>\$90.00M</b>	<b>\$9.68M</b>	<b>\$23.02M</b>	<b>\$66.98M</b>

- *Note (1)*
  - *For track access delay and low voltage generator costs*
- *Note (2)*
  - *For Stadler change orders*
  - *Drawdowns to come for TASI support costs related to extended project period to fall 2024 and project work on field*

# 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

# **Service Changes and Customer Experience**

# 2023 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

Note: Additional shutdowns planned for November - December



# Phase 8 – San Francisco to Millbrae

Weekends: October 7-8, 14-15

- No weekend train service between San Francisco and Millbrae
- Weekend lifeline bus bridge
  - Overall people capacity limited; customers should use bike parking or bike share
  - ADA accessible vehicle provided for each connecting train during service
  - Supplemental bus capacity provided for Fleet Week
- Service ends early on weekends

	Train	Bus
San Francisco		•
22nd Street		•
Bayshore		•
S. San Francisco		•
San Bruno		•
Millbrae	•	•
Broadway	•	
Burlingame	•	
San Mateo	•	
Hayward Park	•	
Hillsdale	•	
Belmont	•	
San Carlos	•	
Redwood City	•	
Menlo Park	•	
Palo Alto	•	
California Ave	•	
San Antonio	•	
Mountain View	•	
Sunnyvale	•	
Lawrence	•	
Santa Clara	•	
San Jose Diridon	•	
Tamien	◇	

# Phase 9 – Millbrae to Menlo Park

Weekends: October 21-22

- No weekend train service - Millbrae to Menlo Park lifeline bus bridge
  - Overall people capacity limited; customers should use bike parking or bike share
  - ADA accessible vehicle provided for each connecting train during service
  - Six stations will not be served by bus bridge due to travel time and bus operator constraints:
    - Broadway
    - Burlingame
    - Hayward Park
    - Hillsdale
    - San Carlos
    - Belmont
- Service ends early on weekends

	Train	Bus
San Francisco	•	
22nd Street	•	
Bayshore	•	
S. San Francisco	•	
San Bruno	•	
Millbrae	•	•
Broadway		
Burlingame		
San Mateo		•
Hayward Park		
Hillsdale		
Belmont		
San Carlos		
Redwood City		•
Menlo Park	•	•
Palo Alto	•	
California Ave	•	
San Antonio	•	
Mountain View	•	
Sunnyvale	•	
Lawrence	•	
Santa Clara	•	
San Jose Diridon	•	
Tamien	◇	

# Customer Communication

- Station Signage for awareness
- Station Signage for wayfinding
- Caltrain Rider App Alerts
- Webpage Alert
- Station Ambassadors 8am-8pm
- Onboard Communications
- Station Audio Announcements



**SamTrans  
Alternate Transit  
for this Station  
No Train Service  
Oct 21-22, 2023**

1-800-650-4287  
caltrain.com/status

Caltrain samTrans

**Oct 21 & 22  
Trains Board on  
Southbound  
Platform**

使用南行月台  
上火车。

Los trenes abordan  
en la plataforma  
hacia el sur.

Customer Service  
1-800-650-4287

Caltrain

**Weekend  
Bus  
Bridge**

**BETWEEN  
SAN FRANCISCO  
& MILLBRAE**

Customer Service  
1-800-650-4287

Caltrain

**WEEKEND SERVICE  
SHUTDOWNS  
IN EFFECT!**

INTERRUPCIONES DEL SERVICIO  
DE FIN DE SEMANA  
周末服务暂停

Check status:  
**CALTRAIN.COM/STATUS**

We appreciate your patience  
as we work to improve service  
for our riders as part of Caltrain  
Electrification.

Customer Service: 1-800-650-4287  
Weekdays: 7 am - 7 pm  
Weekends & Holidays: 8 am - 5 pm





# Electric Train San Francisco Public Tour

September 23, 2023





# Upcoming Board Items

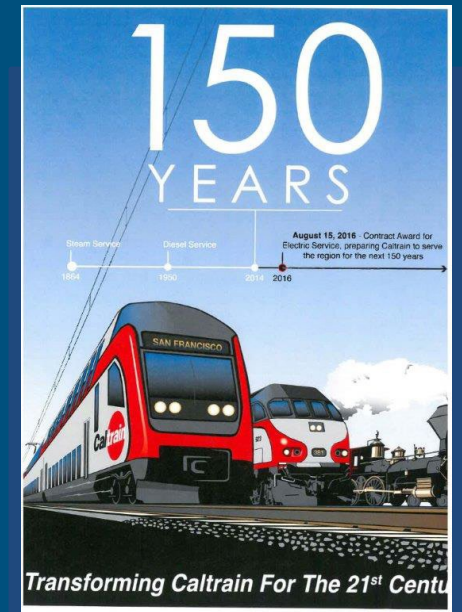
# Upcoming Board Items

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

# October 5, 2023

Caltrain Board of Directors Update

**Balfour Beatty**  
Infrastructure Inc.



# Focus Areas

- Continue viewing everything thru the Zero Harm lense – Improving RIR – 1.03
- Milestone 1 Delivery – (CP Mayfield MP-33.5 to Diridon MP 47.53) - COMPLETE
- OCS Production - Regulation
- TPS1 Loadbank Test - COMPLETE
- Short Circuit Test Preparation
- Punchlist Execution
- Closeout Execution
- Training Schedule – October/November
- Preparing As-Built & O&M Manuals – 20 of 29 Completed/Approved
- Improve communication & collaboration at all levels
- Measuring what we do every day



# Overall OCS Production

Balfour Beatty Infrastructure, Inc								
Caltrain Peninsula Corridor Electrification Project								Week Completed
Construction Progress Tracker								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	100.0%	73	64	73	9	114%	-
All Beams	958	100.0%	88	72	88	16	122%	-
Cantilevers & Drop Tubes	5,896	100.0%	1,148	1,002	1,148	146	115%	-
Feeder & Static Wire Assemblies	4,855	99.2%	1,282	1,304	1,198	(70)	92%	40
Messenger Wire	771,077	99.7%	256,576	223,108	254,457	31,349	114%	2,571
Contact Wire	782,985	99.7%	272,762	262,478	270,243	7,765	103%	2,571
Feeder Wire	486,189	99.6%	122,047	99,386	119,866	20,480	100%	2,180
Static Wire	604,799	99.7%	108,990	75,291	108,002	32,711	143%	1,982
Regulation	5,768	81.1%	3,223	2,307	1,914	4	83%	1,089
	2,645,050	97.7%	760,375	660,263	752,568 114.0%	92,410	117.4%	9,304

# OCS Progress Since Last Caltrain Board Meeting

	Plan Since	Actual	Total %
Pole	-	-	
All Beams	-	-	
Cantilevers & Drop Tubes	4	39	200%
Feeder & Static Wire Assemblies	75	52	69%
Messenger Wire	22,603	33,848	150%
Contact Wire	28,344	36,696	129%
Feeder Wire	16,977	21,689	128%
Static Wire	11,479	17,423	152%
Regulation	445	397	89%
<b>Total Wire Pull Plan vs. Actual</b>	<b>79,403</b>	<b>109,656</b>	<b>131%</b>

# Path to Substantial Completion

TPS1 Energization, OCS completion & SC Testing Path to Completion		
Start	Finish	Description
	Done	TPS1 Energization
	Done	Final Signal Cut-Over Contingency Weekend
	17-Sep	OCS Wiring Completion - Segment 2
	15-Sep	TPS1 <b>Load Bank</b> Testing
	4-Oct	Pull Away Test - Segment 3 Only
	8-Oct	OCS <b>Regulation Completion</b> – MP-1 to MP-26.2
	8-Oct	OCS Acceptance Measurements - MP-1 to MP-26.2
7-Oct	13-Oct	OCS <b>Loop Testing</b> - MP-1 to MP-26.2
	22-Oct	OCS <b>High Pot testing</b> - MP-1 to MP-26.2 (Bus Bridge)
7-Oct	21-Oct	OCS <b>Loop Testing</b> - 14MP to 27MP
7-Oct	15-Oct	OCS Sectionalization testing (Seg 1) - 0 MP to 13MP (Bus Bridge)
17-Oct	19-Oct	OCS Sectionalization testing (Seg 1) - 13 MP to 14MP (Mid-Week Test)
7-Oct	22-Oct	OCS Sectionalization testing (Seg 2) - 14MP to 27MP (Bus Bridge)
	29-Oct	SC - Test 2 - TPS1 Short Circuit Test (Segment 1 & 2) Short Test - TPS1 - MP 1 to MP 26 (SWS)
	7-Nov	Complete OCS <b>Regulation Completion</b> 26MP to 29MP & SF station platforms
	10-Nov	Complete OCS <b>High Pot testing</b> 26MP to 33.5MP
	11-Nov	SC - Test 5 - TPS2 Short Circuit Test - TPS2 to MP 38. - PG&E Pending Confirmation (12hr window)
	12-Nov	Complete OCS Sectionalization testing 26MP to 33.5MP
	18-Nov	SC - Test 3 - TPS2 - MP 1.1 (8 / 9 Hour Window)
	19-Nov	SC - Test 1 - TPS1 - MP 45.25 - (6 PS, & SWS & TPS2 - Resources to man stations) (12hr window)
	1-Dec	SC - Test 4 - TPS2 - MP 26.2 - (6 Hour Window)
	17-Dec	Segment 1 & 2 Live Run Test
18-Sep	22-Dec	End-To-End Test
23-Dec	31-Dec	Submit CoC & Documents
		Power Scenarion Test

# 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	*17-Sep	Done	Done
Contact Wire	16-Jun	*17-Sep	Done	Done
Feeder Wire	16-Jun	*17-Sep	Done	Done
Static Wire	16-Jun	*17-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 - 12/1
Pull Away Test			10/3/2023	
(SIT)Live Run Test	12/1 - 12/18	12/1 - 12/18	6/26 - 9/9	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
Target Substantial Completion	12/31/2023	12/31/2023	12/31/2023	12/31/2023
Contractual Overall Substantial Completion	4/1/2024	4/1/2024	4/1/2024	4/1/2024
Target Final Acceptance	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

# 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	9/14 - 9/15
Short Circuit Testing - SC 1 & 2	10/29 - 11/19

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	10/29 - 12/1

FOR MORE INFORMATION

[WWW.CALTRAIN.COM](http://WWW.CALTRAIN.COM)

