Caltrain Modernization Program
Peninsula Corridor Electrification Project (PCEP)

December 2021
Monthly Progress Report

December 31, 2021

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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 set very ambitious goals for PCEP since in spring 2021. Experts and task forces were brought to deliver these goals for the last quarter of 2021.

1.2 Recent Accomplishments

Caltrain and Balfour Beatty Infrastructure, Inc. (BBII) have established new mechanisms to ensure a collaborative approach to Project delivery. Upon receiving Peninsula Corridor Joint Powers Board (JPB) approval on December 6, 2021, Caltrain executed three change orders that resolved all commercial dispute through October 2021. In addition, a revised program budget from the original $1.98 billion to $2.44 billion was adopted by JPB.

As of December 31, 2021, the current budget forecast shows the current 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 draw down 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.

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

- Bring on experienced and success driven leader who has successfully delivered similar projects.
- Complete budget review and refinement.
- Complete risk workshop at three levels (project, industry experts, and contractor).
- Complete organization assessment.
- Complete agency exposure analysis.
- Complete global settlement with the Contractor.
- Commence partnering at three levels (CEO, senior project leadership, and project team).
- Complete re-baseline of Project schedule.
- Complete Readiness Review of Segment 4.
- Set up a risk and incentive pools.
- Support development and adoption of a new Program budget.

1.3 Upcoming work

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

- Eliminate the major risk to the Project by completing all overhead contact system (OCS) foundations by January 31, 2022.
- Streamline and provide more transparency in reports for the Board, funding partners, and the public by January 31, 2022.
- Submit final Recovery/Remediation Plan to FTA and California High Speed Rail by February 11, 2022.
- Complete Segment 2 first major signal system cutover by April 8, 2022.
- Take delivery of the first train set by April 29, 2022.
- Refresh the Program Management Plan by June 30, 2022.
- Energize Segment 4 and start testing trains on Segment 4 by May 31, 2022.

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

1.4 Critical Items

The major risks to the Project are below:

- Delay of two speed check design, installation, and testing.
- $410 million program funding gap.
- Late completion of Signal Phase Study impact to OCS/TPS Commissioning.
- Delays in parts supply chain affecting vehicle production.
- System integration and interface with existing operational systems testing and duration and resources.
- Different site condition resulting in duct bank construction delay impacting signal cutover schedule.

The first has been mitigated with the global settlement with the Contractor. Currently, 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.

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 for compliance with applicable laws and regulations related to safety, security, and emergency response activities.

Project Reportable Injury Rate for 2021

The Project RIR for 2021 is at 1.24, as shown in Figure 2-1 below. This includes BBII and all of their subcontractors. The National average for this type of work is 2.50, as the red line in Figure 2-1 shows. The overall project RIR from inception of construction in 2017 through November 2021 is at 1.71, well below the national average as indicated above. No additional safety incentive reward remains for BBII until the end of the Project.

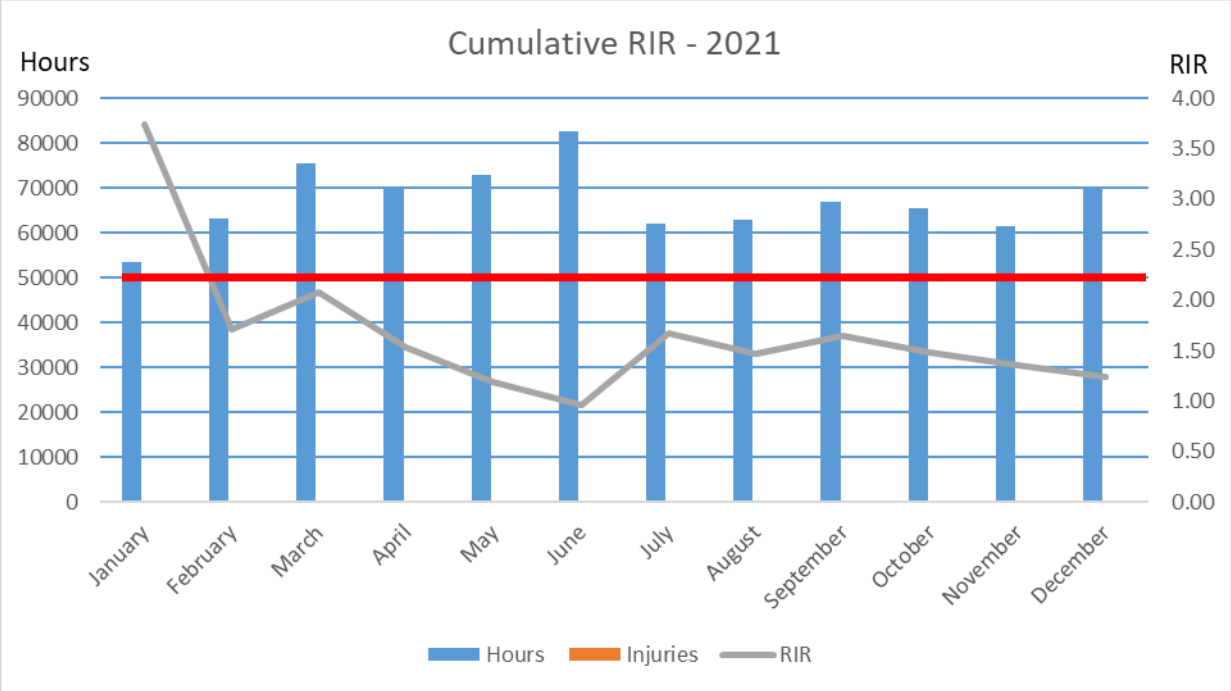

Figure 2-1 Cumulative project Reportable Injury Rate (RIR) for 2021

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.

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 is scheduled for Caltrain employees and for PCEP project employees for the beginning of January 2022 with multiple dates to ensure everyone has an opportunity to attend virtually. 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.

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 December 2021

Issues	Actions
N/A	N/A

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, 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. This will provide necessary documentation that Segment 4 is ready for energization and

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

Additional activities include the review of the completed Design Criteria Certification Checklists and the cross referencing to the Construction Specification Criteria checklists and Test reports.

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.

2.2.4 Issues

Table 2-2. Safety Certification issues identified and actions taken for December 2021

Issues	Actions
N/A	N/A

3.0 PROGRAM MANAGEMENT

Program management covers schedule, 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.

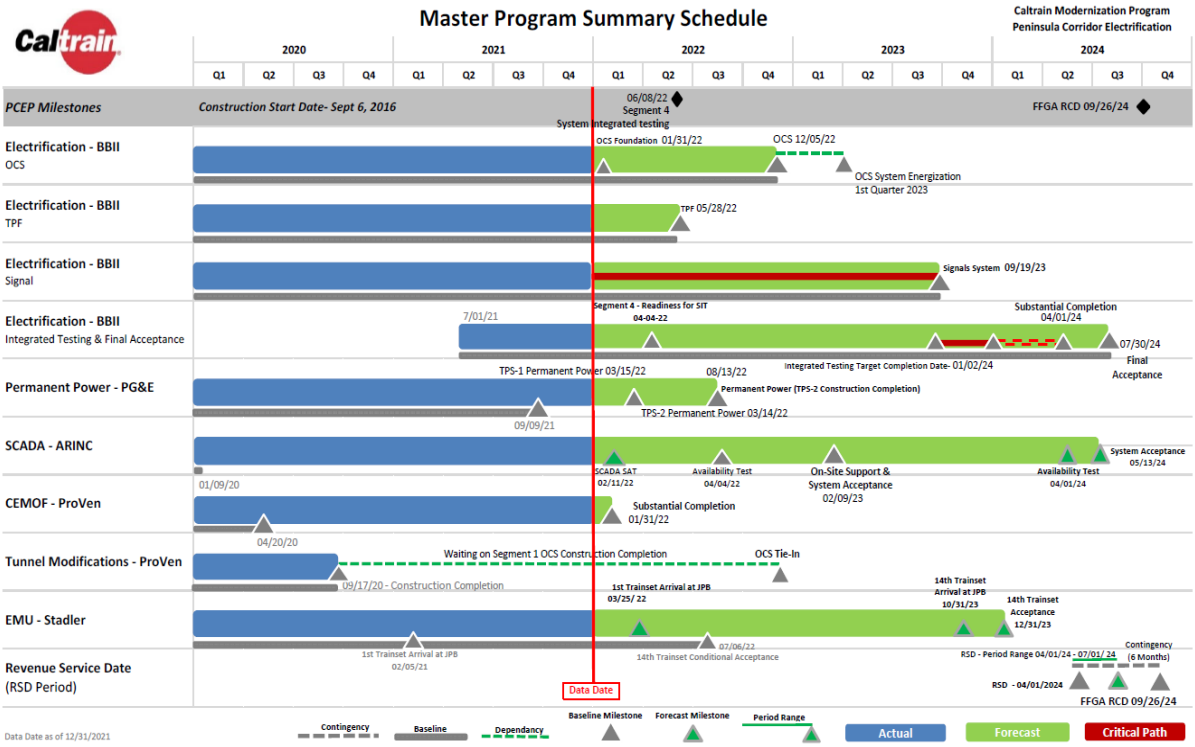

Figure 3-1. Master Program Summary Schedule

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 December 31, 2021, the overall delay to the critical path is 0 days.

3.1.3 Upcoming Work

The Revenue Service Date (RSD) is forecasted to occur between April 1, 2024 and July 1, 2024. The new proposed revised FFGA RCD is September 26, 2024.

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 December 2021

Issues	Actions
COVID-19 and supply chain challenges impact Stadler's November progress schedule, resulting in a 19-day schedule delay on the first trainset arrival at the JPB site	- The new forecast delivery 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 December of 2021 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 unknow unknows.

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**	**$44,612,678**	**$1,129,552,170**	**$619,587,268**	**$1,749,139,438**	**$0**
EMU	**$693,551,258**	**$2,808,673**	**$319,926,409**	**$373,624,849**	**$693,551,258**	**$0**
PCEP TOTAL	**$2,442,690,697**	**$47,421,351**	**$1,449,478,579**	**$993,212,118**	**$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. Schedule issues identified and actions taken for December 2021

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

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 December 2021

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. **Mitigation:** Stadler expedites parts and develops secondary sources to address problematic suppliers. Stadler focuses on keeping supply chair flowing.	20
267	**Risk:** Additional property acquisition is necessitated by change in design. **Mitigations:** 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.	18
314	**Risk:** The contractor may not complete signal and communication design, installation, testing, and cutover for the Two-speed Check (2SC) modifications on time. 1. Mitigations: 2. Streamline design reviews (in process). 3. Initiate construction prior to IFC (in process). 4. Consolidate locations for cutover, where possible (in process). 5. Add an additional cutover team through Balfour/MRS (in process). 6. Reduce service and three-week single track during cutover period to maximize access and cutover work windows — to be conducted by railroad. 7. Submit timely cutover planning documents and SSWPs with appropriate level of detail — to be conducted by Contractor.	18
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. **Mitigations:** 1. Obtain outcome of independent engineer. 2. Get contractor to implement. 3. Issue change order.	16
303	**Risk:** Extent of differing site conditions and associated redesign efforts results in delays to the completion of the electrification contract and increases program costs. **Mitigations**: 1. Define process for resolving DSCs to clear locations for foundation installation. 2. Develop “playbook” of responses to RFIs associated with responding to DSCs. 3. Add additional potholing crews to increase production and deal specifically with DSCs. 4. Organize PCEP staff to expedite responses to RFIs. 5. BBI to empower field supervision to identify and respond to obstacles. 6. Implement “as-built” process where foundations can be moved, and location is subsequently included in “as-built” rather than waiting on design.	15

3.3.3 Upcoming work

Efforts to incorporate the Rail Activation Committee risks into PCEP risk register have been initiated, and now only require Risk Assessment Committee approval. The global settlement 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 December 2021

Issues	Actions
Contractor-owned risk updating is lagging	Initiated inquiries to JPB staff and consultants as "proxy risk owners." Reduced average update from over 100 days to approximately 67 days.

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 three change order listed below in December 2021.

- **CCO-253 – Constant Time Warning / Two Speed Check Solution:** Resolves the dispute regarding cost responsibility for the 2SC Solution and is to provide for the design, construction, and completion of the 2SC Solution. (Cost: $89,780,202)
- **CCO-254 – Global Project Cost Resolution:** Resolves all pending change order disputes known to the parties as of October 31, 2021 and establishes a $50,000,000 Risk Allowance to address future unknown events. (Cost: $136,337,784)
- **CCO-255 – Global Project Time Resolution:** Settles all disputes with BBII regarding additional costs arising from the extension of the project schedule. This Change Order also includes remaining existing incentives of $3,525,000 and the new incentives of $15,000,000 if BBII finishes work before certain benchmark milestone dates. (Cost: $120,557,342)

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.

3.4.4 Issues

Table 3-8. Change Management issues identified and actions taken for December 2021

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

Segment	Status
OCS Foundations	
Segment 1	39 foundations remaining
Segments 2, 3 and 4	Complete
OCS Poles	
Segments 1 and 2	758 poles remaining
CEMOF, Segments 3 and 4	Complete
OCS Wire	
Segments 1 and 2	Anticipated to be complete by 7/15/22
Segments 3 and 4	Complete

- **Traction power facilities:** Approximately 80% of traction power facilities work is complete, with remaining work to include energization, commissioning, and testing.
- **Grounding and bonding:**
  - Ground rods and fences have been installed in S4.
  - Installation of bonding and grounding in CEMOF has begun.
- **CEMOF:** The CEMOF Modifications project will provide work areas to perform on new EMUs. Current work accomplished includes:
  - Pit investigation and survey layout. Completed independent evaluation of pit settlement.
  - Removed transformer protection and cleaned 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.
- **Grounding and bonding:**
  - Continue bonding and grounding fences in S4.
  - Test bonding and grounding in S4.
  - Continue bonding and grounding in CEMOF.
- **CEMOF:**
  - Implement north pit repair.

- Install interior window and clean-up.
- Complete fire alarm for Parts Storage Building.

4.1.4 Issues

Table 4-2. Infrastructure issues identified and actions taken for December 2021

Issues	Actions
OCS / Electrification	
Continued discovery of unforeseen obstructions during drilling	Continue to mitigate through design solutions.
PG&E overhead power lines in conflict with the equipment for installing the foundation	Work with PG&E to schedule required shutdowns for installation.
Grounding and bonding	
N/A	N/A
CEMOF	
Open NCRs	Working to close these during January 2022.
Ongoing Segment 3 signal house placement coordination	Continue weekly Friday workshops with BBII.
Continuing ongoing DSC and shallow conflicts	Resolve on case-by-case basis with program best practices through ongoing workshops/RFIs/DVRs

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. Phase 2 work for the Segment 2 cutover was completed on December 13, 2021.

4.2.3 Upcoming Work

A tentative completion date for Phases 3 and 4 of Segment 2 is slated for April 2, 2022. Also, in a Go/No-Go discussion to be conducted in January 2022, all parties will discuss their readiness for the March cutover.

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 December 2021

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.
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

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.

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 on Trains 3 through 16.

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.

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.

4.3.3 Upcoming Work

The following tasks remain:

- Approve re-baselined schedule.
- Prepare to receive first EMU 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 December 2021

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.

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:

- Model validation for FMC/TPS-2.
- Performance of 10 sample fault cases for discussion with PG&E with the goal of reducing the number of fault cases to be studied.
- Continued model validation work for East Grand/TPS-1.

4.4.3 Upcoming Work

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

- 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 December 2021

Issues	Actions
N/A	N/A

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.
- **Readiness review workshop:** The first workshop was held on December 14, 2021. The purpose of this was 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 the next 60 days.
- **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 December 2021

Issues	Actions
Detailed schedule – lack of details to track on a weekly basis	- 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. - Result to be seen in Testing and Commissioning meetings, and level of detail visible through these meetings.
CDRLs not delivered on-time / prior to testing	- Sub-system workshops set up to address these items and peer review them prior to formal submission. - Additional focus on planning.
Lack of System Integration resources	- The Contractor has remedied this by bringing back one key resource, but the resource is not local. This resource requires additional support. Therefore, regular workshops / meetings are being set up to ensure work is progressing.
PG&E temporary power availability is delayed which will impact segment 4 completion	- Several back-and-forth with PG&E. Issues need to be escalated to senior management level. - Regular calls with PG&E to get ahead of some of these issues (some are being resolved through this), whereas others require escalation and management support
Late PG&E approval of Single-Phase Study	- Work with Stadler for RFI responses - Hold a workshop with PG&E to address their concerns issues

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

For December 2021, a logic diagram for system integration testing and completion of Segment 4 was established. A SCADA Point to Point test was also performed.

4.6.3 Upcoming Work

Test and Commissioning is coordinated through meetings held every two weeks with the contractor to monitor and gauge progress of testing. 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:

- Completion of SCADA Point-to-Point Testing.
- Network Cutover: Issues in December resolved. Work progressing as planned.
- SCADA Cutover: To be conducted in February.
- PG&E Temporary Power: To be conducted in February; management support required.
- OCS and Power Integrated Test Procedures.

- Integrated Testing**:** Test procedures and planning will continue.

4.6.4 Issues

Table 4-7. Testing and Commissioning issues identified and actions taken for December 2021

Issues	Actions
Lack of planning, plans and procedures from Contractor	- Schedule discussion initiated and ongoing – Contractor to consolidate and coordinate all key items, showing dependencies. Work in progress. - Readiness Workshop requested and held on December 14, 2021.

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 December, the Project team developed a detailed schedule showing the logic and sequence of testing activities. 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.

A Readiness Workshop was held on December 14. During the workshop, the following future steps were identified :

- Follow contract (CDRLs on time) and meet dates.
- The Contractor shared with the JPB that it was tight on resources, and plans to add additional resources in the first quarter of 2022.

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

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 Signal and Infrastructure walk-through.
- Completion of the bonding and grounding for Segment 4.
- Completion of breaker and circuit 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 December 2021

• Issues	Actions
Lack of integrated testing planning, plans and procedures	- Follow up readiness workshop action items, develop comprehensive test cases and procedures.
Late PG&E review of OCS/TPS Test report	- Develop master tracking sheet to endure PG&E receive all the reports needed for energization
Continues Delay approval of Signal Phase Study by PG&E will impact Milestone one completion date	- Work with Stadler for RFI responses - Hold a workshop with PG&E to address their concerns issues - Escalated at the executive level and perform weekly check in.

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 verify that all 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.

5.2 Completed Work

- **Non Conformance Reports:** A total of six open Non-conformance reports (NCR) are under review by Caltrain and BII.
- **QA Audit Findings Status:** No open findings or observations were identified this month.
- **BA Status:**
  - A meeting with PMOC and BA 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 BA and received recommended language for JPB to send a letter to BBII notifying them of current FTA reporting requirements to validate FTA BA compliance.
  - BBII Material Receiving Reports continue to be reviewed by JPB QA for BA compliance.

5.3 Upcoming Work

There are ongoing quality assurance activities around technical reviews for planning, implementing, evaluating, and maintaining an effective program to verify that all 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.

5.4 Issues

Table 5-1. Quality Assurance issues identified and actions taken for December 2021

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.
Closure of overdue JPB NCRs	JPB Engineering to facilitate closure of NCRs

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 December 2021:

- The Project team launched a 2021 Year in Review video and webpage highlighting Electrification successes throughout the year.
- The Project team supported an infrastructure-focused press conference in San Francisco with House Speaker Nancy Pelosi on December 11, 2021.
- The Project team held various outreach meetings with key local, state, and federal elected officials regarding budget need.
- 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 are planning the OCS foundation completion celebration event. The team will also prepare a public notification to address the service impact related to the cutover three-week signal track planned for March.

6.4 Issues

Table 6-1. Public Relations issues identified and actions taken for December 2021

Issues	Actions
N/A	N/A