



Caltrain Modernization Program Peninsula Corridor Electrification Project (PCEP)



January 2022 Monthly Progress Report

January 31, 2022

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1.0 EXECUTIVE SUMMARY

1.1 Introduction

The PCEP scope of work includes installation of an overhead contact system, construction of traction power facilities, modification of the existing signaling and grade crossing protection system to make it compatible with the electrified railroad, substation improvements at Pacific Gas and Electric (PG&E) substations, and modifications at existing tunnels and at Caltrain's maintenance facility. It also includes the design, manufacturing, assembly, testing, and delivery of the EMUs.

Caltrain has reset the program in December of 2021. Experts and task forces were brought to deliver these goals going forward into 2022 and until project completion.

1.2 Background and Recent Accomplishments

Caltrain and Balfour Beatty Infrastructure, Inc. (BBII) continue implementing new mechanisms to ensure a collaborative approach to Project delivery. Management team meet every week to go through issues log with focus on risk mitigation and issues resolutions.

The Project team supported a celebration event focused on the final foundation installation completed in January 2022, which included: Interim Caltrain Executive Director Michelle Bouchard, Congressmember Anna Eshoo, Congressmember Jackie Speier, State Senator Scott Wiener, State Assemblymember Kevin Mullin, State Assemblymember Phil Ting, and President of the San Francisco Board of Supervisors and Caltrain Board Member Shamann Walton.

As of January 31, 2022, the current project total cost at completion shows the same as Board adopted budget of \$2.44 billion. The project cost is on track and remains sufficient to complete the Project and start revenue service in 2024. No drawdown occurred to the Risk Pool of \$50 million and project contingency of \$40 million. No new award of Project incentive pool of \$18.5 million.

As of January 31, 2022, the current program schedule is still on track with PCEP substantial completion date of April 2024 and Revenue Service by September of 2024.

During the month of January 31, 2022, no change order submitted for CMB approval.

The project team has successfully completed the following notable activities (additional activities can be found in the individual sections which follow):

- Continue to bring on experienced, qualified resources to fill key management positions for PCEP delivery.
- Complete of all OCS foundation on January 16, 2021
- Held first Project Level Partnering Session with BBII/MRS
- Held Change Management Board (CMB) Meeting on January 19th, 2022
- Provided Recovery/Remediation Plan comment review responses to HSR and FTA PMOC
- Commenced segment 4 Milestone 1 completion joint walk-through and punch list.
- Performed Segment 2 phase 3&4 major cutover readiness review and landed "go" decision for March cutover.

1.3 Upcoming work

For the next six months, the PCEP team has set additional goals as described below:

- Submit final Recovery/Remediation Plan to FTA and California High Speed Rail by March 04, 2022.
- Complete Segment 2 first major signal system cutover by April 2, 2022.
- Arrival of EMU Trainsets 3 and 4 by April 15, 2022.
- Refresh the Program Management Plan by June 30, 2022.
- Energize Segment 4 and start testing EMU Trainset 3 by June 30, 2022.
- Continue rigorous monitoring and reporting of schedule performance by Caltrain, BBII and all other partners during this period and beyond.
- A special task force has been in place to focus on pursuing federal and local grants to close the funding gap.

The PCEP Project is currently on budget and on time for achieving Revenue Service in the fall of 2024.

1.4 Critical Items

The major risks to the Project are below:

- Late completion of Signal Phase Study impact to OCS/TPS Commissioning and EMU Testing
- Late execution of PG&E Transmission Operating Load Agreement will impact Segment 4 energization
- Late completion of Segment 2 Signal/2SC cutover.
- \$410 million program funding gap.
- System integration and interface with existing operational systems testing and duration and resources.
- Delays in parts supply chain affecting vehicle production which is being mitigated.
- Different site condition resulting in ductbank construction delay impacting signal cutover schedule.

Currently, PCEP project meets with PG&E technical and management teams weekly to expedite documentation reviews and minimize Segment 4 energization delay. Issues have been escalated to the Executives. The remaining items do not impact budget or schedule; however, if they are not resolved in a timely manner, they have the potential to impact budget and schedule.

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2.0 SAFETY

Safety consists of both activities and reports conducted by the Safety team and the pursuit of Safety Certification.

2.1 Construction Safety

2.1.1 Introduction

Safety and Security requirements and plans are necessary to comply with applicable laws and regulations related to safety, security, and emergency response activities. Safety staff coordinates with contractors to review and plan the implementation of contract program safety requirements. Safety project coordination meetings continue to be conducted on a monthly basis to promote a clear understanding of project safety requirements as defined in contract provisions and program safety documents.

There were no reportable injuries for the month of January, so the Reportable Injury Rate (RIR) is at 0. The Project Reportable Injury Rate (RIR) from the inception of construction activities to date continues well below industry average (1.71 Project Rate vs. 2.5 National Industry Average).

BBII and their subs did not have any reportable injuries during the month of January, so the RIR is 0 at this time.

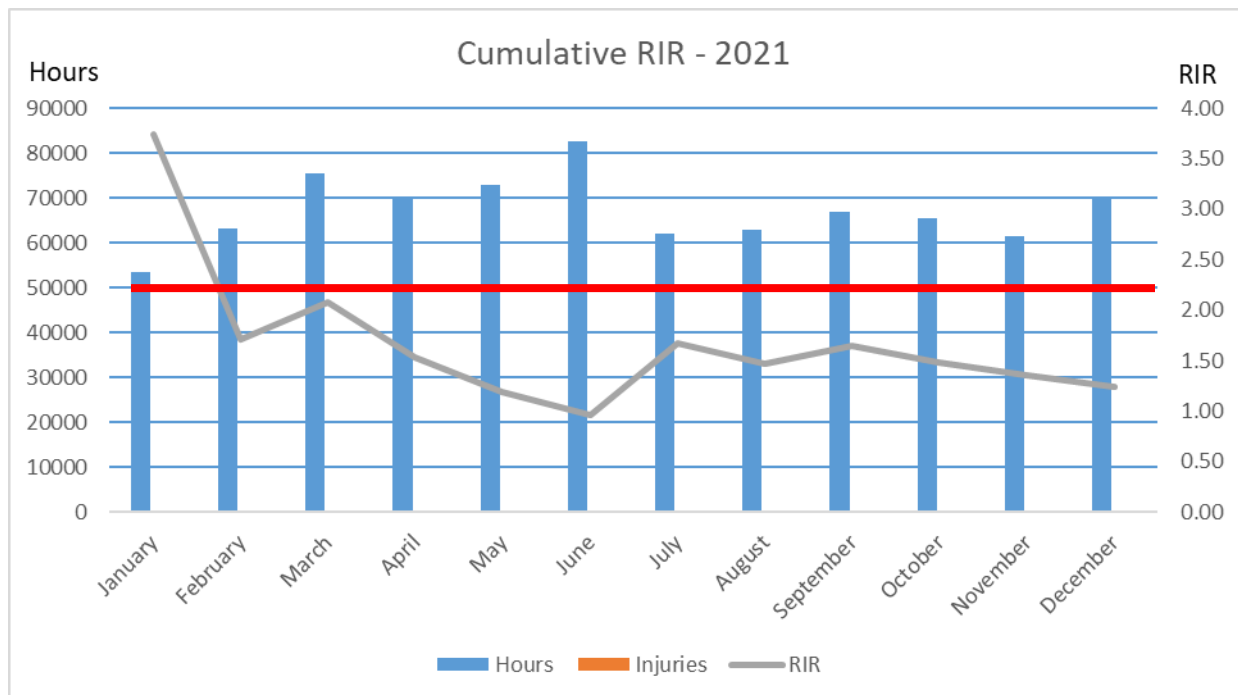


Figure 2-1 Cumulative project Reportable Injury Rate (RIR) for 2021

2.1.2 Completed Work

Safety staff coordinate with contractors to review and plan the implementation of contract program safety requirements. Safety project coordination meetings continue to be conducted on a monthly basis to promote a clear understanding of project safety requirements as defined in contract provisions and program safety documents.

Project Safety continues to work with TASI representatives in the development of the Segment-4 Operating Hazard Analysis (OHA). The OHA sessions include a review of electrification systems potential hazards and recommended mitigations with discipline leads from Operations and Maintenance.

Traction Power Design Criteria Checklists (DCCC's) were forwarded to design leads for their review.

2.1.3 Upcoming Work

Safety awareness training is ongoing, and all employees will have received training prior to the energization of Segment 4. BBII has scheduled the OCS safety awareness training course, Look Up and Live, for all its employees and subcontractors on February 8 and 9, 2022.

OCS Safety Awareness Training was initiated in January for Caltrain employees (Rail Operations, Engineering, etc.) and for PCEP project employees with multiple dates made available to ensure everyone has an opportunity to attend the training session virtually. The training will continue to be provided as needed throughout the project. Members of the Transit Police received the OCS Awareness Training as well as the TPS-2 site familiarization in November of 2021.

The Fire/Life Safety Committee continues to work with the San Jose and Santa Clara Fire Departments on Emergency Preparedness in preparation for the energization of Segment 4. Tabletop emergency response exercises are being planned for March 24, 2022 with the San Jose Fire Department.

All contractors and subcontractors have COVID-19 plans in place that meet federal, state, and local requirements.

2.1.4 Issues

Table 2-1. Safety Team issues identified and actions taken for January 2022

Issues	Actions
N/A	N/A

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2.2 Safety Certification

2.2.1 Introduction

Safety and Security Certification continues as packages for Segment 4 are being assembled by the BBII team and the PCEP Safety team. The latest Certification Element Items List (CEIL) update shows 10 packages completed (Design and Construction/ Testing) with 7 awaiting construction verification by the BBII QA/QC team.

2.2.2 Completed Work

Signal cutovers 1, 2A, 2B, 3, and 4 have been completed and necessary paperwork submitted and granted a Temporary Use Notice (TUN). There are 4 Design Criteria Certification Checklists (DCCCs) currently under development and/or waiting for BBII sign-off before they are submitted to the JPB.

2.2.3 Upcoming Work

Although there will not be any formal Safety Certification of Segment 4, the effort involved for Segment 4 Certification of temporary includes:

- All Design Criteria Conformance Checklists (DCCC) and Construction Specification Checklists (CSCC) will be completed and reviewed by the Safety and Security Certification Review Committee (SSCRC) and other technical experts as needed.
- A Certificate of Operational Conformance will be issued by BBII to the Project for Segment 4 prior to energization. Packages for Operational Conformance will include Traction Power Systems (TPS), Overhead Contact System (OCS), Bridge attachments, Grounding/bonding, Highway crossings, Communications, Train control/signals and SCADA.
- Review of the completed Design Criteria Certification Checklists and the cross referencing to the Construction Specification Criteria checklists and Test reports.

Formal certification will come after the completion and testing/commissioning of the entire alignment and prior to the start of revenue service.

2.2.4 Issues

Table 2-2. Safety Certification issues identified and actions taken for January 2022

Issues	Actions
N/A	N/A

3.0 PROGRAM MANAGEMENT

Program management covers schedule, document control, cost, risk and change management.

3.1 Schedule

3.1.1 Introduction

PCEP has a Master Program Schedule (MPS) which illustrates the timeline of major elements of the PCEP program and can be seen in Figure 3.1.

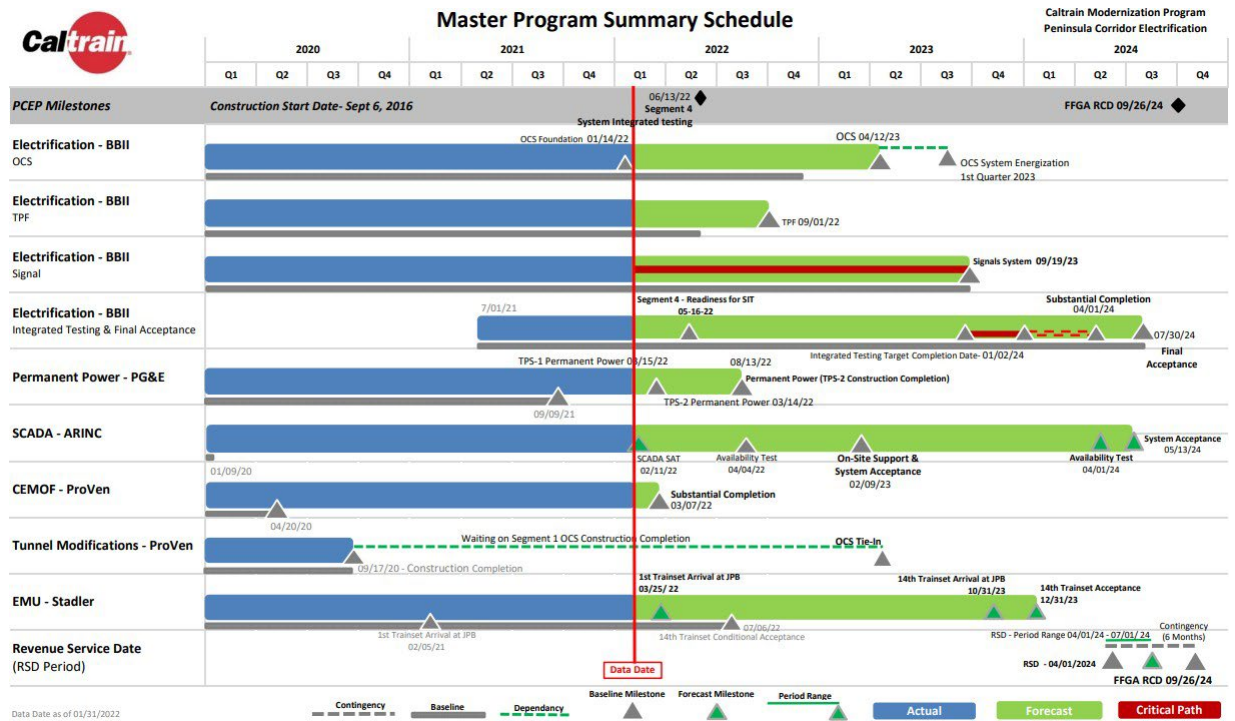


Figure 3-1. Master Program Summary Schedule

3.1.2 Completed Work

The JPB has approved BBII’s re-baseline schedule as part of the global settlement with a substantial completion date of April 1, 2024 and Final Acceptance of July 31, 2024.

As of January 31, 2021, the overall delay to the critical path is 0 days.

3.1.3 Upcoming Work

The Revenue Service Date (RSD) is targeted to occur between April 1, 2024 and July 1, 2024 based on BBII progress schedule. The new proposed revised FFGA RCD is September 26, 2024.

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The current critical path for PCEP includes the design, installation, and testing of the signal and crossing modifications required to make the signal system compatible with the electrified railroad, followed by the integrated testing and cutover.

3.1.4 Issues

Table 3-1. Schedule issues identified and actions taken for January 2022

Issues	Actions
COVID-19 and supply chain challenges impact Stadler's production schedule, resulting in a 19-day schedule delay on the first trainset arrival at the JPB site	<ul style="list-style-type: none"> - The new forecast shipping date is March 25, 2022. - The revised 14th transit delivery date is forecasted in October of 2023. Conditional acceptance of the 14th trainset by the end of 2023 will support electrification Revenue Service Date. - JPB is in the process of reviewing Stadler's re-baseline production schedule as per contract requirements.

3.2 Cost and Budget

3.2.1 Introduction

This section presents an update of program cost and budget. On December 6th, 2021, the JPB adopted new Program budget of \$2,442,690,697. Table 3-2 depicts program costs through January of 2022 and current program cost at completion is the same as the newly adopted budget.

Tables 3-3 provides status of two major types of program contingency drawdown:

1. As part of global settlement, a shared risk contingency pool in the amount of \$50 million was established to manage risks and mitigation proactively and collaboratively together with design-build contractor.
2. Program contingency of \$40 million is established to cover non-BBII potential changes and unknowns.

Table 3-2. Budget Summary/Estimates at Completion (EAC)

Description of Work	Re-Baseline Current Budget (A) ¹	Cost This Month (B) ²	Cost To Date (C) ³	Estimate To Complete (D)	Estimate At Completion (E) = (C) + (D)	Variance at Completion (F) = (A) – (E)
Electrification	\$1,749,139,438	\$43,002,814	\$1,172,554,984	\$576,584,454	\$1,749,139,438	\$0
EMU	\$693,551,258	\$13,710,817	\$333,637,226	\$359,914,849	\$693,551,258	\$0
PCEP TOTAL	\$2,442,690,697	\$56,713,631	\$1,506,192,210	\$936,498,487	\$2,442,690,697	\$0

¹ Column A "Current Budget" includes executed change orders and awarded contracts.

² Column B "Cost This Month" represents the cost of work performed this month.

³ Column C "Cost To Date" includes actuals (amount paid) and accruals (amount of work performed) to date.

Table 3-3 Contingency Drawdown Balance

Transfer	Description	Contingency
BBII Shared Risk Pool	Previously Reported Balance	\$50,000,000
	No Changes This Month	\$0
	BBII RISK POOL REMAINING BALANCE	\$50,000,000
Transfer	Description	Contingency
Project Contingency	Previously Reported Balance	\$40,000,089
	No Changes This Month	\$0
	PROJECT CONTINGENCY REMAINING BALANCE	\$40,000,089

Table 3-4 provides a detailed status of Design-Build Contractor incentives as result of the global settlement.

Table 3-4. BBII Incentives

Incentives	Budgeted	Awarded	Balance
Contract Incentive:			
Quality	\$1,250,000	\$1,000,000	\$250,000
Safety	\$2,500,000	\$875,000	\$1,625,000
Community Outreach	\$2,500,000	\$1,750,000	\$750,000
DBE	\$900,000	\$0	\$900,000
Total Contract Incentive	\$7,150,000	\$3,625,000	\$3,525,000
Milestone Incentive:			
Early Signal and Crossing Cutover	\$4,000,000	\$0	\$4,000,000
Early Project Substantial Completion (NTE)	\$8,000,000	\$0	\$8,000,000
Early Revenue Service	\$3,000,000	\$0	\$3,000,000
Total Milestone Incentive	\$15,000,000		\$15,000,000

3.2.2 Issues

Table 3-5. Cost and Funding issues identified and actions taken for January 2022

Issues	Actions
Additional funding setup for \$410M Funding Gap	Actively pursuing additional State and Federal funding sources. Dedicated task force has been established at the executive level.

3.3 Risk

3.3.1 Introduction

The risk management process is conducted in an iterative fashion throughout the life of the project. This process identifies new risks, resolves or manages other risks, modifies any potential impacts and severity these risks have based on the current situation. The Risk Management team's progress report includes a summary on the effectiveness of

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the Risk Management Plan, any unanticipated effects, and any correction needed to handle the risk appropriately. All risks are graded from 1 to 50.

3.3.2 Completed Work

Table 3-6. Top five risk items and mitigation actions as of January 2022

ID	RISK DESCRIPTION	Grade
010	Risk: Stadler's sub-suppliers fall behind schedule or delays in parts supply chain result in late completion of vehicles.	20
	Mitigation: Stadler expedited parts and develops secondary sources to address problematic suppliers. Stadler focuses on keeping supply chain flowing and produce interior parts in house. This risk is being mitigated and its schedule impact has been reflected in the vehicle production rebaseline schedule.	
241	Risk: Segment 4 may not be fully installed and tested prior to EMU delivery on-site.	20
	Mitigations: <ol style="list-style-type: none"> 1. Expedite BBII Segment 4 OCS design process (e.g., fast-track design through concurrent design and review of various phases). 2. Execute agreement with PG&E for timely completion of design and construction and funded agreement. 3. Reconcile conflict between underground alignment for BART/VTA tunnel extension, currently in conflict with the presently designed location of 115kV Transmission Poles that service TPS-2. The slightly revised location needs to be confirmed by VTA. Is this item completed? 4. Issue Change Order to purchase long-lead materials. 5. Negotiate and execute Construction Change Order for the TPS-2 Interconnection. 6. Have BBII complete testing and submit documentation on-time for PG&E Review. 7. Develop sequence of testing to occur in preparation for EMUs (based on "needs" list from EMU supplier). 	
267	Risk: Additional property acquisition is necessitated by change in design.	18
	Mitigations: <ol style="list-style-type: none"> 1. Identify new parcels well before they are needed for construction — to be conducted by Project delivery team and Contractor. 2. Expedite development of plats and legals. 3. Enter work directives for appraisal and acquisition before parcels are identified. 4. Coordinate to integrate property acquisition schedule into overall project schedule — to be conducted by Project team. 	
314	Risk: The contractor may not complete signal and communication design, installation, testing, and cutover for the Two-speed Check (2SC) modifications on time.	18
	Mitigations: <ol style="list-style-type: none"> 1. Streamline design reviews (in process). 2. Initiate construction prior to IFC (in process). 3. Consolidate locations for cutover, where possible (in process). 4. Add an additional cutover team through Balfour/MRS (in process). 5. Reduce service and three-week single track during cutover period to maximize access and cutover work windows — to be conducted by railroad. 6. Submit timely cutover planning documents and SSWPs with appropriate level of detail — to be conducted by Contractor. 	
333	Risk: Remediation of issues associated with the CEMOF pit may result in additional costs and additional time to issue the charge order and implement the work.	16

ID	RISK DESCRIPTION	Grade
	Mitigations: 1. Obtain outcome of independent engineer – completed 2. Get contractor to implement – in process 3. Issue change order – In Process	

3.3.3 Upcoming work

Efforts to incorporate the Rail Activation Committee risks into PCEP risk register have continued and will require Risk Assessment Committee approval. The shared risk pool will also be incorporated into risk register. Finally, the next risk refresh will be scheduled.

3.3.4 Issues

Table 3-7. Risk issues identified and actions taken for the month of January 2022

Issues	Actions
Contractor-owned risk updating is lagging	Continued inquiries to JPB staff and consultants as “proxy risk owners.” Reduced average update from over 100 days to under 40 days.
Incorporated Rail Activation Committee risks into PCEP risk register.	Queried relevant risk owners to harmonize risk descriptions, mitigations, and grading between two risk registers.

3.4 Change Management

3.4.1 Introduction

The change management process establishes a formal administrative work process associated with the initiation, documentation, coordination, review, approval, and implementation of changes that occur during the design, construction, or manufacturing of the PCEP. The change management process accounts for impacts of the changes and ensures prudent use of contingency.

3.4.2 Completed Work

The PCEP team concluded the global settlement with design-build contractor and resolved outstanding change orders through October 31, 2021. The Change Management Board (CMB) approved CCO-253, 254 and 255 three change orders in December 2021. No new change order processed during January of 2021.

3.4.3 Upcoming Work

There are ongoing change management activities associated with the initiation, documentation, coordination, review, approval, and implementation of changes that occur during the design, construction, or manufacturing of the PCEP. PCEP project and BBII met weekly to go over issue logs and potential share risk items for resolutions.

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3.4.4 Issues

Table 3-8. Change Management issues identified and actions taken for January 2022

Issues	Actions
Proven Claims Negotiation	Dedicated negotiation team is assigned to reach settlement with Tunnel and CEMOF Contractor including resolution of outstanding change orders.
ARINC Contract Time Extension	Commence discussion with ARINC management team to confirm site support period to align new baselines schedule including 1,000-hour availability test to be performed when the system is in production for the entire alignment.

4.0 CONSTRUCTION

This section covers the various elements of construction.

4.1 Infrastructure

4.1.1 Introduction

The Electrification component of the PCEP includes installation of 138 miles of wire and overhead catenary system (OCS) for the distribution of electrical power to the EMUs. The OCS will be powered from a 25 kilovolt (kV), 60-Hertz, single phase, alternating current supply system consisting of two traction power substations (TPS), one switching station (SWS), and seven paralleling stations (PS). Electrification infrastructure will be constructed using a DB delivery method.

4.1.2 Completed Work

Table 4-1. OCS / Electrification

- **All OCS foundations have been completed.**

Segment	Status
OCS Foundations	
Segment 1	Complete
Segments 2, 3 and 4	Complete
OCS Poles	
Segments 1 and 2	722 poles remaining
CEMOF, Segments 3 and 4	Complete
OCS Wire	
Segments 1 and 2	Anticipated to be complete by 8/20/22
Segments 3 and 4	Complete

- **Traction power facilities:**
 - Approximately 88% of traction power facilities work is complete.
 - Work remaining includes energizations, commissioning, and testing.
 - All work is anticipated to be completed by 3rd Quarter of 2022.
 - TPS-2 PG&E metering house batteries delivered and tested.
- **Grounding and bonding:**
 - Continue installation of bonding and grounding fences in S4.
 - Continue installation of bonding and grounding in CEMOF.
 - Test bonding and grounding in S4.
- **CEMOF:** The CEMOF Modifications project will provide work areas to perform maintenance on new EMUs.
 - Begin north pit repairs.
 - Installed interior window and clean-up.
 - Complete fire alarm for Parts Storage Building.

4.1.3 Upcoming Work

- **Traction power facilities:** All traction power facility work is anticipated to be completed by the third quarter of 2022.

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- **Grounding and bonding:**
 - Continuation of bonding and grounding fences in S4.
 - Continuation of testing of bonding and grounding in S4.
 - Continuation of bonding and grounding in CEMOF.
 - Bonding and grounding of utility handholes and manholes.
- **CEMOF:**
 - Complete north pit repairs.
 - Install electrical work at north pit.

4.1.4 Issues

Table 4-2. Infrastructure issues identified and actions taken for January 2022

Issues	Actions
OCS / Electrification	
Coordination of wire stringing over YT-5 in CEMOF	Coordinate with Proven for access to YT-5 to complete wire stringing
TPS-2 overdue test reports required for PG&E energization	Discuss timing of deliverables with PG&E and work with contractor to deliver reports to PG&E.
Grounding and bonding	
Bonding and grounding of 3 rd party utility handholes and holes. Need agreement from 3 rd parties to proceed.	Work with 3 rd party to review technical solution and implement mitigation of covering the holes with insulated material if necessary for the short term.
CEMOF	
North pit elevation investigation discrepancies and pit repairs	Pit repair is in progress and independent assessment of pit elevation being performed.

4.2 Communications, Signaling, and Grade Crossings

4.2.1 Introduction

The existing railroad signal system is incompatible with an electrified rail system. PCEP therefore requires modification to existing signal locations, and the addition of new signal locations and associated infrastructure. Once all required signal and communications modifications are completed, the signal locations are cutover and put into operational service.

This aspect of PCEP includes furnishing a complete and integrated communications system for both signals and traction power subsystems, utilizing existing fiber optic backbone infrastructure. It comprises modifications to the fiber optics backbone as well as additional communications networking equipment on the wayside and data center locations at Menlo Park and San Jose.

It also covers the final kit installations and testing of the replacement, upgraded, or modified signaling and grade crossing equipment along the alignment to be compatible with the electrification system, and fully capable with PTC and other rail operations system interfaces.

4.2.2 Completed Work

Segment 4 cutovers have all been completed, and are in beneficial use, including in 21 locations. Milestone 1 joint punch walks have started in January and final list to be submitted in February. Phase 2 work for the Segment 2 cutover was completed on December 13, 2021. All teams continuing finalization and readiness for next major cutover between MP 14.65 and 20.20 affecting cities of Burlingame and San Mateo. This includes final cabling and pre-testing of 41 total locations, 3 control points, 7 intermediate signal locations, and 17 crossings. A tentative completion date for Phases 3 and 4 of Segment 2 is slated for April 2, 2022. Also, a Go/No-Go discussion was conducted in January 2022 and all parties discuss their readiness for the March cutover and agreed that planned work would remain on track.

4.2.3 Upcoming Work

Continued pre-testing between MP 14.65 and 20.20 for Segment 2, Phase 3 & 4 cutover is anticipated. Installation crews will mobilize to Segment 2, Phase 1 locations between MP 8.56 and 11.84 in February. This cutover is anticipated for 5/13/2022 and will include 17 total locations, 2 control points, 3 intermediate signal locations, and 3 crossings.

Communications networking equipment and testing is ongoing. All communications in Segment 4 are functioning for sub-system testing prior to Milestone #1 completion. A few locations still require permanent power from PG&E.

4.2.4 Issues

Table 4-3. Infrastructure issues identified and actions taken for the month of January 2022

Issues	Actions
Minor in-field condition changes have arisen	Working through issues resolution process.
Fiber break identified on buffer tubes 11 and 12	MRS have tested and identifying design and infrastructure mitigations. Investigations to start in March.
Continued fiber and communications network issues	Work closing with Caltrain systems, Rail operations team and BBII/MRS collaboratively to ensure no impact to Signal and Crossing cutovers
Crossing gate conflicts with OCS at various crossings	BBII is providing alternative solutions to address including OCS relocation and gate arm replacement with articulated functionality.

4.3 EMU (Rolling Stock)

4.3.1 Introduction

The procurement of EMUs, or trainsets, from Stadler consists of a Base Order of 96 railcars, plus an Option Order of an additional 37 railcars, for a total of 133 railcars. The cars from these two orders will be combined and delivered as 19 seven-car Trainsets. The Base Order is funded from PCEP, and Option Order funded by a Transit and Intercity Rail Capital Program (TIRCP) grant. One more Option for additional cars is available.

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4.3.2 Completed Work

With the completion of the 4,000-mile simulated service test, dynamic type testing was completed at Transportation Technology Center, Inc. (TTCI) in Pueblo, CO. Production continued for Trains 3 through 16.

Additional completed work includes:

- Continued routine testing on Trains 3 through 7.
- Shipment of 93 car shells from Stadler Switzerland, with 89 arriving at Stadler's Salt Lake City facility. Four additional car shells are in transit/holding.
- The Factory Authorization Test (i.e., final inspection) was performed on Trainset 3. Findings from both Stadler and Caltrain inspectors are being worked off by Stadler production and a follow up inspection will take place in February.
- The Buy America (BA) interim audit report was completed and concluded that Stadler is on track to meet BA requirements. However, BA certificates from Stadler suppliers are still pending and are required for the post-delivery audit that will take place in Q2 2022.

4.3.3 Upcoming Work

The following tasks remain:

- Complete and approve rebaseline schedule.
- Prepare to receive EMU trainsets 3 and 4 on-site.
- Continue EMU operators' training the trainer to support EMU testing.

4.3.4 Issues

Table 4-4. EMU (Rolling Stock) issues identified and actions taken for January 2022

Issues	Actions
Stadler/global supply chain issues	Stadler is sourcing additional suppliers for redundancy.
Stadler/global labor shortage/turnover issues	Stadler is looking for new ways to recruit labor.
The local substation that supplies power to Stadler's test track is down. Dynamic testing on trainsets is delayed while Stadler awaits parts to repair the substation.	Replacement parts are on order

4.4 PG&E / Interconnection

4.4.1 Introduction

The PCEP will require a 115-kV interconnection to supply power from the PG&E substations to the Caltrain substations in San Jose and South San Francisco. Construction of the interconnections will be performed by PG&E under an amendment to Supplemental Agreement No. 2.

4.4.2 Completed Work

The following work for the Single-Phase Study was completed:

- Completed model validation for FMC/TPS-2.
- Performed ten (10) sample fault cases for discussion with PG&E. The goal is to reduce the number of fault cases to be studied.
- Continued model validation work for East Grand/TPS-1.
- Gathered vehicle data information for PG&E's review and approval.

4.4.3 Upcoming Work

The following work is planned for the Single-Phase Study:

- Get PG&E concurrence on vehicle model data.
- Fault study for FMC/TPS-2.
- Complete model validation for East Grand/TPS-1.

4.4.4 Issues

Table 4-5. PG&E / Interconnection issues identified and actions taken for January 2022

Issues	Actions
PG&E's continued request for more modeling work and more fault cases will result in a schedule delay to the completion of the Single-Phase Study. This will then delay the ability to draw an EMU load to test the EMUs and complete integrated testing.	Continue to meet with PG&E both at the technical and executive level to resolve open issues related to the Single-Phase Study.
Late PG&E review of OCS/TPS Test report	<ul style="list-style-type: none"> - Develop master tracking sheet to ensure PG&E receives all the reports needed for energization. OCS test reports being tracked through Aconex. Traction power tracker in development in late January and February. - Management escalation to ensure sufficient resources are applied to this activity. Additional resource expected in Feb.

4.5 Systems Integration

4.5.1 Introduction

System Integration is an essential element of the PCEP deliver; a successful system integration requires thorough and comprehensive planning, coordination, and adequate testing.

4.5.2 Completed and Ongoing Work

The PCEP system integration program is highlighted below:

- **Sequencing:** The team has collaborated across various entities to build up a strong testing and commissioning sequence that describes dependencies not only from the contractor, but also from any other third-party stakeholders. This has been instrumental in allowing the team to plan the work, resourcing requirements and most importantly, deliverables. These updates are provided to the team on a weekly basis.
- **On-site Inspection:** As part of Construction, on-site inspectors have been deployed to validate the work done and complete punch-list walks. From construction, the contractor is now transitioning to testing systems, and resources with systems knowledge plan to be deployed for the testing phase.

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- **Readiness review workshop:** The first workshop was held on December 14, 2021. The purpose of this workshop was to understand the state of readiness (based on FTA’s Oversight Procedure 54 – Readiness for Service) for Milestone 1. This benefited both the Agency and the Contractor through collaboration and alignment on goals. Because a workshop has already occurred, a follow-up assessment is scheduled in March of 2022.
- **PCEP System Integration meetings:** These are held to identify, monitor, and determine appropriate resolution(s) for systems integration issues, and are chaired by the Systems Integration Director. Due to the importance of integration going forward as the PCEP project enters the testing and commissioning phase, these meetings have been made weekly. There is an emphasis on surfacing and resolving technical issues amongst sub-systems. Issues are tracked and followed-up in individual meetings through the course of the week.

4.5.3 Issues

Table 4-6. Systems issues identified and actions taken for the month of January 2022

Issues	Actions
Detailed schedule – lack of details to track on a weekly basis	<ul style="list-style-type: none"> - Small workshop deployed with the Contractor to resolve and JPB is working on key delivery dates for JPB items (e.g., PG&E power, EMUs, etc.) – workshops ongoing in late December and early January. This was completed and shared with the Contractor for incorporation into the overall project schedule. Completed. - Result to be seen in Testing and Commissioning meetings, and level of detail visible through these meetings. The testing & commissioning meetings have been progressing towards more detailed status of ongoing testing and we continue to add more clarity. The plan is to close this action once Milestone 1 testing is completed.
CDRLs not delivered on-time / prior to testing	<ul style="list-style-type: none"> - Sub-system workshops set up to address these items and peer review them prior to formal submission. Several peer reviews have occurred and more to continue in the coming weeks. - Additional focus on planning.
Lack of System Integration resources	<ul style="list-style-type: none"> - Additional resource is being brought in in February. - Requirements being defined from 3rd parties to ensure clarity in expectations.

4.6 Testing and Commissioning

4.6.1 Introduction

The Testing and Commissioning is a smaller group to determine and track testing and resources that will need to be coordinated among the various contracts and suppliers. This meeting is the primary interface to the PCEP Design-Build team at this time.

4.6.2 Completed Work

- Performed SCADA Point to Point test
- Main SCADA/ROCS was cutover from a lab environment to a production environment successfully.
- Traction Power Substation #2 (TPS-2) sub-system testing continued, initially with some repair work, and then with re-testing following the repairs. Control Building Battery Test was completed.
- OCS testing started with Height and Stagger tests, and Pantograph Clearance Tests.

4.6.3 Upcoming Work

Testing and Commissioning are coordinated through meetings held every two weeks with the contractor to monitor and gauge testing progress. One of the major challenges faced was ensuring proper planning and sequencing. This has been remedied through various group meetings held with the intent of clarifying the “what” and the “when.” Given systems integration testing to start in Q2 2022, the same diligence is now being applied to the integrated testing side so it can be fully developed for integrated testing.

Other work that remains to be completed includes the following:

- PG&E Power: Continued focus on document deliverables to facilitate energization.
- OCS and Power Integrated Test Procedures and Testing, including TPS-2 testing and SCADA integrated tests.
- Network Switch upgrades to support on-site Signals and Comms testing
- Signals preparatory and pre-testing work for mid-March cutover at Segment 2, Phase 3 and 4.
- Integrated Testing: Test procedures and planning to continue.

4.6.4 Issues

Table 4-7. Testing and Commissioning issues identified and actions taken for January 2022

Issues	Actions
Lack of planning, plans and procedures from Contractor	<ul style="list-style-type: none"> - Readiness Workshop requested and held on December 14, 2021. Subsequent assessment to be conducted. - NCR issued in December regarding lack of plans and procedures and is being followed up in Quality meetings. - Separate working groups set up to track status of deliverables. - Face-to-face meeting requested in February to drive completion of traction power test plan

4.7 Intermediate Milestone #1

4.7.1 Introduction

Milestone #1 is the milestone tied to allowing EMUs to start testing onsite within limits of Segment 4. In order to achieve this, 115kV power must be activated and a substantial portion of the integrated testing shall be performed.

4.7.2 Completed Work

During the month of January, the team began planning for integration and interdependencies from other contractors. The team also began planning for inspectors to witness testing onsite and develop punch list items.

- Completed punch list walks in Segment 4 for:
 - Signals/Comm/Ductbank; TPS-2 Electrical and PS-7 Electrical

The Readiness Workshop conducted a Segment 4 Readiness Assessment, shown in Table 4-8.

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Table 4-8. Segment 4 Readiness Assessment

Readiness Status	OCS	Comms	Power	Signals
Construction				
Testing				
Integrated Testing				

Green: On track and progressing well / Completed
 Yellow: On track / ongoing – need to be monitored
 Red: Need development from the Contractor

4.7.3 Upcoming Work

The following tasks remain to be completed:

- Commencement of joint Segment 4 Infrastructure walk-through.
- Completion of the bonding and grounding walk-through for Segment 4
- Completion of TPS2 testing – breaker, circuit, and control relay testing
- SCADA integrated testing
- Sectionalization Test for OCS activation.
- PG&E Review of Test Reports.
- Segment 4 TPS/OCS energization.
- Performance of dead car pull tests.
- Live run with EMU.

4.7.4 Issues

Table 4-9. Intermediate Milestone #1 issues identified and actions taken for January 2022

Issues	Actions
Lack of integrated testing planning, plans and procedures	- Follow up readiness workshop action items, develop comprehensive test cases and procedures.

5.0 QUALITY ASSURANCE

5.1 Introduction

The Quality Assurance (QA) staff performs technical reviews for planning, implementing, evaluating, and maintaining an effective program to spot verify that equipment, structures, components, systems, and facilities are designed, procured, constructed, installed, and maintained in accordance with established criteria and applicable codes and standards throughout the design, construction, startup, and commissioning of the project.

5.2 Completed Work

- **Non Conformance Reports:** A total of Five (5) Non-conformance reports (NCR) are under review by Caltrain and BII for closure.
- **QA Audit Findings Status:** No open findings or observations were identified this month.
- Currently compiling data from recent OCS field surveillance.
- Currently preparing a joint Surveillance with BBII for OCS poles.
- **Buy America Status:**
 - A meeting with PMOC and Buy America consultants was held on November 15, 2021 to respond to BA questions. PMOC/BA consultants commented that the BBII cost report provided to the Project did not validate compliance to BA based on current FTA BA reporting requirements. The end products must be categorized by components, subcomponent and percentage of domestic/non-domestic materials shown.
 - JPB consulted with external legal counsel pertaining to Buy America and received recommended language for JPB to send a letter to BBII notifying them of current FTA reporting requirements to validate FTA Buy America compliance.
 - JPB has issued a letter to BBII regarding Buy America, and in which we are currently awaiting a formal response. Pranaya is going to schedule a meeting with Hanson Bridgett & BBII to discuss the Buy America issue.

5.3 Upcoming Work

There are ongoing quality assurance activities around technical reviews for planning, implementing, evaluating, and maintaining an effective program to spot verify that equipment, structures, components, systems, and facilities are designed, procured, constructed, installed, and maintained in accordance with established criteria and applicable codes and standards throughout the design, construction, startup, and commissioning of the PCEP.

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5.4 Issues

Table 5-1. Quality Assurance issues identified and actions taken for January 2022

Issues	Actions
UPRR has identified switch machine isolation concerns and system ductbank trough clearance issues for the track that they maintain.	JPB Operations to resolve.
BBII BA Compliance Report	JPB external legal counsel provided language outlining FTA reporting requirements. PCEP issued a letter to BBII on 1/5/21, outlining reporting requirements to validate BBII BA compliance. JPB has issued a formal letter to BBII and is currently awaiting a formal response.
Closure of JPB NCRs	JPB Engineering and Special Projects Manger to facilitate closure of NCRs
Punch List Notification and Process	Contractor to submit formally via Aconex. Agency currently drafting a procedure for all team members to follow.

6.0 PUBLIC RELATIONS

6.1 Introduction

The Community Relations and Outreach team coordinates all issues with all jurisdictions, partner agencies, government organizations, businesses, labor organizations, local agencies, residents, community members, other interested parties, and the media. In addition, the team oversees the BBII's effectiveness in implementing its Public Involvement Program.

6.2 Completed Work

The following public relations actions were taken in January 2022:

- The Project team held various outreach meetings with key local, state, and federal elected officials regarding budget need.
- The Project team gave presentations to
 - Local Policy Makers Group
 - City/County Coordinating Group
- The Project team sent out the following notices about construction activities:
 - E. Evelyn Avenue Lane Closure
 - King Street Lane Closure
 - Stevens Creek Pedestrian Bridge Work
 - State Route 87 Lane Closure
 - Sunnyvale Paralleling Station Gantry Installation

6.3 Upcoming Work

The Community Relations and Outreach team is supporting the Signal System cutover work schedule for March 2022 in Burlingame and San Mateo.

6.4 Issues

Table 6-1. Public Relations issues identified and actions taken for January 2022

Issues	Actions
N/A	N/A