Project Monitoring Report (PMR)
July 2023

Peninsula Corridor Electrification Project (PCEP)
San Francisco to San Jose, CA

Peninsula Corridor Joint Powers Board (JPB)/Caltrain
San Mateo, CA

August 11, 2023

PMOC Contract Number: 69319519D000019
Task Order Number: 69319520F300018 (IIP 21)

OPs Referenced: 01 - Administrative Conditions and Requirements
25 - Recurring Oversight and Related Reports

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Length of Time Firm Assigned to Project: 8 Years, 2 Months
Length of Time Person Assigned to Project: 8 Years, 2 Months

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1.0 Executive Summary

Kal Krishnan Consulting Services, Inc. (KKCS) is the Federal Transit Administration's (FTA) Project Management Oversight Contractor (PMOC) for the Peninsula Corridor Electrification Project (PCEP). The Peninsula Corridor Joint Powers Board (JPB) is the grantee which operates commuter rail service as Caltrain. The FTA awarded a $647 million Full Funding Grant Agreement (FFGA) to the JPB on May 23, 2017.

1.1 Project Description

The PCEP corridor is approximately 51 miles in length. This Core Capacity Improvement Project (CC) includes two (2) components: infrastructure and rolling stock. The infrastructure component is comprised of the construction of Traction Power Substations (TPSS), the connection of those substations to the local utility system, and the installation of the Overhead Contact System (OCS) over the tracks beginning at the 4th and King Caltrain Station in San Francisco and ending at Tamien Station in San Jose. The infrastructure work also includes modifications to the wayside signal system and grade crossing signals to accommodate the new electrified rail system. In addition, four (4) existing rail tunnels have been enlarged to accommodate the expanded clearance envelope of the electrified vehicles. An alignment map is provided as information in Attachment I.

The rolling stock component includes the procurement of ninety-six (96) Electric Multiple Unit (EMU) rail vehicles to replace approximately 75% of Caltrain's existing diesel rolling stock. The initial EMU order was supplemented in December 2018 when the JPB exercised an option to purchase an additional thirty-seven (37) EMUs; the resulting electrified fleet will consist of nineteen (19) seven-car trainsets. The additional thirty-seven (37) EMUs are not part of the JPB's Core Capacity grant. Caltrain's Central Equipment Maintenance and Operation Facility (CEMOF) is being modified to service the electrified vehicles.

The PCEP is part of a larger JPB initiative known as the Caltrain Modernization Program (CalMod). The CalMod program separately installed a Positive Train Control (PTC) system, which is an advanced signal system that includes federally mandated safety improvements. The PTC system is in operation and received final Federal Railroad Administration (FRA) approval on December 17, 2020.

1.2 Project Status

The FTA, based on the results of a December 2020 Risk Refresh effort, designated the PCEP an "At-Risk" project in a letter dated June 30, 2021. The FTA took this action because the PCEP has experienced significant cost overruns and schedule delays. The FTA requested that the JPB submit a Project Recovery Plan for the PCEP. The plan was originally due by October 8, 2021; however, the FTA agreed to defer receipt of the plan until the JPB completed a planned Risk Refresh and other project reviews following a change in the PCEP's leadership in September 2021. The JPB submitted its Recovery Plan to the FTA on April 1, 2022. The FTA and the PMOC have reviewed the draft Recovery Plan and provided comments to the JPB. The JPB submitted its final Recovery Plan to the FTA on September 30, 2022.

The JPB's Board approved an increased budget of $2.44 billion for the PCEP at a Special Board Meeting held on December 6, 2021. The increased budget is based on the successful negotiation in late 2021 of a global settlement with Balfour Beatty Infrastructure, Inc. (BBII), the electrification design-build (D-B) contractor, and a contemporaneous scrub of the PCEP budget. The increased budget supports the completion of the project and delivery of electrified service in 2024.

The PCEP is currently nearing the end of construction and has begun the process of testing and commissioning completed elements of the work. The status of particular elements can be summarized as follows:

- Scope – The scope remains as planned.
- Schedule – *The JPB is implementing a plan proposed by BBII which was intended to reach substantial completion of the contract by the end of the calendar year 2023. BBII's slower than anticipated progress in completing the OCS and problems encountered thus far during testing have caused the projected substantial completion date to slip to April 10, 2024. This date is nine (9) days later than the contractual substantial completion date of April 1, 2024.* This plan requires significant targeted (localized) changes to Caltrain's operating schedule on weekends, with support by bus bridges, to provide BBII with longer uninterrupted periods of access to the corridor. *Likewise, the projected completion date for revised Milestone 1, (Segments 3 and 4 complete) has slipped and is now July 31, 2023, 64 days later than the earlier May 28, 2023 forecast. Completion of the OCS work remains on the critical path, followed by low-voltage power drops and testing and commissioning. BBII is now current with its monthly schedule updates; the most recent is the June update with a July 1, 2023 data date.*
- Cost – The FFGA budget is $1.931 billion in year of expenditure (YOE) dollars. The JPB completed a "budget scrub" following its global settlement with BBII, which produced a revised PCEP budget of $2.44 billion. The JPB approved this revised budget at its Special Meeting on December 6, 2021. This new budget reflects a total increase of $509 million from the FFGA budget. The JPB received $410 million in additional funding from state and federal sources; this satisfies the funding gap created by the revised budget of $2.393 billion. The JPB's revised budget, for FTA reporting purposes (excluding pre-Project Development costs), is $2,393,109,098. *JPB reports that as of June 2023, the forecasted remaining contingency is $57.4 million out of the $90 million total established in the scrubbed budget approved by the Board in December 2021.*
- Significant Project Activities and/or Key Milestones
    - *The first EMU was tested on Caltrain's Santa Clara Drill Track (SCDT) using local power on June 5, 2023.*
    - *OCS productivity has improved as the targeted weekend shutdowns continue.*
    - *The Reed Street crossing in Segment 4, which is owned by the Union Pacific Railroad (UPRR), was successfully cutover to operate properly in an electrified environment. This was the only remaining incomplete signal work in Segment 4 and will permit live wire testing to proceed through that crossing.*
    - The short-circuit retest of TPSS-2 on May 20-21, 2023 was not fully successful and the contractor and PCEP continue to review the test data to determine the cause of the problems and to correct them. *Because the circuit breaker tripped as expected, testing on the Santa Clara Drill Track (SCDT) and in Segment 4 will proceed as planned. BBII and PCEP are discussing the appropriate time to complete the remaining short circuit testing for TPSS-2.*
    - The JPB now has a total of four (4) trainsets on the property. Completed trainsets are being held at Stadler's Salt Lake City plant at JPB's request. *The next delivery of completed trainsets is expected in the 4th quarter of 2023. The first public tour of the new*

EMU took place at the Santa Clara station on May 29, 2023; approximately 4,000 persons attended the event.

- *The JPB is considering exercising some of the remaining EMU options prior to the option expiration date of August 15, 2023; these options would not be funded by the PCEP.*
- PG&E provided 115 kV power to the JPB's Traction Power Substation (TPSS) 2 in San Jose on August 27, 2022. The single-phase study which relates to PG&E's delivery of power to TPSS 1 in South San Francisco has been completed. Energization of TPSS-1 is scheduled for August 2023 following the execution of a Transmission Load Operating Agreement (TLOA) with PG&E for that substation.
- The March 10, 2022 incident that involved the collision of a southbound Caltrain passenger train with on-track construction equipment remains under investigation by the National Transportation Safety Board (NTSB).

1.3 Major Issues and/or Concerns

Summary of Issue/Concern	*Insufficient Testing, Commissioning, and Close-out Resources.*
Date Identified	*July 2023*
Status	*The JPB recently added a close-out manager to coordinate the assembly of the large volume of documentation generated during the later stages of the PCEP. The close-out manager is making good progress in identifying the various types and quantities of documents that will be generated, however, no estimate has been produced related to the labor required to conduct the punch list and final inspections, or the review and approval of the test reports, and related documents. The PMOC is concerned that the PCEP currently has insufficient resources to keep pace with the punch list inspections and the document reviews.*
Project Sponsor Action	*The close-out manager continues to coordinate the collection and assembly of the required materials.*
PMOC Recommendation	*Assess the resources needed to support the close-out activities, hire additional resources, and/or consider contracting with a specialty firm to conduct the needed thorough physical inspections.*

Summary of Issue/Concern	Insufficient Roadway Worker Protection (RWP) Resources.
Date Identified	May 2023
Status	*BBII has increased the number of crews and has brought in a subcontractor to improve OCS productivity. This has resulted in a potential shortage of RWP resources; however, a shortage has not been reported.*
Project Sponsor Action	*Caltrain Operations has contracted for additional RWP personnel.*
PMOC Recommendation	Closely monitor the productivity of BBII crews and available RWP resources.

Summary of Issue/Concern	Inadequate Contractor Preparation for Testing Activities
Date Identified	November 2022
Status	*The short circuit re-test of the traction power system in Segment 4 was only partially successful on the third attempt. An investigation identified the root cause, however, other unplanned events have not been fully explained and investigations continue. BBII and the PCEP team have concluded that live run testing can proceed, and the short circuit re-test will occur after milestone 1 is achieved. Another testing failure occurred which involved video recording of the EMU pantograph in operation, and a re-test is planned for early August 2023.*

Project Sponsor Action	The JPB requested that BBII conduct an audit of the entire Traction Power System. *The PMOC is unclear whether the requested audit has been completed.*
PMOC Recommendation	Continue to monitor the progress of drawing clean-up and BBII's audit of the TPS. Hold the contractor responsible for correcting the problems in its quality program.

Summary of Issue/Concern	Timely Completion of Overhead Contact System (OCS)
Date Identified	June 2022
Status	BBII, the Electrification contractor, is not installing the remaining components of the OCS at a satisfactory rate. Completion of the OCS is now the critical path to completion of the PCEP.
Project Sponsor Action	Targeted weekend shutdowns supported by bus bridges are continuing. *Productivity has improved but must be sustained. BBII brought in additional resources in June 2023 to help finish the work.*
PMOC Recommendation	Continue to closely monitor BBII's productivity. Remove operating constraints and provide additional resources to improve productivity consistent with ongoing passenger rail operations. Closely review and analyze contractor schedules, routinely identify the controlling operation and prepare shadow schedules to assess responsibility for potential or actual delays.

1.4 Status of Key Indicators Dashboard

KEY INDICATORS DASHBOARD (POST-GRANT STATUS)					
Project Sponsor:				Peninsula Corridor Joint Powers Board (JPB)	
Project Name:				Peninsula Corridor Electrification Project (PCEP)	
Date:				*July 31, 2023*	
Project Detail					
Oversight Frequency:				Monthly	
Element	**Status**			**Prior Status (G/Y/R)**	**Issue or Concern**
	G	**Y**	**R**		
PMP		Y		Y	The PMP requires updating to address testing and commissioning. An updated PMP has been received and is under review.
MCC	G			G	New resources are being deployed but the reconfiguration of the PCEP team is not complete, however, improvements are noted.
Cost	G			G	The JPB has received $410 million in additional funding from state and federal sources. This satisfies the requirements of the revised $2.44 billion budget. *The JPB reports that the forecasted remaining contingency is $57.4 million out of the $90 million in the scrubbed budget.*
Schedule	G			G	The JPB has implemented a plan, originally proposed by BBII, which is intended to reach substantial completion of the contract by April 1, 2024. BBII brought in additional subcontractor resources to help complete the OCS by October 25, 2023. Signal work is expected to be completed on August 20, 2023. *System Integrated Testing is currently scheduled for completion on December 17, 2023.* The 14th trainset is scheduled for delivery on March 12, 2024. *Barring very significant problems during integrated testing of the system the project should complete prior to its proposed Required Completion Date of December 31, 2024.*
Quality		Y		Y	The partial failure of BBII's third short-circuit test of the Segment 4 TPS continues to raise concerns. BBII has provided additional Buy America documentation which is under review by the JPB.
Safety		Y		Y	*There have been four (4) recordable incidents in 2023. BBII's Recordable Incident Rate for 2023 is 1.65 and remains below the national average.* The March 10, 2022 incident remains under investigation by the NTSB.
Risk	G			G	*The number and severity of risks is declining.*

KEY INDICATORS DASHBOARD (POST-GRANT STATUS)	
Key Indicators Legend	
Green	Satisfactory: No Corrective Action necessary.
Yellow	Caution: Risk/Issues exist. Corrective Action may be necessary.
Red	Elevated for immediate Corrective Action: Significant risk to the health of the project.

1.5 Core Accountability Items through June 30, 2023

Project Status: In Construction		Original (FFGA)	Current Forecast [1]	PMOC Assessment of Current Forecast
Cost	Cost Estimate	$1,930,670,934	$2,393,109,097	Forecast based on JPB's approved budget, adjusted to remove pre-PD costs.
Contingency	*Allocated Contingency*	$152,913,317	*$43,417,168*	Current contingency usage is being tracked closely and has been modest since the global settlement.
	Unallocated Contingency	$162,620,294	*$13,988,442*	
	Total Contingency	$315,533,611	*$57,405,610*	
Schedule	Required Completion Date	August 22, 2022	December 31, 2024	Current forecast is based on the JPB's Recovery Plan submitted to the FTA on September 30, 2022.

Project Progress		Amount ($)	Percent of Total
Total Expenditures [4]	Actual cost of all eligible expenditures completed to date [5]	*$2,039,661,584*	*85.23%*
Planned Value to Date [2]	Estimated value of work planned to date [3]	$1,925,397,857	80.46%
Actual Value to Date	Actual value of work completed to date [3]	*$2,039,661,584*	*85.23%*

Contracts Status		Amount ($)	Percent
Total Contracts Awarded	Value of all contracts (design, support, construction, equipment) awarded; % of total value to be awarded [6]	*$2,228,210,781*	*95.4%*
Construction Contracts Awarded	Value of construction contracts awarded; % of total construction value to be awarded [5]	$1,844,666,389	*99.53%*
Physical Construction Completed	Value of physical construction (infrastructure) completed; % of total construction value completed	*$1,505,070,786*	*81.25%*

Rolling Stock Vehicle Status	Date Awarded	No. Ordered	No. Delivered
Electric Multiple Unit (EMU) commuter rail vehicles	08/2016 (A)	133	28

Next Monthly Meeting Date:	*July 31, 2023*
Next Quarterly Review Meeting Date:	*August 29, 2023*

NOTES:

[1] "Current estimate" is based on the re-baseline budget adopted by JPB Board in December 2021. FFGA Budget is currently pending approval of the FTA Remediation Plan and adoption.

[2] "Planned Value to Date" is based upon the Program Schedule and Estimate (Rev. 4B) that was updated in October 2017 to reflect the FFGA delay.

[3] "Work" is defined as all construction as well as non-construction scopes (all project costs). Excludes unbudgeted upfront cost for PG&E's share of substation improvements prior to PG&E reimbursement.

[4] "Actual Cost" is determined as follows:

Costs: Inception – June 2023	*$2,072,791,812*
Pre-FFGA Costs	($49,581,599)
Post-FFGA Costs	*$2,023,210,213*

[5] "Percentage" is calculated based on a project new estimate of $2,393,109,097

[6] "Percentage" is calculated based on Contracts as budgeted in the Re-Baseline Budget excluding remaining forecasted contingency:

[7] "Total construction contracts awarded to date (construction & vehicle contracts only)" includes design costs and executed change orders. Does not include Re-Baseline until executed for Contract amendment.

[8] "Percentage" is calculated based on the total of the executed contract value of construction contracts and forecasted (including Re-Baseline items) changes to the contra

Executed value of Construction Contracts	$1,844,666,389
Forecasted Construction Contract Changes	*$8,737,785*
Forecast of Value of Construction Contracts	*$1,853,404,174*

Grant Information

Dollars in thousands reported as of June 30, 2023; this information is updated quarterly.

FAIN (Source)	Funds Committed*	Funds Disbursed	% Disbursed
Local	$1,363,521	*$1,036,838*	*76%*
Federal	*$1,029,830*	$890,897	*87%*
Total	***$2,393,351***	***$1,927,735***	***81%***

*Definitions from Guidelines and Standards for Assessing Local Financial Commitment, FTA, June 2007

Changes from last quarter includes an increase in federal funds of +$0.265M; JPB previously included $33M for the FTA CIG 2023 instead of $33.265M.

2.0 PMOC Observations and Findings

This progress report covers the period from June 22 through August 2, 2023. The information contained in this report is based on the PMOC's participation in virtual status updates held on July 31 through August 2, 2023, virtual project meeting attendance, document reviews, telephone conversations, and general interaction with the project sponsor's personnel.

2.1 Summary of Monitoring Activities

The PMOC continues to monitor the PCEP on a regular basis through the activities described above and prepares routine monitoring reports on the project. The FTA designated the PCEP an at-risk project and the PMOC is monitoring the project on a monthly basis; quarterly oversight will resume once the JPB has satisfied the FTA's concerns related to the risk factors that led to the at-risk designation.

The PMOC's oversight will also address the following activities.

- The PMOC is closely following the JPB's systems integration and rail activation activities as BBII continues to identify and remediate the underlying issues that contributed to the most recent short-circuit test failures. BBII's inability to successfully complete the May 20-21, 2023 short-circuit re-test casts doubt on its ability to complete the remaining contract work as currently scheduled.
- Continue monitoring the progress of the PCEP team as it implements the initiatives put in place by CalMod's Chief Officer (CO). An important gauge is the continued effective use of the Issue Resolution Log (IRL) and the associated "zipper" dispute resolution and elevation process to minimize Change Orders.

- The PMOC is continuing to closely monitor the PCEP's schedule, scheduling resources, and schedule management practices, including the team's ability to provide useful schedule documentation using its integrated master schedule.
- The PMOC continues to monitor BBII's progress in improving the productivity of its OCS installation team, and its associated schedule re-forecasting efforts.
- The PMOC has completed its review of the JPB's Recovery Plan submitted to the FTA on September 30, 2022. The JPB provided its comments to the FTA on the PMOC's Final Draft Recovery Plan Report. *The FTA is continuing its review of the PMOC's Recovery Plan Review Report.*
- The PMOC will continue to monitor the JPB's quality team's progress in obtaining the appropriate Buy America documentation from BBII to complete the current review.
- The JPB has provided its comments to the FTA on the PMOC's final draft of the Global Settlement Review Report. The report and the JPB's comments are under review by the FTA.
- The PMOC is continuing the preparation of a modified Readiness for Electrified Testing review focused on the initial electrification of Segment 4 and the start of live-wire testing and commissioning of the first EMU trainset. *The PMOC delivered its pre-final draft report to the FTA for its review on July 6, 2023, and is awaiting direction.* This review is being performed under a Programmatic Task Order.

  The planned completion schedule for this review was paused because of delays to various elements of the TPS and OCS. 115 kV power has been available at Traction Power Substation (TPSS) #2 since August 27, 2022. Sectionalization testing of Segment 4 has been completed. *Initial live wire testing with an EMU was conducted on the Santa Clara Drill Track beginning on June 5, 2023, and subsequently on the Segment 4 main tracks. The tests are being conducted on weekends during periods when there are no rail operations. Completion of the short-circuit tests is planned to follow the completion of Revised Milestone 1 and include the systems in Segments 3 and 4.*

2.2 Oversight Triggers

The FTA, as noted in Section 1.2 above, designated the PCEP an At-Risk project because of cost overruns and schedule delays. As a result of the FTA's at-risk designation, the PCEP is now on a monthly oversight schedule until the uncertainties are resolved to the satisfaction of the FTA. The JPB, as noted above, formally adopted a revised budget for the PCEP at its meeting on December 6, 2021; the revised budget is based on project completion and the initiation of electrified rail service in 2024. The JPB submitted its final Recovery Plan to the FTA on September 30, 2022. The FTA, as noted above, is completing its review of the PMOC's Recovery Plan Review Report. The PMOC will continue to monitor and report on the JPB's progress relative to its adopted plans and schedule.

2.3 Project Management Plan (PMP) and Sub-Plans

The JPB delayed updating its PMP for the testing and commissioning phase of the project, as well as its Rail Fleet Management Plan (RFMP) and Quality Management Plan (QMP) because of the change in project leadership. The JPB provided its updated PMP in June 2022 and the PMOC has completed its review of this plan. The JPB provided an updated QMP in July 2022, however, the changes to the plan were limited to updates related to the JPB's and PCEP's organizational updates and no further review was performed.

The JPB reports that it has produced a draft re-write of its Rail Activation Plan which is expected to include the organization's readiness to operate an electrified railroad. *The JPB's EMU consultant reports that the Rail Storage Plan has been accepted by the JPB. The JPB has also accepted the Interim Operating Plan, which is focused on exercising the EMUs once they begin electrified running. The EMU consultant also produced a plan for the retirement of Caltrain's legacy fleet of diesel hauled equipment after regular EMU service is initiated.* The EMU consultant is also updating the JPB's Rail Fleet Management Plan. The PMOC has received copies of these plans as requested.

2.4 Management Capacity and Capability

Caltrain's Executive Director announced a functional re-organization on March 1, 2023, and the new organization took effect on April 1, 2023. Mike Meader, formerly Caltrain's Director of Safety, is now Caltrain's Director of Safety, QA/QC, thereby gaining responsibility for the Quality functions in the organization. Mr. Meader reports to Caltrain's Executive Director. A copy of the new organization chart is located in Appendix J.

The PCEP organization continues to make minor adjustments to its staffing to respond to developments in construction and the testing and commissioning activities. Most recently, Lin Guan has taken on responsibility for the completion of construction and punch lists.

- ***PMOC Comment:*** The increase in the PCEP's staffing levels, particularly the addition of both professional and administrative personnel is encouraging. A strong team effort will be required to complete the remaining electrification contract work by December 31, 2023. The PMOC is pleased by the recent increase in scheduling resources. The PMOC continues to encourage the PCEP team to adopt best scheduling practices such as daily identification of the controlling operation to avoid future schedule related claims.
- *The PMOC recommends that the PCEP team develop an estimate of the time (duration) and labor hours that will be required to complete the necessary punch list, final inspection, and other similar activities plus the review and acceptance of the project documents, at the earliest possible time. The results of these estimates should be used to determine whether sufficient staff are available to complete the work within the current project schedule, or whether additional time and/or personnel will be required. The PMOC also recommends that the PCEP team consider engaging a specialty inspection firm to perform the necessary work in a timely and efficient manner.*

2.5 NEPA Process and Environmental Mitigation

The JPB continues to work with the FTA and the State Historic Preservation Office (SHPO) to complete a new Programmatic Agreement (PA) that governs the PCEP's related activities. Multiple reviews of a draft agreement have been completed by all parties and the document is now with the SHPO for execution. The JPB expects the agreement to be completed by mid-August 2023. The JPB and its contractor continue to follow the requirements and processes contained in the original agreement.

The JPB also continues to monitor the compliance of its construction contractors with the requirements of its FFGA and the supporting environmental documents. Annual surveys are being conducted as required. The PCEP reports that tree pruning and removal are approximately 75% complete. The number of replacement trees is higher than expected because of minor shifts in the location of the OCS.

2.6 Project Delivery Method and Procurement

The JPB completed all major procurements as of September 2019.

Consultant Contracts

The JPB awarded contracts in early 2014 for Program Management Consultant Services; EMU Vehicle Consultant Services; and Electrification Services. The JPB awarded a five-year contract to Jacobs Project Management Company (Jacobs) of Oakland, CA in 2019 to support electrification construction, the tunnel notching contract, modifications to the CEMOF, reconstruction of the Santa Clara Drill Track, installation of mini-high block platforms, and other work, as needed.

Electrification Design-Build Contract

JPB is using the Design-Build (D-B) project delivery method for the electrification and related facilities. BBII was selected as the D-B Contractor and was provided NTP in June 2017. Design work is complete on the OCS and the TPS elements of the project. Design continues on the signal related work which is now on the PCEP's near-critical path. The BBII global settlement and its re-baselined schedule prioritizes completion of the signals and supporting work and includes incentives for early completion. Construction activities, including testing and commissioning of installed facilities, are underway in all disciplines and all segments of the corridor.

Supervisory Control and Data Acquisition (SCADA) Equipment

The JPB executed a sole-source contract with ARINC, Inc., for the supply of SCADA equipment in September 2017. The SCADA contract is being managed by the Electrification consultant and installation of the SCADA equipment is being performed by BBII under the Electrification contract. The equipment will be used to control the traction power system including the traction power substations (TPS), wayside power cubicles (WPC), and the OCS. SCADA will be integrated with the base operating system for Caltrain Operations and Control, which is the Rail Operations Center System (ROCS). A separate control console will be established for the Power Director. The hardware has been installed in the Central Control Facility (CCF) and the back-up CCF (BCCF) and testing and training activities are in progress. The JPB completed the negotiation of a $1.04 million modification of the SCADA contract to align its completion with the new project schedule.

Tunnel Notching, OCS Installation, and Drainage Improvements

A contract was awarded to ProVen Management, Inc. of Oakland, California, for Tunnel Notching and Drainage Improvements on the tunnels in Segment 1 of the PCEP corridor. The contract consists of two (2) main elements: notching of the four (4) tunnels to increase clearance for the new EMU vehicles; and drainage improvements in tunnels 1 and 4 for the benefit of Caltrain operations. The drainage improvements were performed as a Concurrent Non-Project Activity (CNPA) and the work was paid for by Caltrain. The JPB issued a Notice to Proceed to the contractor on October 6, 2018. Installation of the Overhead Contact System (OCS) in the tunnel bores was later added by Change Order. Inspection of the OCS in the tunnel bores has been completed and the contractor has demobilized.

The JPB has negotiated a settlement with ProVen that covers both the Tunnel Notching and CEMOF Modifications contracts. Final testing of the OCS in the tunnel will now be performed by BBII. Close-out of both ProVen contracts is in progress.

Used Electrified Locomotives

The JPB acquired and overhauled two (2) used AM-7 electrified locomotives to perform initial testing of the electrification system. The locomotives were placed in long-term storage after their delivery in June 2019 until needed for testing of the electrified system. The JPB continues to prepare the electric locomotive for use in the initial testing of the electrified OCS in Segment 4. It remains unclear what role the electric locomotive will play in the start-up and testing of the electrified system.

CEMOF Modifications

The JPB awarded a contract to ProVen Management, Inc. in the amount of $6,550,777 to modify the Central Equipment Maintenance and Operations Facility (CEMOF) to accommodate the new EMUs. ProVen was issued a full Notice to Proceed (NTP) on September 16, 2019. The CEMOF contract was the last of the PCEP's major construction contracts. The JPB, as noted above, has negotiated a settlement with ProVen that covers both the Tunnel Notching and CEMOF Modifications contracts. ProVen completed work on the CEMOF modification on July 13, 2022.

PG&E Interconnection Construction

The JPB executed a modification of its Master Agreement with PG&E to construct the interconnections between PG&E's two (2) substations and the JPB's two (2) corresponding TPSS. Construction of the interconnection between PG&E's FMC substation in San Jose and the PCEP's TPSS 2 was completed on January 18, 2021.

The Transmission Load Operating Agreement (TLOA) between PG&E and the JPB was executed following the completion of the southern section of the Single-Phase Study. Energization of the PG&E interconnection and TPSS-2 occurred on August 27, 2022.

The interconnection between PG&E's East Grand Substation in South San Francisco and the PCEP's TPSS 1 is complete and final testing of TPSS-1 is underway. PG&E completed a Pre-Parallel Inspection of TPSS-1 and the energization of Line 1 is scheduled for August 19, 2023, and the energization of Line 2 is scheduled for August 26, 2023. The necessary easements to allow PG&E access to maintain its equipment have been executed, which completes the last requirement for execution of the TLOA for TPSS -1. An executed TLOA is a prerequisite to PG&E providing power to energize TPSS-1.

Current Procurements

The JPB concluded an agreement with Transit America Services, Inc. (TASI), its contract rail operator, to perform operating and maintenance functions for the new Traction Power System (TPS) and Overhead Contact System (OCS). TASI has begun staffing for this new role and expects to have teams in place to support the burn-in of the EMUs and assist in the acceptance of the remainder of the TPS and OCS.

2.7 Design

BBII is responsible for the Final Design (FD) of the electrification and related facilities under the terms of its D-B contract with the JPB. PGH Wong Engineering, Inc., is the Engineer of Record (EOR) for the electrification work. Alstom is the EOR for the signals work including 2SC. All OCS and TPS design work is complete. The following issues remain active at this time:

- BBII and its sub-contractors have identified problems with version control of its design documents as a root cause of the February 2023 failure of short-circuit testing on TPSS-2. A major effort is underway to purge all incorrect versions from BBII's document control system and assemble a conformed set of design documents. BBII has hired Arup to conduct an audit of its TPS work; that effort will start with TPSS-2. *BBII and its subcontractors continue to investigate the unexpected results that occurred during the short-circuit re-test that took place on May 20-21, 2023.*
- The JPB has identified an alternative solution which maintains the current grade crossing protection at the Union Pacific Railroad's (UPRRs) Reed Street crossing in Segment 4. *JPB and UPRR crews completed the Reed Street cutover on July 26, 2023, followed by the installation of the insulated joints and track circuits. Excessive electronic noise prevented satisfactory*

operation of the newly installed equipment and UPRR is shipping electronic filters from Omaha, NB to resolve the problem.

2.8 Value Engineering and Constructability Reviews

The project sponsor did not undertake a formal VE effort. However, the PCEP team undertook a significant cost reduction effort in late 2014 which identified an estimated $84.3M in potential cost savings achieved by eliminating or deferring certain tasks previously included in the baseline program. In addition, the procurement process for the Electrification D-B contract included the submission of alternate technical proposals (ATPs) to reduce costs or improve the schedule. In addition to those ATPs that were incorporated into the Electrification contract, that contract contains a Value Engineering Change Proposal (VECP) clause whereby any savings that result from an accepted VECP are shared by the contractor and the JPB.

2.9 Real Estate Acquisition and Relocation

The project is being constructed primarily in the existing Caltrain corridor on rights-of-way (ROW) controlled by JPB/Caltrain. The PCEP is acquiring real estate for three (3) primary purposes: (1) for the placement of Overhead Contact System (OCS) poles; (2) for the two (2) primary Traction Power Substations (TPSS); and (3) to provide electrical clearance and safety zones for the OCS wires.

Real Estate Activities

The large majority of real estate activities have been completed. The remaining challenges facing real estate are any design changes that would impact already acquired properties and design changes requiring new or re-defined acquisitions.

- *The JPB reports that an easement will be needed from the Santa Clara Valley Transportation Authority (VTA) to allow maintenance access to its power lines installed near VTA's light rail tracks.*
- Bayshore Property (Segment 1 South of tunnels) – The parties have reached a final agreement on price and construction is underway using permits issued by the owner, pending completion of the transaction. The JPB reports that it has addressed the owner's comments and provided copies for the owner's review. The JPB will be requesting the FTA's concurrence on the transaction in the near future.
- Staff continues to review electrical safety zones (ESZs) for potential changes due to OCS pole relocations.
- Staff continues to work with PCEP's internal signal team and BBII's signal team to identify the need for potential new Real Estate interests.

2.10 Third-Party Agreements and Utilities

A significant number of third-party agreements were required to support the PCEP. These agreements are grouped into the following general categories, with status comments as appropriate to each:

Jurisdictional Agreements for Construction and Maintenance

The JPB has executed all agreements except the one with the Town of Atherton (Segment 2), which is no longer being pursued. The Town of Atherton must issue traffic control permits to the contractor, and the Town staff has been cooperative to date.

Jurisdictional Agreements for Exercise of Eminent Domain Powers

The JPB has executed agreements with the Santa Clara Valley Transportation Authority (VTA) and the San Mateo County Transportation District (SamTrans) under which the VTA and SamTrans will exercise eminent domain authority on behalf of the JPB, when such action is required, to acquire the real property rights located in the respective counties for the PCEP. The City and County of San Francisco (CCSF) declined to approve an agreement for the use of its eminent domain powers on behalf of the PCEP.

Utility Relocation Agreements

The JPB's right to relocate utilities that exist within its PCEP corridor exists by virtue of the property rights it acquired when it purchased the corridor from the Southern Pacific Transportation Company (SP) in November 1991. The JPB has the right to cause the relocation of both overhead and underground utilities to accommodate its railroad activities upon thirty (30) days' notice to the utilities at the utilities expense. *The JPB previously reported that one PG&E power line relocation remains in the vicinity of the Switching Station (SWS) in Segment 2; no update has been provided.*

The JPB also has in place specialized agreements with the following entities:

Pacific Gas & Electric (PG&E)

PG&E will supply power from two (2) existing substations to the new PCEP Traction Power System. Both substations must be modified to provide the required power. The JPB has executed a Master Agreement with PG&E as well as Supplements 1 through 5 to that agreement. Supplement 4, which includes the cost of constructing the substation modifications, was fully executed on October 18, 2018. The parties disagreed on the allocation of costs for the work, and following discussions between the parties, PG&E filed an application with the CPUC for a cost allocation plan. The CPUC's Administrative Law Judge announced a decision on May 7, 2020, that adopted a modified order affirming the cost allocation principles agreed to by the JPB and PG&E. The cost allocation process requires audited costs for PG&E's sub-station improvements. Those costs were expected to be available for inclusion in PG&E's 2023 General Rate Case which was filed in 2021. However, due to construction delays, only approximately 95% of audited costs are available. PG&E petitioned the CPUC to consider including the 95% of costs that have been audited in PG&E's current rate case. That petition was positively received by the CPUC. The JPB requested that PG&E make earlier payments of the funds that are due to the JPB under the cost allocation agreement to improve the PCEP's cash flow position. The JPB reports that PG&E has declined to make any payments to the JPB earlier than required. *PG&E's unwillingness to accelerate its payment to the JPB may result in cash flow issues in late 2024 and 2025.*

The Transmission Load Operating Agreement (TLOA) between PG&E and the JPB has been executed for TPSS #2 in San Jose. As noted above, a second TLOA is required prior to PG&E's energization of TPSS-1.

BBII must install some OCS poles and wires in close proximity to PG&E distribution lines that run parallel to the JPB's property. PG&E crews previously protected its lines and permitted the PCEP work to be performed with appropriate safeguards; however, that is no longer the case. PG&E is now insisting that their distribution lines must be shut down before BBII can perform its work. PG&E now requires a formal request and must schedule a contractor to perform the shutdown work. If PG&E is unable to perform that work in time, OCS installation will be further delayed and installation efficiency will also be affected. The JPB and BBII continue to meet weekly in an effort to improve the resolution of issues and increase BBII's productivity.

California Public Utilities Commission (CPUC)

The CPUC is the FTA's Certified State Safety Oversight Agency (SSOA) for the State of California and also has responsibility for grade crossing safety in the state. The JPB has worked with both CPUC and the FRA to develop the 2SC solution to provide the required grade crossing warning time after the system is electrified. CPUC and the FRA have been observing the initial cutovers at the signal locations in Segment 4 and have been satisfied with the results to date.

The JPB must file General Order (GO) 88B forms for each modified crossing for approval by the CPUC; these plans are developed in conjunction with the local jurisdictions. *The JPB reports that all GO 88B permits have been issued by the CPUC.* The FRA does not approve the crossings but has both regulatory and enforcement authority if the crossings do not perform as required by its regulations.

Union Pacific Railroad (UPRR)

The JPB has a continuing relationship with the UPRR, which is a tenant and operates service on tracks owned by Caltrain in the PCEP corridor; Caltrain operates service on tracks owned by the UPRR south of the PCEP corridor.

California High Speed Rail Authority (CHSRA)

The California High-Speed Rail Authority (CHSRA) is a funding-partner for the PCEP and proposes to operate in blended service with Caltrain in the PCEP corridor in the future. The JPB has relocated some OCS poles to permit future curve-straightening by the CHSRA without impacting the electrification system. Straightening of some curves will allow the CHSRA to achieve higher operating speeds. All costs associated with the pole relocation work will be paid for by the CHSRA. Representatives of the CHSRA are now participating regularly in a variety of PCEP meetings. The JPB has submitted the final Project Remediation Plan for the CHSRA; the plan is a requirement of the funding agreement between the parties. The plan was reviewed by the CHSRA and appropriate portions of the plan were incorporated into the Recovery Plan submitted to the FTA on September 30, 2022.

Federal Railroad Administration (FRA)

The FRA has authority over the JPB's rail operations. As noted above and elsewhere in this report, the JPB is coordinating with the FRA on several issues, including technical issues related to the EMUs and implementation of the 2SC issue. The JPB's PTC program has received FRA approval. Issues related to the EMU's are discussed in Section 2.12 of this report. The JPB continues to hold monthly conference calls with the FRA to discuss EMU issues, and another call to discuss any open questions related to the 2SC implementation.

Independent of the PCEP, the JPB filed a test request with the FRA on November 29, 2021, for the installation of a Crossing Optimization Project. The project proposes to modify grade crossing controls to improve gate down-time performance. Wabtec, the JPB's contractor for the crossing optimization project, continues to install the wireless crossing modifications after a grade crossing is successfully cutover for 2SC operation.

The FRA will be conducting an on-site audit of Caltrain's Passenger Train Emergency Preparedness Plan (PTEPP) in the near future. *The JPB reports that the visit will likely occur in September or October 2023.* The audit typically occurs within 180 days following the conditional approval of a new plan or significant amendment. The JPB has submitted an update to its PTEPP to address the newly electrified system. The JPB has not reported any FRA action on its PTEPP.

2.11 Construction

The JPB provided the following information on infrastructure construction activity.

- PG&E delivered 115 kV of power to TPSS-2 for the first time on August 27, 2022. Testing and commissioning of high-voltage equipment continues in Segment 4 and sectionalization tests have been completed. The short-circuit test on November 4 was unsuccessful and a thorough review of the TPS was initiated to identify the root cause of the failure. A short-circuit re-test was performed on February 4, 2023, and was unsuccessful. Investigations have shown that there were conflicting drawings being used to install the equipment which resulted in the February test failure. A major effort is underway to address this problem. Another short-circuit re-test was conducted on May 20-21, 2023, and was only partially successful when the breaker tripped as designed but did not reclose. Other unplanned breakers also tripped during the test. *Investigations continue with suppliers to identify and resolve the most recent problems. Discussions between JPB and BBII concluded that live wire testing on the main tracks in Segment 4 could safely proceed because the breakers tripped as intended. Live wire testing is underway on the main tracks in Segment 4 but only during periods when no other trains are running. Short-circuit retesting will be performed following the successful completion of Milestone 1 when both Segments 4 and 3 are electrified, expected to be in October 2023.*

Overhead Contact System (OCS)

Completion of the OCS remains on the project's critical path. BBII has brought additional on-track equipment from the United Kingdom (UK) and has fielded additional crews to increase productivity. Timely completion of the OCS will require sustained productivity at levels higher than those previously achieved on a continuing basis. The JPB is implementing a plan proposed by BBII to achieve substantial completion of the contract by the end of the calendar year 2023. BBII's contractual Substantial Completion date is April 1, 2024, and the contractual Final Completion date is July 31, 2024. This plan requires 31 weekend shutdowns of rail service at targeted locations, with support by bus bridges, to provide BBII with longer uninterrupted periods of access to the corridor. The first weekend outage and bus bridge took place on February 11 and 12, 2023. *Productivity has improved as coordination in advance of the weekend shutdowns has increased, however, it is still lower than originally expected.*

OCS progress as of July 17, 2023:

- *7 poles remain to be installed in Segments 1 and 2 out of the 2568 required.*
- *154,762 linear feet (LF) of contact wire and feeder wire remains of the 1,511,870 LF required. An additional 138,843 LF of messenger wire and static also remains to be installed.*
- *The anticipated completion date for construction and component testing of the OCS system remains October 25, 2023.*
- Removal of metallic materials at the CEMOF and grounding of installed service equipment continues.
- Sections of the installed OCS located near the south end of Segment 4 have been temporarily removed to facilitate the replacement of the Guadalupe River railroad bridge. Replacement of the bridge is a Caltrain capital project and the required in-water work must occur within a specified environmental window. Testing of the southernmost OCS and TPS in Segment 4 was expected to be complete before removal of the OCS was required; however, due to the unsuccessful short-circuit tests, that will now occur after the OCS is restored in September 2023. A revised test plan for Segment 4 was developed to address this new situation; and was returned to SONO on March 30, 2023. *The restoration of the OCS that was removed to accommodate bridge construction may be delayed until mid-late October 2023.*

Traction Power System (TPS)

- Traction Power Substation (TPSS) #2 was energized on August 27, 2022. Sectionalization testing of Segment 4 has been completed. Short-circuit testing of Segment 4 in November 2022 was unsuccessful, and a re-test on February 4, 2023, also failed. Investigations identified conflicting drawings as the root cause of the failure. An audit of the TPS design is underway by Atkins. As noted above, a short-circuit re-test was conducted on May 20-21, 2023, and was not entirely successful. *The next short-circuit re-test will likely occur in mid-late October 2023.*
- The JPB now reports that as of July 17, 2023, TPS 1 is 94% complete and TPS 2 is 99% complete. The Switching Station is 99% complete; and of the seven (7) Paralleling Stations, all but PS 3 are at 90% complete. *Punchlist work is in progress on PS-5 and PS-6.*
- *Grounding and bonding are complete in Segments 3 and 4, and a punch list review has been performed. Grounding and bonding are approximately 80% complete in Segments 1 and 2.*

Signal System

The signal system is nearing completion. Once the new signal equipment is installed, the system must be electrically connected or "cut over" to the new equipment. One final cutover, Phase 2 of Segment 1 remains; the work is scheduled to begin on August 6 and extend through August 27, 2023. This schedule includes one week of contingency. A signal cutover typically involves numerous signals and control points. A control point (CP) is a named location where tracks merge or cross. Early completion of the signal cutovers is incentivized (See Table 6) in the global settlement.

JPB reported the following additional signal activity.

- *The Reed Street crossing in Segment 4, which is owned by the UPRR, was successfully cutover to operate properly in an electrified environment. This was the only remaining incomplete signal work in Segment 4 and will permit live wire testing to proceed through that crossing.*
- Installation of conduit and foundations for signals and wayside power cubicles (WPC) continues in Segments 1, 2, and 3. Timely installation of power drops for WPCs is a concern, and the JPB is looking for opportunities to connect new WPCs to existing power sources whenever possible.

Supervisory Control and Data Acquisition (SCADA)

- The SCADA software has been installed and tested but is not yet operating in production mode.

Concurrent Non-Project Activities:

The JPB has an on-going capital construction program that includes several projects that will share some common elements with the PCEP. These projects have been designated as Concurrent Non-Project Activities (CNPAs), and the project elements that will be constructed for the benefit of the PCEP will be appropriately segregated for cost purposes. The Guadalupe Bridge Replacement Project is underway at the south end of Segment 4. The newly installed catenary wire has been temporarily removed to avoid construction conflicts. The project must be completed before the catenary can be re-installed and Segment 4 testing completed. *The JPB reports that the project's schedule has slipped, and the contractor has added additional shifts to recover the schedule. The JPB now expects that the OCS may be returned to service somewhat later than the scheduled date of September 30, 2023.* The installation of additional flip-up seats in EMU bike cars, which is locally funded, will remain open until all cars are delivered.

2.12 Vehicle Technology and Procurement

The JPB placed an order for ninety-six (96) new bi-level EMU vehicles to be produced by Stadler US, Inc. and delivered in six-car trainsets. The JPB ordered an additional thirty-seven (37) EMUs

in December 2018 using an option in the Stadler contract. The JPB has now ordered an electrified fleet of one hundred thirty-three (133) EMUs configured as nineteen (19) seven-car trainsets. The JPB has remaining options to purchase up to fifty-nine (59) more EMUs at prices based on the date when the option is exercised. *The JPB is considering exercising some of the remaining options prior to the option expiration date of August 15, 2023; these options would not be funded by the PCEP. One trainset could be hybrid battery-electric powered to allow it to operate on the non-electrified track serving Gilroy at the south end of Caltrain's system.* The EMU contract contained an option for Stadler to maintain the vehicles; the JPB did not exercise this option and the vehicles will be maintained by TASI, the JPB's current rail operator. The JPB states that Stadler will provide on-site training and assistance for TASI's personnel for two (2) years following vehicle acceptance.

The EMUs were ordered with two (2) sets of doors, one set at approximately 22" above the top of the rail, and one at approximately 50.5" above the top of the rail. Initially, only the lower set of doors will be activated, and a small step will automatically deploy outside the vehicle to reduce the boarding height to the current platforms. The PCEP's Change Management Board, at its September 2019 meeting, approved the JPB's request for a change order to install temporary panels in place of the high-level doors until the trains operate in blended service with the CHSRA. The high-level doors will be placed in storage until they are installed for blended service with the CHSRA. When the EMUs operate in blended service with the CHSRA vehicles, the high-level doors will be operated to provide level boarding at the higher CHSRA platforms at those stations served by both systems. See additional discussion under Regulatory Issues below.

Stadler has been impacted by the COVID-19 pandemic in a variety of ways and has routinely notified the JPB of these issues. The CMB approved a Change Order (CO) to Stadler on May 31, 2023, in the amount of approximately $10.7 million to compensate Stadler for:

1. Stadler's Project Management and support accrual cost during the EMU project extension period of two years.
2. Storage of EMU Trainsets in Salt Lake City per Caltrain's request to mitigate storage issue (added scope).
3. Extended Warranty for all parts and components for all 19 cars through 2026 (added scope).
4. Stadler Site Staff accrual cost as a result of project extension.
5. Stadler Test team additional accrual cost as a result of increased test site project time extension.

Stadler reported the following progress on the vehicles:

- *Initial testing of the EMUs is underway on the SCDT and Segment 4 main tracks following the electrification of the OCS on June 5, 2023.*
- *Live run testing on Segment 3 is scheduled for early August 2023.*
- *Testing of the EMU Positive Train Control equipment will follow the electrification of both Segments 3 and 4 because of the length of track needed to achieve the train speed necessary to satisfy the PTC requirements.*
- Four (4) trainsets have been delivered to the JPB. Trainsets TS-6 and TS-9 were scheduled for delivery the last week in March 2023; however, Stadler has agreed to further delay that shipment until testing can be completed on the trainsets that have been received. Table 1 below shows the currently planned delivery dates for the remainder of the EMU fleet.

Table 1 – EMU Proposed Delivery Schedule

Trainset	Tentative Delivery Date
Trainsets 3 & 4	Delivered
Trainsets 2 & 5	Delivered
Trainset 1	*November 3, 2023*
Trainset 9	*January 10, 2024*
Trainsets 10 & 11	*January 26, 2024*
Trainsets 6 & 8	*February 21, 2024*
Trainset 12	*February 23, 2024*
Trainset 7	*March 20, 2024*
Trainsets 13 & 14	*March 22, 2024*
Trainset 15	*September 2, 2024*
Trainset 16	*November 11, 2024*
Trainset 17	*March 3, 2025*
Trainset 18	*March 25, 2025*
Trainset 19	*May 1, 2025*

- The EMU Management Consultant finalized its EMU storage plan in April 2023 to address the challenges of parking the combined diesel and EMU fleets until electrified operations begin. An interim-maintenance plan for exercising the EMUs prior to regular operations has also been finalized The general outline of the proposed plan is as follows:
    - CEMOF (4 trains)
    - Diridon Station (2 trains)
    - San Francisco Station (7-9 trains)
    - Visitacion (alternate site, 4-6 trains)
    - Legacy fleet moved to Dumbarton lead.
    - No vehicles will be physically removed or retired in the near term.
- An interim-maintenance plan for exercising the EMUs prior to regular operations has been finalized.
- *TS-6 and 9 are complete (in storage in SLC).*
- *TS 7 and 8 are also in storage, awaiting parts.*
- *TS-10-19 are in production.*
- *The reconditioning of trainset 1 (TS-1) is complete and it is undergoing final inspection and re-work as needed.*
- Safety and Security certification of the EMUs is nearly complete with only delivery of signed documentation remaining.
- The JPB reports that it has received approximately 75% of the special tools required to maintain the EMUs and approximately 75% of the required spare parts. Delivery of spare parts is being paused to allow the JPB to properly receive and store the incoming materials.
- *All 133 car shells have now arrived at Stadler's Salt Lake City assembly plant.* Truck frames and bolsters will continue to be produced in Switzerland until the order is complete.
- Stadler reports continuing problems with material availability and supply chain logistics as well as workforce attraction and retention.

2.13 Project Cost

The FFGA budget for the PCEP is $1.931 billion in year of expenditure (YOE) dollars. The JPB adopted a revised budget of $2.44 billion ($2.39 billion for FTA reporting purposes) on December 6, 2021. This new budget reflects a total increase of $462 million from the FFGA budget. The new budget has been incorporated into the JPB's Recovery Plan.

Table 2 below presents the PCEP costs as of June 30, 2023. The JPB re-forecasts the estimated cost at completion (EAC) monthly.

Table 2 – Project Cost Table at 6-30-2023 ($ millions)[1]

Description of Work	FFGA Baseline Budget (A)	Current Budget (B)	Cost This Month (C)	Cost To Date (D)	Estimate To Complete (E)	Estimate At Completion (F) = (D) + (E)
10 - GUIDEWAY & TRACK ELEMENTS	**$14,256,739**	**$33,031,358**	**$1,094**	**$30,782,266**	**$2,249,092**	**$33,031,358**
10.02 Guideway: At-grade semi-exclusive (allows cross-traffic)	$2,500,000	$2,387,096	$1,094	$346,322	$2,040,774	$2,387,096
10.07 Guideway: Underground tunnel	$8,110,649	$30,644,262	$0	$30,435,945	$208,318	$30,644,262
10.07 Allocated Contingency	$3,646,090	$0	$0	$0	$0	$0
30 - SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. BLDGS	**$2,265,200**	**$11,046,714**	**$0**	**$9,869,781**	**$1,176,932**	**$11,046,714**
30.03 Heavy Maintenance Facility	$1,344,000	$10,846,714	$0	$9,869,781	$976,932	$10,846,714
30.03 Allocated Contingency	$421,200	$200,000	$0	$0	$200,000	$200,000
30.05 Yard and Yard Track	$500,000	$0	$0	$0	$0	$0
40 - SITEWORK & SPECIAL CONDITIONS	**$255,072,402**	**$440,882,187**	**$5,163,400**	**$452,669,113**	**$1,864,711**	**$454,533,824**
40.01 Demolition, Clearing, Earthwork	$3,077,685	$10,748,067	$120,774	$10,363,193	$384,874	$10,748,067
40.02 Site Utilities, Utility Relocation	$62,192,517	$103,275,822	$410,762	$172,498,104	($73,051,882)	$99,446,222
40.02 Allocated Contingency	$25,862,000	$2,370,765	$0	$0	$2,370,765	$2,370,765
40.03 Haz. mat'l, contam'd soil removal/mitigation, ground water treatments	$2,200,000	$12,042,192	$0	$11,453,082	$589,111	$12,042,192
40.04 Environmental mitigation, e.g. wetlands, historic/archeologic, parks	$32,579,208	$20,541,781	$0	$3,633,508	$16,708,273	$20,341,781
40.05 Site structures including retaining walls, sound walls	$568,188	$0	$0	$0	$0	$0
40.06 Pedestrian / bike access and accommodation, landscaping	$804,933	$2,735,000	$12,000	$1,855,320	$879,680	$2,735,000
40.07 Automobile, bus, van accessways including roads, parking lots	$284,094	($0)	$0	$0	($0)	($0)
40.08 Temporary Facilities and other indirect costs during construction	$107,343,777	$268,455,670	$4,619,864	$252,865,906	$36,212,686	$289,078,592
40.08 Allocated Contingency	$20,160,000	$20,712,890	$0	$0	$17,771,205	$17,771,205
50 - SYSTEMS	**$504,445,419**	**$679,838,223**	**$7,317,967**	**$590,979,327**	**$88,858,896**	**$679,838,223**
50.01 Train control and signals	$97,589,149	$113,235,359	$1,609,625	$136,854,256	($23,618,897)	$113,235,359
50.01 Allocated Contingency	$1,651,000	$4,161,975	$0	$0	$4,161,975	$4,161,975
50.02 Traffic signals and crossing protection	$23,879,905	$79,577,607	$1,055,061	$29,540,046	$50,788,869	$80,328,915
50.02 Allocated Contingency	$1,140,000	$397,666	$0	$0	($353,642)	($353,642)
50.03 Traction power supply: substations	$69,120,009	$129,386,359	($184,804)	$121,117,067	$8,269,292	$129,386,359
50.03 Allocated Contingency	$31,755,013	$1,117,274	$0	$0	$1,117,274	$1,117,274
50.04 Traction power distribution: catenary and third rail	$253,683,045	$338,037,212	$4,069,055	$297,885,692	$40,151,521	$338,037,212
50.04 Allocated Contingency	$18,064,000	$4,927,501	$0	$0	$4,927,501	$4,927,501
50.05 Communications	$5,455,000	$5,803,450	$769,030	$5,582,266	$269,194	$5,851,460
50.05 Allocated Contingency	$0	$2,893,550	$0	$0	$2,845,540	$2,845,540
50.07 Central Control	$2,090,298	$300,269	$0	$0	$300,269	$300,269
50.07 Allocated Contingency	$18,000	$0	$0	$0	$0	$0
60 - ROW, LAND, EXISTING IMPROVEMENTS	**$35,675,084**	**$33,344,581**	**$83,288**	**$22,796,155**	**$10,548,426**	**$33,344,581**
60.01 Purchase or lease of real estate	$25,927,074	$33,160,590	$83,288	$22,662,163	$10,498,427	$33,160,590
60.01 Allocated Contingency	$8,748,010	($1)	$0	$0	($1)	($1)
60.02 Relocation of existing households and businesses	$1,000,000	$183,992	$0	$133,992	$50,000	$183,992
70 - VEHICLES (96)	**$625,544,147**	**$694,462,077**	**$866,664**	**$493,671,221**	**$194,958,182**	**$688,629,403**
70.03 Commuter Rail	$589,167,291	$642,359,266	$866,664	$479,535,216	$170,391,835	$649,927,051
70.03 Allocated Contingency	$9,472,924	$15,555,307	$0	$0	$7,534,184	$7,534,184
70.06 Non-revenue vehicles	$8,140,000	$17,239,237	$0	$538,280	$11,700,958	$12,239,237
70.06 Allocated Contingency	$0	$379,335	$0	$0	$0	$0
70.07 Spare parts	$18,763,931	$18,928,931	$0	$13,597,726	$5,331,205	$18,928,931
80 - PROFESSIONAL SERVICES (applies to Cats. 10-50)	**$323,793,010**	**$467,743,916**	**$2,926,355**	**$429,439,337**	**$39,358,578**	**$468,797,916**
80.01 Project Development	$130,350	$289,233	$0	$289,233	$0	$289,233
80.02 Engineering (not applicable to Small Starts)	$180,227,311	$242,508,565	($76,769)	$238,597,288	$3,795,276	$242,392,565
80.02 Allocated Contingency	$1,866,000	($85,713)	$0	$0	($85,713)	($85,713)
80.03 Project Management for Design and Construction	$72,029,265	$153,725,729	$1,997,875	$133,655,857	$20,879,872	$154,535,729
80.03 Allocated Contingency	$9,388,080	($0)	$0	$0	($0)	($0)
80.04 Construction Administration & Management	$23,677,949	$50,737,213	$810,546	$43,243,692	$7,493,522	$50,737,213
80.04 Allocated Contingency	$19,537,000	($0)	$0	$0	($0)	($0)
80.05 Professional Liability and other Non-Construction Insurance	$3,500,000	$6,581,851	$172,590	$6,291,001	$290,850	$6,581,851
80.06 Legal; Permits; Review Fees by other agencies, cities, etc.	$7,167,275	$10,383,908	$18,349	$7,232,092	$3,511,815	$10,743,908
80.06 Allocated Contingency	$556,000	$650,000	$0	$0	$650,000	$650,000
80.07 Surveys, Testing, Investigation, Inspection	$3,287,824	$210,957	$3,764	$58,254	$152,703	$210,957
80.08 Start up	$1,797,957	$464,093	$0	$71,920	$392,173	$464,093
80.08 Allocated Contingency	$628,000	$2,278,080	$0	$0	$2,278,080	$2,278,080
Subtotal (10 - 80)	**$1,761,052,001**	**$2,360,349,055**	**$16,358,768**	**$2,030,207,200**	**$339,014,818**	**$2,369,222,018**
90 - UNALLOCATED CONTINGENCY	**$162,620,295**	**$22,861,405**	**$0**	**$0**	**$13,988,442**	**$13,988,442**
Subtotal (10 - 90)	**$1,923,672,296**	**$2,383,210,460**	**$16,358,768**	**$2,030,207,200**	**$353,003,260**	**$2,383,210,460**
100 - FINANCE CHARGES	**$6,998,638**	**$9,898,638**	**$92,603**	**$9,454,384**	**$444,254**	**$9,898,638**
Total Project Cost (10 - 100)	**$1,930,670,934**	**$2,393,109,098**	**$16,451,371**	**$2,039,661,584**	**$353,447,514**	**$2,393,109,098**

[1] Caltrain Capital Overhead includes actuals to date using new method ICAP as reported in Budget Scrub.

PMOC Note: The JPB publicly reports expenditures against a total project budget of $1,980,252,533; this translates to the revised budget of $2,442,690,697. This higher amount includes expenditures prior to the project's entry into the Project Development (PD) phase, which is excluded from the FTA's project budget. Costs incurred prior to the project's entry into the PD phase were removed from the estimate at the FTA's request during its review of the FFGA materials. The revised budget for FTA reporting purposes, if accepted by the FTA, will be $2,393,109,097.

Cost Contingency Status

Table 3 summarizes the project contingency as of June 30, 2023, for the revised project budget.

Table 3 – Contingency Status ($ millions) **[1]**

Contingency Category	Original Baseline Contingency (YOE)	Revised Contingency Budget (YOE)	Current Contingency (YOE)	% of Construction Complete and % Revised Contingency Remaining[3]
Allocated	$152.9	$62.1	*$43,417,168*	***81.21%***
Unallocated	$162.6	$27.9	*$13,988,442*	
TOTAL	**$315.5**	**$90.0**	***$57,405,610***	***63.78%***

[1] Totals may not add due to rounding.
[2] Estimate at Completion
[3] Data as of June 30, 2023.

The PCEP cost contingency balances have been updated based on the $2.44 billion budget. A new cost contingency drawdown curve has been established with new hold-points.

Contingency Management – Electrification

The global settlement with BBII included the establishment of a shared risk pool of $50 million which is considered part of the PCEP contingency. Upon final acceptance of the work, any balance remaining in the pool will be shared equally between BBII and the JPB. The objective of this pool is to reduce the number of change orders and incentivize collaboration between the JPB and BBII. The pool consists of 27 identified risk items, each with a forecast risk amount, with an aggregate total of $49.95 million, including $12 million in contingency, plus one minor unidentified item valued at $0.54 million. As changes are identified in the course of the work, they are added to an Issue Resolution Log (IRL), screened against the identified risk items, and negotiated by the parties. The cost of the change, as negotiated, is deducted from the appropriate shared risk item, or if outside the shared risk list, from project contingency. *Table 4 below provides some metrics related to the effectiveness of the IRL through July 17, 2023. The total value of changes approved through the shared risk pool as of July 17, 2023, is $8,158,495.* The IRL metrics are routinely shared with the PCEP's Change Management Board.

Table 4 – Issue Resolution Log Metrics (July 17, 2023)

DESCRIPTION	QTY	%	
Total Quantity of IRL Items Opened	327	-	
IRL Items Closed without Commercial Implication	122	37.3%	
IRL Items Pending Technical Resolution	20	6.1%	*IRL's pending resolution
Technical Resolution Agreed, Pending Commercial Agreement	26	8.0%	*IRL's pending resolution
Tech. Resolution & Comm. Implications Agreed (Pending Signature)	8	2.4%	
Technical Resolution & Commercial Implications Agreed (< $10k)	12	3.7%	
Total IRL Items Approved	139	42.5%	

Project Funding

The JPB approved a new budget of $2.44 billion for the PCEP at its Special Meeting on December 6, 2021. That budget must be supported by additional funding of $462.4 million beyond the original funding plan which applied to the original project cost of $1.930.7 billion. Figure 1 below is the awarded funding as of January 31, 2023. The approved budget is now fully funded.

Figure 1 – PCEP Funding to Support Budget Increase

TYPE	SOURCE	AMOUNT
Federal	ARPA Supplemental CIG	$52.4 million
Federal	Supplemental FFGA CIG	$33 million
Federal	FTA Community Project	$10 million
State	California TIRCP	$367 million
	TOTAL	**$462.4 million**

The following details relate to the successful funding strategy shown above.

Additional Federal Funding

The JPB received $52.4 million in Supplemental Capital Investment Grant funds from the 2022 American Rescue Plan Act (ARPA). The JPB recently received an additional $43 million from the Consolidated Appropriations Act of 2023; $33 million in supplemental FTA CIG FFGA funding, and $10 million in Community Project funding.

California State Funding

The FY 2023 State budget has been signed into law. It includes $4.2 billion for high-speed rail and $7.65 billion for transit. $900 million is set aside for existing projects to leverage federal and local fund reserves. The PCEP was awarded $367 million from the State of California's Transit and Intercity Rail Capital Program (TIRCP).

Original PCEP Funding Plan

The PCEP is relying on several sources of funding to complete the project. *The Grants Table in the Executive Summary summarizes the JPB's funding plan, as updated through June 30, 2023.* The updated funding plan includes the original FFGA funding of $1,930.7 billion which included $647 million in Section 5309 funds and $287 million from the Section 5307 Urbanized Area Formula program. *The JPB has drawn down a total of $1,927.735 million as of June 30, 2023, or 81% of the combined federal and local funds of $2,393.351 million.* This total includes recently received funding from the State of California and $43 million in new federal funds.

The JPB has in place an interim financing agreement for up to $150 million to provide additional cash flow flexibility to address differences in the timing of contractor invoices and the availability of drawdowns from funding sources.

The State of California awarded the JPB a $164.5 million grant in 2018 under its Transportation and Intercity Rail Capital Program (TIRCP). The grant will fund the purchase of additional EMUs using options included in the base contract with Stadler. The grant also includes targeted funding for 8-car platforms, improves wayside bicycle facilities (bike sharing and bike parking), and installs a broadband communications system that expands onboard Wi-Fi and enhances reliability by creating the capability to conduct remote diagnostics and optimize ongoing operations and maintenance.

Change Orders

PCEP Change: *No activity this period.*

Electrification Contract Changes: No change order activity during this period. *Two (2) IRL items were processed between the May and June CMB meetings for a total of $156,570. The CMB approved one (1) item at its June 21, 2023 meeting related to pedestrian gate separation in the amount of $325,903. Eleven (11) IRL items were processed between the June and July CMB meetings items for a total of $774,254. The CMB approved two (2) IRL items at its July 21, 2023 meeting for battery enclosures for TPSS-1 and 2 in the amount of $751,307.94; 45% of this amount will be drawn from the shared risk contingency allowance.*

EMU Contract Changes: *The CMB at its July 21, 2023 meeting approved a Change Order in the amount of $955,548, of which $716,661 is attributable to the PCEP, for enhanced convenience outlets for the EMUs.*

SCADA Contract: No activity this period.

Tunnel Contract Changes: No activity this period.

CEMOF Contract Changes: No activity this period.

PG&E Contract Changes: No activity this period.

2.14 Project Schedule

The FFGA was executed on May 23, 2017, with a Required Completion Date of August 22, 2022. The JPB, for reasons discussed previously, adopted the PMOC's recommended September 26, 2024, as the revised Required Completion Date (RCD) for the project. The JPB did not formally adopt a particular schedule document when it approved the revised PCEP budget of $2.44 billion at its December 6, 2021, meeting; however, the revised budget is based on completing the project by September 26, 2024. The JPB proposed an FFGA RCD of December 31, 2024, in its Recovery Plan submitted September 30, 2022.

Infrastructure Schedule

BBII has developed, and the JPB has accepted, a Re-forecast Schedule which has a data date of January 1, 2023. This schedule is intended to include all activities through final acceptance (FA) and will be the basis for monitoring through the completion of the contract. BBII's schedule labeled December 2022 Reforecast 1222E" was returned marked "SONO with comments" on March 29, 2023. *BBII has been submitting monthly schedule updates as required; the latest update was for June 2023 with a Data Date of July 1, 2023.*

The JPB and BBII, as noted previously, have agreed to revise BBII's schedule to redefine Milestone 1 to include the completion of all work in Segments 3 and 4. This latest revision does not have any effect on the current substantial completion date or the proposed RCD. *The agreed-upon date for Milestone 1 was May 28, 2022; the current forecast for completion of Milestone 1 is July 31, 2023, or a delay of 64 days from the agreed upon reforecast date. The forecast dates for Substantial*

Completion and Final Acceptance have both slipped by nine (9) days and are now April 10, 2024, and August 8, 2024, respectively.

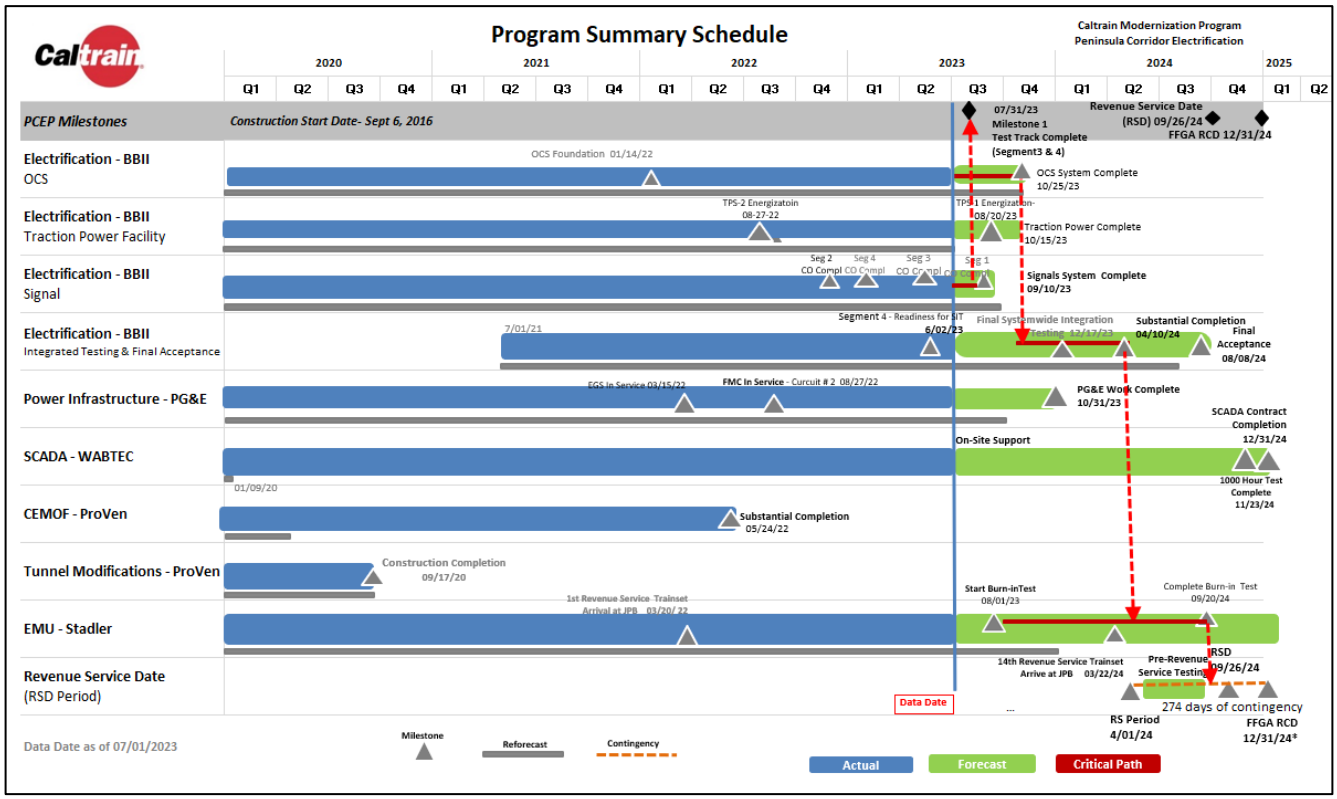
The PCEP team is providing monthly tracking of BBII's progress and is also continuing to work on integrating the JPB's Rail Activation activities, and the details of BBII's Testing and Commissioning schedule with the existing Integrated Master Schedule (IMS). The current IMS, data date January 1, 2023, includes the BBII, Stadler, and ARINC schedules as well as PCEP dates. This IMS incorporates BBII's updated schedule which combines Segments 3 and 4 into Milestone 1, however, it does not include the bus bridges and failed short-circuit test which should both be added in the February update. *An updated Integrated Master Project Schedule was not available at the most recent schedule review meeting held on July 24, 2023, because Stadler has not submitted its June 2023 monthly update. It is unclear to the PMOC whether all required PCEP/JPB activities have been incorporated into the current IMS.*

EMU Schedule

The PCEP team accepted a re-baselined schedule from Stadler for the completion of the EMU order. Stadler's re-baselined schedule was converted into P6 format and has been incorporated into the IPS. The JPB is currently forecasting the delivery of the 14th trainset on March 22, 2024, and commencement of the Revenue Service with its new EMUs in September 2024. *The PCEP schedule team has scheduled a meeting with Stadler to discuss the time required to ready each trainset for revenue service so that a more accurate projection can be developed.*

Attachment G - Project Milestones / Key Events shows the currently projected dates for the completion of various significant project activities.

Figure 2 - Summary Project Schedule (7-1-2023)



The forecasted dates above are based on BBII's June 2023 schedule updates with Data Dates of 7/1/2023.

Figure 3 – PCEP Longest Path Schedule, Data Date July 1, 2023

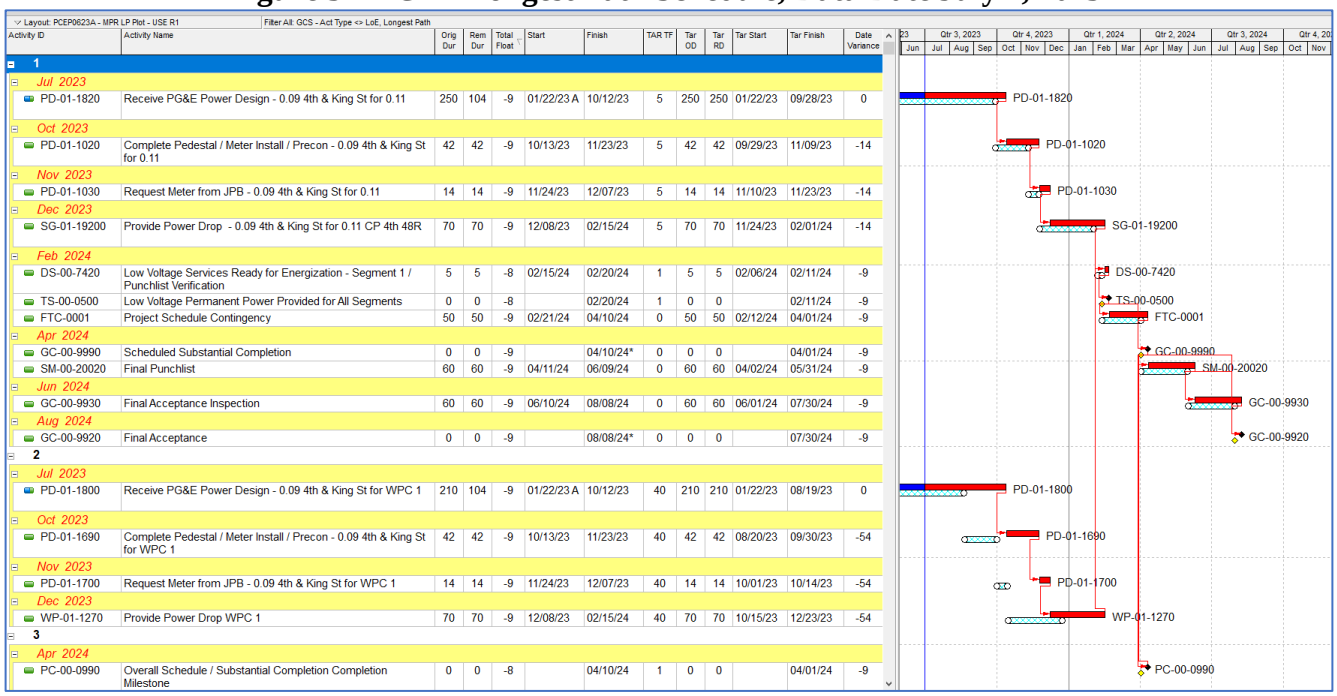


Table 5 below presents the JPB's analysis of BBII's June 2023 Schedule Update.

Table 5 – Project Schedule Milestone Analysis

Milestones	Reforecast Dates (Dec '22)	Current Dates (June '23)	Milestone Finish Date Variance	Remarks
Segment 4 Completion	2/5/23	7/3/23	-148	Delayed by the failed short circuit testing which has delayed the EMU live runs within Segment 4. This milestone signifies that all of the structural and short circuit testing is complete and this segment is ready for live run testing. Note: This finish date does not include the Guadalupe Bridge scope of work.
System Integration Testing (Segment 4)	5/21/23	7/15/23	-55	Delayed by energization delay of the Overhead Contact System (OCS).
Completion of Milestone 1 (Segments 3 and 4)	5/28/23	7/31/23	-64	MS #1 improved to 7/31/23 (from 8/18/23) driven by Deliver, Replace & Test Batteries PS 6
Signal Cutovers and Systems Completion	8/20/23	9/10/23	-21	Signals System Cutover Complete 9/10/23 (from 8/20/23) due to procurement of New 6 Head Cantilever-CP 4th in Seg 1 WA 1
Traction Power Substation #1 Energization	9/12/23	8/20/23	23	
PG&E Energize & Provide Power 115kV to TPSS-1	9/12/23	8/20/23	23	
OCS Construction Completion	10/2/23	10/25/23	-23	Delayed by reconstruction and testing of OCS at the Guadalupe Bridge.
System Integration Testing Completion	11/25/23	12/17/23	-22	Final Systemwide Testing 12/17/23 (from 11/26/23) driven by Seg 1 and Seg 2 Live Run Testing. This work may also be potentially delayed by the Guadalupe Bridge work.
14th Trainset Arrival at JPB Site	10/12/23	3/22/24	-162	Delayed by Stadler experiencing multiple problems obtaining parts and subassemblies from their Suppliers. They are committed to deliver the first 14 Trainsets by 22-Mar-24.
Substantial Completion	4/1/24	4/10/24	-9	Awaiting PG&E (Low Voltage) Power Design at 4th & King St.
Scheduled Final Acceptance	7/30/24	8/8/24	-9	Ditto
Revenue Service Date (RSD)	9/26/24	9/26/24	0	
FFGA Revenue Completion Date (RCD)	12/31/24	12/31/24	0	

Recent Significant Schedule Changes

Short-Circuit Test Failure

The short-circuit retest on May 20-21, 2023 was not completely successful; however, live-wire testing of the main tracks in Segment 4 is in progress.

Caltrain Bridge Encroachment Permits for Bridge Barrier Work

The final Caltrans Bridge Encroachment permit was issued on July 24, 2023. This permit will help mitigate the installation of the Bridge Protective Barriers, which should reduce the impact to the Segment 3 Integrated Testing and Milestone #1.

PG&E Low Voltage Energization

The duration of PG&E design and construction has become a concern because the low voltage designs can take PG&E up to 250 days to complete. BBII has added all current low power drop applications to the schedule to track the progress of the low power drops and these low-voltage activities are now on the near critical path. JPB has mitigated this issue by reducing the number of applications needed to be submitted from 126 to 98 and providing costly low-voltage power using portable generators.

Final System-wide Integrated Testing

Completion of Final Systemwide Integrated Testing has been further delayed from November 26, 2023, to December 17, 2023, until the OCS System in Segments 1 and 2 can be energized.

Critical Path

The PCEP is a core capacity project. The core capacity completion objective will be satisfied when the JPB operates a total of fourteen (14) seven-car trainsets in electrified service. The JPB describes the BBII's critical path as follows:

> *"The current critical path remains basically the same as the last few months (February through May 2023) starting with waiting to receive the PG&E (Low Voltage) Power Design at 4th and King St. for Wayside Power Cubicle (WPC) 1 and 0.11, completing installation of the Pedestal Housing for the Meter, providing the Low Voltage Power Drop connection at 4th and King St. for WPC-1 and 0.11, Punchlist Verification that Low Voltage Services are ready for energization at Segment 1 and Low Voltage Power provided for all segments followed by a 50-day Project Schedule Contingency, Substantial Completion, Final Punchlist, Final Acceptance Inspection and Final Acceptance."*
> *Source: PCEP June 2023 Monthly Progress Report*

The late installation of the permanent low-voltage power drops will not prevent the JPB from placing the line in revenue service because temporary power can be provided by generators, as is currently the case in multiple locations. The PCEP team is meeting regularly with PG&E in an effort to improve PG&E's design and installation schedule; this work can only be performed by PG&E or its own contractors.

Timely completion of the OCS continues to be the major challenge facing BBII. BBII has been unable to achieve its productivity objectives despite having mobilized additional management personnel, added work crews, and brought equipment from the UK to mitigate this problem. The plan that includes 31 targeted weekend rail service shutdowns was initiated on February 11, 2023, but thus far the productivity goals have not been met. *BBII has engaged a sub-contractor that is furnishing four (4) additional crews to help regulate the installed OCS. The sub-contractor crews began work in mid-late June 2023. Completion of the OCS is currently forecast to occur on October 25, 2023.*

Schedule Contingency Status

The JPB's latest schedule, taken from the July 24, 2023, Monthly Schedule Review meeting presentation, continues to project a Revenue Service Date (RSD) of September 26, 2024. This date

provides 274 days of schedule contingency calculated from BBII's current forecast Substantial Completion Date of April 1, 2024, to the JPB's proposed FFGA RCD of December 31, 2024. The JPB's global settlement with BBII includes incentives for early completion of signal cutovers, early substantial completion, and early achievement of revenue service. The schedule incentives are shown in Table 6 below.

Table 6 – BBII Schedule Performance Incentives

Objective	Date of Completion	Amount
Achieve Electrified Revenue Service prior to the Final Acceptance Date of July 31, 2024	On or before 4/30/2024 Between 5/1 and 5/31/2024 Between 6/1 and 6/30/2024	$3,000,000 $2,000,000 $1,000,000
Achieve Overall Substantial Completion prior to April 30, 2024	On or before 3/31/2024 After 2/29 and before 3/31/2024 After 1/31 and before 2/29/2024 On or before 1/31/2024	$4,100,000 $30,000/day $40,000/day $50,000/day **Max $8,000,000**
Completion of all 2SC Cutovers in Segment 2	On or before 11/10/2022	$2,000,000
Completion of 2SC cutovers in all 4 Segments	On or before 9/30/2023	$2,000,000
Maximum Schedule Incentives Available		**$15,000,000**

Revenue Service Date

The JPB is currently forecasting the commencement of revenue service with 14 new EMUs on September 26, 2024. *Stadler expects to ship the 14th trainset for arrival on March 22, 2024.*

PMOC Observations:

- The PMOC's opinion is that BBII has made progress and is now near current in submitting its progress schedules. However, BBII's continues to make changes following the JPB's review which is not helpful.
- The PMOC is pleased that the PCEP team was able to assemble an integrated project schedule (IMS); however, regular updates of the integrated schedule have not been forthcoming. The current version of the IMS is the December 2022 version based on BBII's re-forecast schedule. The PMOC looks forward to receiving an up to date integrated schedule when BBII is current with its monthly schedule updates. The lack of an up-to-date contractor's schedule that reflects the expected path to completion makes effective planning of the work very difficult for the PCEP team.
- The PMOC is pleased that the JPB was able to conduct a schedule risk analysis using its new integrated master schedule (IMS). *The PMOC understands that the JPB updated its Monte Carlo analysis of cost and schedule risk in July 2023 and the PMOC looks forward to receiving a copy of its report.*
- The PMOC continues to encourage the JPB to employ proven schedule management practices including enforcing timely receipt of required updates, prompt review and resolution of contractor schedule issues, regular identification of the controlling operation(s), and the timely development of workarounds and Plan Bs to avoid unpleasant surprises.
- The JPB conducted a Monte Carlo schedule risk analysis in April 2023 using the Integrated Master Schedule with a data date of January 1, 2023. The risk modeling determined that the final acceptance date would be September 8, 2024, at a 65% confidence level. This compares to the July 30, 2024 date in the current forecast.

This analysis suggests that the program schedule contains sufficient contingency if all mitigation measures can be realized with BBII.

2.15 Project Risk

The PCEP has been implementing its RIMP (Risk Identification and Mitigation Plan) since its development in 2014. The PCEP's Risk Management Lead conducts weekly updates of a sub-set of the Risk Register and the project's Risk Management Committee generally meets monthly to review those risks proposed for retirement, risks with a major change in severity, and proposed additions to the Risk Register. The Top Risks, with risk numbers, are shown in Attachment D. **PMOC Note:** Risks graded 9 or higher are now considered Top Risks. Prior to the recent regrading of the Risk Register, risks graded 18 or higher were considered Top Risks.

The JPB/PCEP leadership team conducted several risk workshops with BBII during the course of negotiating the global settlement. An internal PCEP risk refresh was conducted on September 28, 2021; the quantitative results of that effort have not been released. The ICO also initiated an external peer review of project risk that was conducted on October 26-27, 2021. The PMOC participated in both events. The JPB's most recent internal Risk Refresh Workshop was held on April 1, 2020.

FTA Risk Refresh

The PMOC conducted an FTA-led virtual Risk Refresh workshop on December 8, 10, 15, and 17, 2020. The objective of the Risk Refresh was to confirm the likelihood of the project completing within budget and in accordance with the FFGA schedule. As noted elsewhere in this report, the JPB accepted the PMOC's recommendations for a revised project budget and a new Recommended Completion Date for the project. The FTA, as a consequence of the results from the Risk Refresh and the project's history of schedule delays and cost overruns, has designated the PCEP as an "At Risk" project. The FTA requested that the JPB prepare and submit a Recovery Plan for the PCEP by October 8, 2021. The JPB retained a new executive to lead the PCEP and conducted a comprehensive review of the project, including a risk refresh. The JPB requested additional time to prepare the Recovery Plan and the FTA agreed to defer receipt of the Recovery Plan. The JPB delivered its final Recovery Plan to the FTA on September 30, 2022.

Current Risk Activities

The PCEP's Risk lead re-ran the Monte Carlo Cost Risk model in April 2023 in keeping with the quarterly schedule established with the CMB members. Monte Carlo analysis was conducted on the 67 risks appearing on the March 31, 2023, risk register. Cost of risk, to a probability of 65% (P65) is $23.2 million, a 31% decrease from the $30.5 million calculated in January 2023.

A Monte Carlo schedule risk analysis was also conducted using the Integrated Master Schedule with a data date of January 1, 2023. The risk modeling determined that the Final Acceptance Date would be September 8, 2024, at a 65% confidence level. *This compares to the August 8, 2024 date in the current forecast.* The JPB's summary concluded that the program schedule contains sufficient contingency if all mitigation measures can be realized with BBII.

The forecast remaining cost contingency on June 30, 2023, was $57.4 million, a substantial decline from the $79.5 million balance on March 31, 2023. The contingency drawdown associated with the BBII contract continues at a modest pace.

- **PMOC Observation:** The PMOC is pleased that the cost of risk continues to decline, and also that schedule risk has now been analyzed using the JPB's newly constructed IMS. The modest projected delay to the final acceptance date appears to be well within the currently available schedule contingency.

- The PMOC continues to suggest that the JPB conduct a fresh risk elicitation exercise because of the significant turnover in the PCEP management team. The new members of the team may recognize risks not identified previously, particularly those related to testing and commissioning, and rail activation.

2.16 Quality Assurance / Quality Control (QA/QC)

Caltrain's Executive Director recently made an organizational re-alignment that affects the JPB's and the PCEP's Quality Organization. Caltrain's Director of Quality Control previously reported directly to Caltrain's Executive Director. The recent change has the Director of Quality Control reporting to Caltrain's former Director of Safety, who has now been designated Caltrain's Director of Safety, QA/QC. Caltrain's Director of Safety, QA/QC reports directly to the Executive Director. No changes have been made directly to the PCEP Quality organization; however, the PCEP Quality Manager, who reports directly to Caltrain's Director of Quality Control, is now one step further removed from Caltrain's Executive Director. The PMOC has not initiated any action related to this recent organizational change.

The following specific quality management activities were reported for the PCEP:

Infrastructure Projects

- The results of the May 20-21 short-circuit re-test remain under investigation by BBII and the JPB. Although a significant element of the test was a success, it did not fulfill the full requirements. *Another re-test will be conducted after the completion of Segments 3 and 4.*
- NCR 105, which was written by BBII and is related to the February 2023 short-circuit test failure, has been closed. Closure of NCR 105 was a pre-requisite for performing the short-circuit re-test on May 20-21, 2023.
- The aggregate used to surface the yard areas of the TPS facilities is not in compliance with resistivity requirements. *BBII is replacing the aggregate with a conforming product.*
- *More than two dozen damaged insulators were identified on one of the recent punch list walks. The root cause of the damage was improperly using the insulator to temporarily secure the cantilever assembly during OCS construction.*
- *A compact video camera was being used to record the pantograph to contact wire interaction during live-wire testing of an EMU. A failure occurred resulting in damage to the roof of the EMU. An investigation is underway to determine the cause of the incident.*
- *The JPB reviewed BBII's indented bill of materials for the non-rolling stock systems equipment and met with BBII's quality team to discuss the structure of end products, components, and sub-components.* The indented bill of materials is a necessary element of the Buy America calculations for such equipment.
- Corrosion was noted on some bolts used in the OCS in areas that are subject to high exposure to a salty environment. The corroded bolts are not stainless steel as required and must be replaced. The full extent of the problem has not been established.

EMU Quality

- A partial first article inspection of the third replacement supplier for molded panels was conducted in March 2023. *The material did not pass the initial flame spread test and the supplier is revising the setup of the material. The results of a re-test are expected in July 2023.*

- There has been improvement in the preparation of work directives for assembly work in Salt Lake City. Clear work directives are particularly important due to the high turnover of personnel.
    - **PMOC Observations and Recommendations:** The PMOC supports the increased emphasis on Systems Integration, Testing and Commissioning, and quality management. Timely completion of the necessary documentation continues to be a challenge. The PMOC acknowledges the significant contribution of the PCEP's Systems Integration and Rail Activation managers and the various discipline leads in moving the program forward.
    - The PMOC is continuing to observe the role of the PCEP's quality management team during start-up and testing. The PCEP's leadership supports the quality program and its role in testing and start-up and has increased resources for this work.

2.17 Safety and Security

The JPB contracts for safety and security consulting services to support the PCEP. The PCEP safety team also provides support as needed to the JPB and its Director of Safety, QA/QC. The project safety professionals from the JPB, PCEP, TASI, and BBII are collaborating in joint visits to the project work sites to demonstrate to the workers that the leadership of these organizations take their safety seriously.

There were no reportable injuries in June and July 2023. There were four (4) reportable injuries YTD through July 2023. The reportable injury rate (RIR) for 2023 YTD is 1.55 and for the project since 2017 is 1.65.

The National Transportation Safety Board (NTSB) continues its investigation of the serious accident that occurred on the railroad on March 10, 2022. The NTSB recently posted some materials to its docket for this investigation and its report on the incident is expected in the near future.

The PCEP safety team continues to monitor the safety performance of the various contractors and subcontractors working on the project, including their compliance with Site Specific Work Plans.

The safety team continues to provide training in electrical hazard awareness for the PCEP team and contractors. *Training for first responders continues through the Fire and Life Safety Committee (FLSC) and now includes personnel in Segment 1.* Information has been shared with the public outreach team who will provide appropriate messaging to the general public in advance of the electrification of the various sections of the project. Recent safety related activities include:

- *Preparations are underway for an on-site visit by FRA personnel to review the revised EPREP; the visit is expected during the September – October period.*
- OCS awareness training of first responders in Segments 3 and 4 is complete. *Training continues in San Mateo and training began in mid-July 2023 for South San Francisco.*
- Continue working through the remaining safety and security certification items for both infrastructure and EMU elements.
- Continued safety special task force working group including TASI, Rail Operations, and PCEP to address communications, process, and procedure improvements.

2.18 Americans with Disabilities Act (ADA)

Early in the development of the project, the PMOC raised a question regarding the need for the PCEP to demonstrate Equivalent Facilitation under the Americans with Disabilities Act (ADA) with respect to either the new EMU vehicles or the infrastructure. A conference call was held on November 6,

2015, between members of the PCEP team, FTA Region IX staff, the PMOC, and the FTA's Office of Civil Rights to discuss the issue. The representative of the Office of Civil Rights stated that based on information presented by PCEP's representatives, the project will not need to demonstrate Equivalent Facilitation because the current access to the vehicles will remain unchanged. This complies with the requirements of the ADA.

The new EMU vehicles will be equipped with powered onboard lifts to aid passengers using mobility devices. The JPB requested the FTA's concurrence to reduce the number of onboard lifts from 32 per train set to 16 per train set and to phase the installation of the lifts. The JPB's proposal calls for the initial installation of two (2) lifts per train set, one (1) each in the northernmost car and one (1) in the following car, which will be equipped with an accessible restroom. The remaining four (4) lifts per train set are to be installed prior to the start of blended service with the CHSRA trains. The FTA, following its review of the JPB's proposal and further clarification provided by a conference call, concurred with the JPB's proposed reduction in the total number of passenger lifts per train set. The phased installation of the lifts was also discussed and associated grant timing considerations. Caltrain's Rail Operations Department recently requested the interim removal of the two (2) onboard lifts until the EMUs operate in blended service with the CHSRA trains. The justification for this request is that the space occupied by the onboard lifts will interfere with the movement of passengers using the stairs where the lifts are installed. Further, the accommodation of passengers using mobility devices and wishing to use the restroom can be accomplished by de-boarding the passenger and repositioning the train at any station, a procedure currently in use. The change was approved by the Change Management Board at its September 2019 meeting.

The new EMU vehicles must comply with the FTA's current ADA requirements and the guidance in FTA Circular 4710.1.

The FRA conducted an on-site design review of EMU TS1 at Stadler's assembly facility in Salt Lake City, Utah in July 2020. During the review, the FRA expressed concerns related to possible interference between stored bicycles, passengers seated in the bike cars, and access to the emergency egress points in the bike cars. Stadler completed the design of the barrier, a Change Order was executed for the installation of the barriers, and the barriers are being installed on all trainsets. The FRA observed the new configuration of the bike cars during its Sample Car Inspection on February 16, 2022, and expressed no concerns or objections to the arrangement.

The JPB conducted a test on October 13, 2022, of the portable ADA ramp carried onboard each EMU trainset to facilitate the boarding of a passenger using a mobility device. The ramp exceeds current ADA load requirements and satisfies the test requirements.

2.19 Buy America

The PMOC continues to review the JPB's compliance with Buy America requirements related to manufactured products and rolling-stock systems. The JPB has provided documentation related to the compliance of its three (3) major contractors, and that material has been reviewed by the PMOC's Buy America experts. The JPB continues to await additional information from BBII needed to demonstrate the appropriate classification of elements of the traction power and train control systems.

The JPB's vehicle consultant conducted a Post-Delivery Buy America audit on June 28 and 29, 2022, and produced its audit report on July 11, 2022. The auditors found that the Stadler EMUs contain an average of 74.3% domestic content per seven-car trainset, which is more than the required 60% for this contract. The PMOC recommends that the JPB continue to monitor Stadler's Buy America performance through the completion of the order.

2.20 Start-Up, Commissioning, Testing

The JPB and PCEP team have several activities focused on the start-up and testing of both the infrastructure elements of the project as well as the EMU vehicles. Each of the three (3) primary contractors is responsible for developing and conducting test and commissioning plans for its work elements. The PCEP team is responsible for the integration of the major elements and the overall start-up of electrified rail operations. The PCEP's Director of Systems Integration and Testing holds weekly meetings with representatives of each of the discipline or technical leads from the various organizations.

Electrification Contract (OCS, Traction Power, Signals and Communications)

- BBII is moving ahead with the work remaining to complete the electrification of Segment 4 so that EMU testing can begin. A revised test plan has been prepared for Segment 4 excluding the southernmost portion of Segment 4 and PS-7; these elements are temporarily disconnected from the remainder of Segment 4 to accommodate work on the Guadalupe River Bridge Replacement project. *The short-circuit retest of TPSS 2 took place on May 19 and 20, 2023, and was not fully successful. Because short-circuit protection was demonstrated, live wire testing of an EMU on the SCDT was initiated on June 5, 2023, followed by testing on the Segment 4 main tracks. A short-circuit re-test will be conducted after Segments 3 and 4 are completed and electrified.*
- *The final cutover of signals in Segment 1 is scheduled for mid-August 2023.*
- *BBII's leadership has brought in an experienced sub-contractor to assist with the regulation of the installed OCS; the sub-contractor is at work and productivity has improved.*
- BBII continues to participate in the project-wide Systems Integration, Safety and Security Certification Committee, Testing and Commissioning, and Rail Activation meetings.

EMU Contract

- *Initial electrified testing of the EMUs with 25 kV power began on June 5, 2023. All four (4) of the trainsets have completed initial electrified operational tests on the Santa Clara Drill Track (SCDT) and subsequently on Segment 4 main tracks.*
- *EMU operators are receiving refresher training during the live-run testing of the EMUs.*
- *The EMU Management Consultant has completed a Pre-Revenue (Burn-In) Operation and Maintenance (O&M) Plan, an EMU Storage Plan, and a Fleet Retirement Strategy for diesel equipment.*
- Stadler is participating in the project-wide Systems Integration and Safety and Security Certification Committee meetings.
- Stadler is also conducting training of maintenance and operations personnel on the EMUs.

SCADA Contract

- Wabtec (formerly ARINC) continues to support the Systems Integration and Rail Activation activities.

Readiness for Electrified Rail Operations

PCEP's Rail Activation Committee (RAC) meets regularly on a weekly basis. The RAC includes representatives from the PCEP's technical consultants and the JPB's Rail Operations group. *The focus in recent months has been on preparations for live wire testing in Segment 4 The most recent short-circuit re-test was only partially successful; another re-test will be conducted after Segment 3*

and 4 are electrified. Initial live-wire testing of an EMU occurred on June 5, 2023, on the Santa Clara Drill Track (SCDT).

The RAC and its members continue to work through the activities needed to complete Segments 3 and 4. *Temporary Use Permits have been issued by BBII for testing on the Santa Clara Drill Track (SCDT), at the CEMOF and on Segment 4 main tracks.*

The Rail Activation Manager completed a draft re-write of the Rail Activation Plan (RAP) and the plan has been reviewed by PCEP leadership and circulated to select members of the RAC for additional comments. *This new RAP is more comprehensive than the previous version and elaborates on the agency's preparations to assume electrified rail operations.*

The Rail Activation Schedule developed by the RAC has now been integrated with the other project schedules such as Testing and Commissioning, Systems Integration, Electrification, EMU, and SCADA to provide a truly integrated project schedule. *The RAC continues to add detail to the various activities required to ready Caltrain for electrified service; this detail should be incorporated into the IMS as soon as possible.*

- **PMOC Observations:** *The PMOC is continuing the preparation of a modified Readiness for Electrified Testing review focused on the initial electrification of Segment 4 and the start of live-wire testing and commissioning of the first EMU trainset. The PMOC delivered its pre-final draft report to the FTA for its review on July 6, 2023, and is awaiting direction.* This work is being performed under a programmatic Task Order.
- The PMOC continues to monitor the activities of the RAC as well as the other project activities related to start-up and testing and safety certification. The PMOC continues to encourage all parties to communicate openly to avoid confusion. The PMOC observes that overall coordination between the JPB and BBII is improving under the PCEP's new leadership and through the renewed vigorous partnering effort.
- Unexpected issues continue to arise as the contractors and the PCEP team begin the testing and commissioning process for Segment 4. Completion of the integrated master schedule should provide the PCEP team with an effective tool to manage both planned and unplanned events.

2.21 Before-and-After Study Reporting

The PMOC verified that the JPB had prepared a Before and After (B&A) Study Plan during its evaluation of the PCEP's readiness to receive an FFGA. The B&A Plan was reviewed by FTA headquarters staff as part of the FFGA preparation process. The PMOC verified that the JPB has archived Before and After Documentation as of the Entry into Engineering (August 12, 2016). The materials were assembled according to the specifications in Appendix A of the Plan for the Before-and-After Study. The PMOC is in the process of verifying that the JPB has archived the required materials for Milestone 2, FFGA award. The PMOC will also follow-up with the JPB to encourage early planning to address the After requirements of the plan.

2.22 Lessons Learned

The PMOC routinely encourages the PCEP team to identify and document lessons learned during the course of the PCEP. The PMOC discovered, during a routine review using ACONEX, the project's document control system, that a Draft Lessons Learned Log and two (2) examples of elaborated lessons learned had already been produced. Further inquiry produced the following information.

The PCEP Risk Manager conducted a series of interviews (not for attribution) with members of the PCEP team in 2018, with the objective of developing a list of Lessons Learned. The interviews produced a log of 35 issues which was distilled into two (2) for elaboration as an example of how the material could be further developed. The two topics that were further developed were Contractor Construction Work Windows and Land Acquisition Lesson Learned.

The Lessons Learned materials described above were reproduced as an attachment to the PMOC's Final Monitoring Report under Task Order 005; the report was submitted in June 2020.

The PCEP team, with encouragement from the PMOC, has undertaken a second round of lessons learned interviews. The interviews are complete and the material has been compiled in the form of a summary table which was shared with the PMOC at QPRM #17 in July 2021. The JPB's Risk Manager reports there is currently no plan to elaborate on the various Lessons.

The PCEP's Director of Signal and Transmission Power reports that the signal team is keeping lessons learned for each signal cutover. Although many are site specific, it is likely that valuable trends will become apparent upon a comprehensive review.

Attachment A List of Acronyms

Acronyms	List of Terms
2SC	Two Speed Check Grade Crossing Approach Warning System
AAR	Association of American Railroads
ADA	Americans with Disabilities Act
AFTAC	Audio Frequency Train Activated Circuit
APTA	American Public Transportation Association
ARINC	Aeronautical Radio, Incorporated
ATF	Autotransformer Feeder
ATP	Alternate Technical Proposal
BAAQMD	Bay Area Air Quality Management District
BAFO	Best and Final Offer
BART	Bay Area Rapid Transit District
BBII	Balfour-Beatty Infrastructure, Inc.
BCCF	Back-up Central Control Facility
BGSP	Broadway Grade Separation Project
Cal ISO	California Independent System Operator (Electrical)
Cal/OSHA	California Office of Occupational Safety and Health
Caltrans	California Department of Transportation
CAR	Corrective Action Request
CBOSS	Communications Based Overlay Signal System
CC	FTA's Core Capacity Improvement Program
CCB	Change Control Board
CCF	Central Control Facility
CCIP	Contractor Controlled Insurance Program
CCSF	City and County of San Francisco
CDR	Construction Discrepancy Report
CDRL	Contract Data Requirements List
CEL	Certified Elements List
CEMOF	Central Equipment Maintenance and Operations Facility
CEQA	California Environmental Quality Act
CGA	Construction Grant Agreement
CHSRA	California High-Speed Rail Authority
CIG	FTA's Capital Investment Grant Process
CIL	Certifiable Items List
CMB	Change Management Board
CM/GC	Construction Manager/General Contractor
CNPA	Concurrent Non-Project Activity
CO	Change Order
CO	Chief Officer (CalMod)
COC	Certificate of Operational Conformance
CP	Control Point
CPUC	California Public Utilities Commission
CSCG	City/County Staff Coordinating Group
CWT	Constant Warning Time
D-B	Design-Build
DBB	Design-Bid-Build
DBE	Disadvantaged Business Enterprise
DEIR	Draft Environmental Impact Report
DQP	Design Quality Plan
DRB	Disputes Review Board
DSC	Differing Site Condition
DSDC	Design Support During Construction

Acronyms	List of Terms
DVR	Design Variance Request
EA	Environmental Assessment
EAC	Estimate at Completion
EE	Entry into Engineering
EIR	Environmental Impact Report
EIS	Environmental Impact Study
EOR	Engineer of Record
EMI	Electromagnetic Interference
EMU	Electric Multiple Unit Rail Vehicle
EPREP	Emergency Preparedness Plan
ESZ	Electrical Safety Zone
ETB	Electrified Trolley Buses
ETC	Estimate to Complete
FAI	First Article Inspection
FA	Final Acceptance
FAT	Factory Acceptance Test
FD	Final Design
FEIR	Final Environmental Impact Report
FERC	Federal Energy Regulatory Commission
FFGA	Full Funding Grant Agreement
FLSC	Fire Life Safety Committee
FMOC	Financial Management Oversight Consultant
FMP	Fleet Management Plan
FONSI	Finding of No Significant Impact
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
FWO	First Written Offer
FY	Fiscal Year
GO	General Order (issued by the CPUC)
HSR	High-Speed Rail
HVAC	Heating, Ventilation, and Air Conditioning
ICE	Independent Cost Estimate
ICO	Interim Chief Officer
I-ETMS	Interoperable Electronic Train Management System
IFB	Invitation for Bids
IFC	Issued for Construction
IGA	Inter-Governmental Agreement
IJ	Insulated Joints
IMS	Integrated Master Schedule
ITCS	Incremental Train Control System
IRL	Issue Resolution Log
JPB or PCJPB	Peninsula Corridor Joint Powers Board
Jacobs	Jacobs Project Management Company
KKCS	Kal Krishnan Consulting Services, Inc.
LF	Linear Feet
LNTP	Limited Notice to Proceed
LONP	Letter of No Prejudice
LPMG	Local Policy Makers Group
MCC	Management Capacity and Capability
MRR	Material Receiving Report
MOU	Memorandum of Understanding
MPS	Master Project Schedule
MRS	Modern Railway Systems
MTC	Metropolitan Transportation Commission

Acronyms	List of Terms
NCR	Non-conformance Report
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NTO	Notice to Owner (for Utility Relocation)
NTP	Notice to Proceed
NTSB	National Transportation Safety Board
OCS	Overhead Contact System/Overhead Catenary System
OHA	Operational Hazard Analysis
PAP	Palo Alto Power
PCEP	Peninsula Corridor Electrification Program
PCWG	Peninsula Corridor Working Group
PD	Project Development Phase
PG&E	Pacific Gas and Electric
PHA	Preliminary Hazard Assessment
PMOC	Project Management Oversight Contractor
PMP	Project Management Plan
PPE	Personal Protective Equipment
ProVen	ProVen Management, Inc.
PS	Paralleling Station for Traction Power Supply
PTC	Positive Train Control
PTCSP	Positive Train Control Safety Plan (FRA)
PTG	Parsons Transportation Group
PTEPP	Passenger Train Emergency Preparedness Plan
QA	Quality Assurance
QAP	Quality Assurance Plan
QC	Quality Control
QMP	Quality Management Plan
QPRM	Quarterly Progress Review Meeting
RAC	Rail Activation Committee
RAMP	Real Estate Acquisition and Management Plan
RAP	Rail Activation Plan
RAS	Rail Activation Schedule
RCD	FFGA Required Completion Date
RE	Resident Engineer
RFA	Request for Amendment
RFI	Request for Information
RFMP	Rail Fleet Management Plan
RFP	Request for Proposal
RIMP	Risk Identification and Mitigation Plan
RIR	Recordable Incident Rate (Safety)
RON	Resolution of Necessity (for Eminent Domain purposes)
ROCS	Rail Operations Center System
ROW	Right of Way
RSD	Revenue Service Date or Revenue Service Demonstration
RWIC	Roadway Worker in Charge
RWP	Roadway Worker Protection
RWQCB	Regional Water Quality Control Board
SamTrans	San Mateo County Transit District
SAR	Secure Authentication Resolution
SAV	Secure Authentication Version
SCADA	Supervisory Control and Data Acquisition
SCC	Standard Cost Category
SCDT	Santa Clara Drill Track
SCVTA/VTA	Santa Clara Valley Transportation Authority

Acronyms	List of Terms
SCVWD	Santa Clara Valley Water District
SF	City of San Francisco
SFCTA	San Francisco County Transportation Authority
SFMTA	San Francisco Municipal Transportation Agency
SHPO	State Historic Preservation Office
SIT	System Integrating Testing
SJ	City of San Jose
SLC	Salt Lake City
SMCTA	San Mateo County Transportation Authority
SME	Subject Matter Expert
SOGR	State of Good Repair
SONO	Statement of No Objection
SOO	Statement of Objection
SP	Southern Pacific Transportation Company
SSCP	Safety and Security Certification Plan
SSI	Sensitive Security Information
SSMP	Safety and Security Management Plan
SSOA	State Safety Oversight Agency
SSWP	Site Specific Work Plan
SVP	Silicon Valley Power
SWS	Switching Station
TAD	Track Access Delay
TASI	Transit America Services, Inc.
TEAM	Transportation Electronic Award Management System
TIA	Time Impact Analysis
TIRCP	Transportation and Intercity Rail Capital Program
TJPA	Transbay Joint Powers Authority
TLOA	Transmission Load Operating Agreement
TPF	Traction Power Facility
TPS	Traction Power System
TPSS	Traction Power Substation
TrAMS	Transportation Award Management System
TRO	Time Related Overhead
TTCI	Transportation Technology Center, Inc.
TUN/TUP	Temporary Use Notice/Temporary Use Permit
TVA	Threat and Vulnerability Analysis
TVM	Transit Vehicle Manufacturer
UPRR	Union Pacific Railroad
UK	United Kingdom
USDOT	U. S. Department of Transportation
USFWS	United States Fish and Wildlife Service
VE	Value Engineering
VECP	Value Engineering Change Proposal
VTA	Santa Clara Valley Transportation Authority
WPC	Wayside Power Cubicle
YOE	Year of Expenditure

Attachment B Safety and Security Checklist

Safety and Security Checklist			
Project Overview			
Project Mode	Commuter Rail		
Project Phase	FFGA – Construction		
Project Delivery Methods	Design-Build, Design-Bid-Build		
Project Plans	**Version**	**Review by FTA**	**Status**
Safety and Security Management Plan (SSMP)	Rev 7	Y	Rev. 6 reviewed June 2020; Rev 7 was approved by PCEP on 6/11/2021 and provided to the PMOC for review.
Safety and Security Certification Plan (SSCP)	Rev 0	N	Under Review
System Safety Program Plan (SSPP)	Rev 7	N	Under Review
System Security Plan or Security and Emergency Preparedness Plan (SEPP)	Rev 0	N	SSP was audited by CPUC in March 2021 with no findings
Construction Safety and Security Plan (CSSP)	V3 Part C of SPs		In Contract Documents

Safety and Security Checklist		
Area of Focus	**Y/N**	**Notes/Status**
Safety and Security Authority		
Is the project sponsor subject to 49 CFR Part 659 state safety oversight requirements?	Y	
Has the state designated an oversight agency as per 49 CFR Part 659.9?	Y	California Public Utilities Commission is SSOA; the FTA certified California's SSOA program on October 23, 2018.
Has the oversight agency reviewed and approved the project sponsor's Security Plan or SSPP as per 49 CFR Part 659.17?	Y	CPUC audited the System Security Plan during March 2021; there were no findings.
Did the oversight agency participate in the last Quarterly Review Meeting?	N	QPRM No. 23 was held on April 13, 2023
Has the project sponsor submitted its safety certification plan to the oversight agency?	Y	SSCP submitted Rev. 0 which is currently under review.

Safety and Security Checklist		
Area of Focus	**Y/N**	**Notes/Status**
Has the project sponsor implemented security directives issued by the Department of Homeland Security and/or Transportation Security Administration?	Y	No directives have been received at this time. Caltrain's Safety and Security Department is the direct contact for DHS. The JPB's Information Technology network administrators receive periodic updates on cyber-security risks from the Cybersecurity & Infrastructure Security Agency (CISA) and implement appropriate actions to respond to those risks.
SSMP Monitoring		
Is the SSMP project-specific, clearly demonstrating the scope of safety and security activities for this	Y	Rev 7 was approved by PCEP on 6/11/2021 and provided to the PMOC for review.
Does the project sponsor review the SSMP and related project plans to determine if updates are necessary?	Y	
Does the project sponsor implement a process through which the Designated Function (DF) for Safety and DF for Security are integrated into the overall project management team? Please specify.	Y	In the SSMP and Section 11.0 of the PMP.
Does the project sponsor maintain a regularly scheduled report on the status of safety and security activities?	Y	Safety & Security activities are reported in the monthly PCEP report.
Has the project sponsor established staffing requirements, procedures and authority for safety and security activities throughout all project phases?	Y	Section 3.0 of SSMP
Does the project sponsor update the safety and security responsibility matrix/organizational chart as necessary?	Y	
Has the project sponsor allocated sufficient resources to oversee or carry out safety and security activities?	Y	
Has the project sponsor developed hazard and vulnerability analysis techniques, including specific types of analysis to be performed during different project phases?	Y	Updated PHA (3/28/22) and TVA (6/28/21) have been prepared and are under review.
Does the project sponsor implement regularly scheduled meetings to track to resolution any identified hazards and/or vulnerabilities?	Y	Yes, in Safety and Certification Committee meetings which started in December 2016 on a project level and through our "Capital Safety Committee" which meets quarterly. In addition, meetings are conducted with the contractor monthly to review project incidents, lessons learned, hazards, vulnerabilities, and mitigations. IndustrySafe is also being used to track safety activities.
Does the project sponsor monitor the progress of safety and security activities throughout all project phases? Please describe briefly.	Y	Yes, through the Safety & Security Certification Committee and the Fire/Life Safety Committee which are ongoing committees throughout the life of the project.

Safety and Security Checklist		
Area of Focus	**Y/N**	**Notes/Status**
Does the project sponsor ensure the conduct of preliminary hazard and vulnerability analyses? Please specify the analyses conducted.	Y	Updated PHA and TVA documents were submitted by the D-B contractor and are under review. The OHA (1/14/22) focused on Milestone 1 is under review.
Has the project sponsor ensured the development of safety design criteria?	Y	
Has the project sponsor ensured the development of security design criteria?	Y	
Has the project sponsor ensured conformance with safety and security requirements in design?	Y	Design Criteria checklists have been developed and reviewed by the Safety & Security Certification Review Committee.
Has the project sponsor verified construction specifications conformance?	Y	All facets of the Electrification construction are underway, OCS, TPS, Signals, and Communication.
Has the project sponsor identified safety and security critical tests to be performed prior to passenger operations?	Y	Addressed in SSMP as required by D/B Contractor during construction.
Has the project sponsor verified conformance with safety and security requirements during the testing, inspection, and start-up phases?	Y	Addressed in SSMP and SSCP.
Has the project sponsor evaluated change orders, design waivers, or test variances for potential hazards and/or vulnerabilities?	Y	Through the Change Management Board.
Has the project sponsor ensured the performance of safety and security analyses for proposed workarounds?	Y	This is included in the Rail Activation Committee scope during testing/startup activities. BBII's Safety & Security Certification flow chart identifies the process.
Has the project sponsor demonstrated through meetings or other methods the integration of safety and security in the following? • Activation Plan and Procedures • Integrated Test Plan and Procedures • Operations and Maintenance Plan • Emergency Operations Plan	 Y Y N N	A Rail Activation Plan has been prepared and is being refined for initial testing and operation of the new EMUs. The Rail Activation Committee has been meeting regularly since May 2019 and a Rail Activation Schedule has been prepared and an Integrated Test Plan and Procedures developed.
Has the project sponsor issued the final safety and security certification?	N	The project is in construction. The required completion date is 9-26-2024. A revised date of 12-31-2024 has been proposed.
Has the project sponsor issued the final safety and security verification report?	N	Project is in construction. Required Completion Date is 9-26-2024. A revised date of 12-31-2024 has been proposed.
Construction Safety		
Does the project sponsor have a documented/implemented Contractor Safety Program with which it expects to comply?	Y	The Design/Build contractor's "Construction Safety Program" and "Health and Safety Plan" have been accepted.

Safety and Security Checklist		
Area of Focus	**Y/N**	**Notes/Status**
Does the project sponsor's contractor(s) have a documented company-wide safety and security program plan?	Y	System Safety Plan submitted and Approved 2/1/2017. An update was provided on 6/28/21.
Does the project sponsor's contractor(s) have a site-specific safety and security program plan?	Y	Rev. 2 submitted and Approved 12/9/2016
How do the project sponsor's OSHA statistics compare to the national average for the same type of work?		*There have been four (4) recordable incidents in 2023. BBII's Recordable Incident Rate for 2023 is 1.65. Overall, since the project's inception, the RIR is at 1.65, which is below the national average of 2.5.*
If the comparison is not favorable, what actions are being taken by the project sponsor to improve its safety record?		The D-B contractor reviews all incidents with its employees at its monthly safety meetings.
Federal Railroad Administration		
If a shared track, has the project sponsor submitted its waiver request application to FRA? (Please identify specific regulations for which waivers are being requested.)	Y	Waivers approved 1/13/2016 for 49 CFR: 49 CFR 238.203, Static end strength; 238.205, Anti-climbing mechanism; and 238.207, link between coupling mechanism and car body.
If a shared corridor, has the project sponsor specified specific measures to address safety concerns?	Y	*Caltrain has submitted an updated EPREP to the FRA and preparations are underway for an on-site visit by FRA personnel to review the revised EPREP during the September – October 2023 period.*
Is the Collision Hazard Analysis underway?	Y	Car body testing and Collision Analysis have been completed and the report sent to FRA.
Other FRA required Hazard Analysis – Fencing, etc.?	TBD	This is an operating ROW, and no service change is expected. Additional right of way fencing is being installed.
Does the project have Quiet Zones?	TBD	This is an operating ROW, and no service change is expected.
Does FRA attend the Quarterly Review Meetings?	N	QPRM No. 23 was held on April 13, 2023.

Attachment C Action Items

The following table presents the open Action Items as of the date this report was prepared. New items are indicated by colored text, items whose status has changed from the prior listing are italicized and completed items have been shaded.

No.	Action Item	Discussion	Agreed Due Date	Responsibility Agency/Name	Status
13.02	JPB to submit a Request for Amendment (RFA) to Caltrain's Positive Train Control Safety Plan (PTCSP) under 49 CFR Sec. 236, Subpart I; the RFA will document the design and performance of its 2SC grade crossing warning system.	FRA has requested a combined RFA which includes both the 2SC solution and the Crossing Optimization Process. Because both 2SC and Crossing Optimization Projects have FRA approved Test Plans, completion of the RFA(s) is not and will not impact work for either project.	*Likely mid-2024.*	Cocke	The RFA will be submitted after the completion of the 2SC installations and after the completion of the Crossing Optimization program. A submission date of mid-2024 is anticipated. The JPB is staying in close touch with the FRA, and they are witnessing the cutovers.

Attachment D Top Project Risks

Risk numbers 010 and 150 are now the top risks. Risk 209, the former top risk has been reduced in severity and is no longer considered a top risk. Risk 289, formerly the second highest risk, was retired. Risks ranked 2-6 remain unchanged. Changes from the prior report are indicated in italics.

Risk No.	Risk Category		Risk Description	Status
	Cost	Sched.		
010		X	Potential for Stadler's sub-suppliers to fall behind schedule or delays in the parts supply chain to result in late completion of vehicles.	Interior panel supplier WCI failed to deliver the parts as promised. Stadler is changing suppliers. This will impact the schedule for trains 7 through 19.
150	X	X	OCS construction productivity continues to fall below what's required to meet the scheduled completion of October 2023. The following are contributing causes: 1. Inefficiencies due to lack of proper work planning. 2. Lack of resources (labor and equipment). 3. Insufficient TASI support resources and track access.	1. Additional resources and equipment from the contractor, which has already been implemented. 2. Use of weekend shutdowns and an agreement on TASI resource number has been implemented as well. 3. Bringing in a sub-contractor to supplement resources. 4. Contractor inefficiencies can be addressed through better planning, which the contractors are currently addressing.
344	X	X	Short-Circuit test failure at TPS-1.	1. Progressive punch list resolution of items identified at TPS-2 that caused short circuit test failures; 2. Implement configuration control process; 3. Receive timely (daily) working as-build drawing updates from field forces so that accurate drawings are being used and referenced each day.
317	X	X	JPB may not make timely acquisition of resources to staff rail activation plan with key personnel.	A revised Rail Activation Plan has been prepared and is under management review. A decision has been made to award the OCS maintenance work to TASI and hiring of qualified personnel is underway.
349	X	X	PCEP is requesting shutdown support from PG&E for distribution lines running parallel and in close proximity to the JPB property. Shutdowns are required for the installation of OCS poles and wires at some locations, and if PG&E is unable to perform that work in time, OCS installation will be delayed and installation efficiency will also be affected. Based on the current schedule, PG&E will need to provide support in S1 and S2 by the end of January, but PG&E is projecting closer to March for when the support can be provided.	1. Escalating the matter within PG&E to hopefully advance the schedule. 2. Work with BBII on potential alternative installation methods to decrease the number of locations that requires support from PG&E. 3. If PG&E schedule does not change, look at alternative windows outside of currently planned weekend shutdowns to complete the sections as PG&E schedules the shutdowns.

Risk No.	Risk Category		Risk Description	Status
	Cost	Sched.		
350	X		Use of generators for temporary, low voltage power – both additional generators and longer use of current generators until permanent power. Some locations have permanent power but are still using generators. (27 locations did not need PG&E).	Increased coordination with BBII and PG&E to improve timely completion of designs for low-voltage power drops. Continue to identify opportunities to connect to existing power sources.
Top six (6) risks as shown on the Risk Register dated 7-28-2023				

Attachment E Awarded Contracts

The current list of contracts numbers 196. Ninety-five (95) contracts have values over $50,000, and seventy-four (80) have values over $100,000. The total value of awarded contracts is provided in the Core Accountability Table of this report. The following tabulation is all contracts with current values of $1 million or higher as of May 31, 2023.

Contractor Name	Contract Value
Total	**$ 2,228,210,781.03**
BALFOUR BEATTY INFRASTRUCTURE, INC	$ 1,097,149,881
STADLER US INC	$ 555,359,217
PACIFIC GAS & ELECTRIC COMPANY - SA scopes	$ 124,106,400
TRANSITAMERICA SERVICES, INC. - Other scopes	$ 110,443,293
GANNETT FLEMING TRANSIT & RAIL SYSTEMS	$ 67,743,400
PROVEN MANAGEMENT, INC. - Tunnel scope	$ 47,059,352
URS CORPORATION	$ 36,361,332
JACOBS PROJECT MANAGEMENT CO.	$ 35,500,000
LTK CONSULTING SERVICES, INC.	$ 29,177,673
B & G TRANSPORTATION GROUP, LLC	$ 10,879,958
PROVEN MANAGEMENT, INC. - CEMOF scope	$ 9,476,816
RAIL SURVEYORS AND ENGINEERS, INC.	$ 9,472,000
JPMORGAN CHASE BANK, N.A.	$ 8,853,865
HNTB CORPORATION	$ 8,628,240
Hatch Associates Consultants, Inc	$ 7,667,327
ARINC INCORPORATED	$ 5,523,853
ICF JONES & STOKES, INC.	$ 5,162,703
NC 2121 SEC VENTURES LLC	$ 4,394,220
FIRST AMERICAN TITLE COMPANY	$ 4,386,947
RREF III-P TOWER PLAZA LLC	$ 3,868,440
STATE OF CALIFORNIA	$ 3,629,200
PRICE FORBES & PARTNERS, LTD	$ 2,804,082
DCONSULT, LLC.	$ 2,471,350
SAN MATEO COUNTY TRANSIT DISTRICT	$ 2,455,187
SHIMMICK/DISNEY JOINT VENTURE	$ 2,400,000
NORMAN E. MATTEONI ATTORNEY BAR TRUST	$ 2,016,000
PROVEN MANAGEMENT, INC. - SSF scope	$ 1,866,575
USI INSURANCE SERVICES NATIONAL, INC.	$ 1,821,061
WELLS FARGO INSURANCE SERVICES USA, INC	$ 1,493,269
BENDER ROSETHAL, INC.	$ 1,432,297
WSP USA INC	$ 1,380,423
COMPUCOM SYSTEMS, INC.	$ 1,370,249
TRANSITAMERICA SERVICES, INC. - Santa Clara drill track	$ 1,186,015
MNS ENGINEERS, INC.	$ 1,093,717
ASSOCIATED RIGHT OF WAY	$ 1,092,390
WABTEC TRANSPORTATION SYSTEMS LLC	$ 1,023,099

Attachment F Rolling Stock Vehicle Status Report

- **Manufacturer/Model Year/Vehicle Model or Type/Propulsion:** Stadler Bi-level Electric Multiple Unit (EMU) Commuter Rail vehicles (a variant of Stadler's "KISS" product line. The JPB plans to operate the vehicles initially in 7-car trainsets and later expand to 8-car trainsets.
- **Piggyback or Option:** The contract contains an option for up to 96 additional EMUs, with the price varying depending on the date the option is exercised. Option vehicles ordered prior to December 31, 2018, are purchased at the original price.
- **Number of Vehicles:** Initial Order of 96 EMUs to be delivered as 6-car trainsets; the current order is 133 EMUs delivered as 7-car trainsets. *The JPB is considering exercising some of the remaining options prior to the option expiration date of August 15, 2023; these options would not be funded by the PCEP.*
- Contract Advertisement Date: August 21, 2015
- Contract Award Date: August 15, 2016
- Price per Vehicle (Initial Order): $26,408,000 per 6-car trainset
- Planned Date of First Vehicle Delivery /Actual: March 20, 2022 (Actual)
- Conditional Acceptance of First Trainset (TS-3): July 25, 2022
- Initial Vehicle Order (Number of Vehicles and Configuration): 96 EMUs delivered as 6-car trainsets
- Number of Option Vehicles Included in Contract: 96
- Buy America Domestic Content Percentage Required: 60%
- Domestic Content Percentage per Pre-award Audit: 79.38%
- **Latest Domestic Content Percentage Reported and Date:** The Post-Delivery Buy America Audit Report states that the overall average domestic content of a seven (7) car trainset is 74.3%. The domestic content was reported to vary from 70% to 77% for the four (4) different car type variants.
- Date of Pre-Award Audit: May 25-26, 2016
- Pre-award Audit Report Date: June 21, 2016
- Intermediate Buy America Audit Date: An intermediate review was conducted March 19-21, 2018. Stadler provided a virtual Buy America status update to the JPB's Buy America team on June 22, 2020. The JPB conducted an Intermediate Buy America Audit on October 25-27, 2021; however, the auditors were unable to verify the domestic content because the required information was not provided by Stadler.
- Date of Post-Delivery Audit: June 27-28, 2022
- Post-Deliver Audit Report Date: July 11, 2022

Attachment G Project Milestones / Key Events

Milestone	Baseline	Grantee Forecast	Summary of Milestone / Event
New Starts/Core Capacity Grant Agreement:	Not in MPS	05/2017 (A)	
Design/Build Notice to Proceed:	12/2015	06/2017 (A)	
Arrival of the first EMU in Pueblo, CO	N/A	2/27/2021 (A)	
Arrival of First EMU at JPB	07/2019	4/20/2022(A)	
Final Engineering (FE) Completion:	04/2018	8/10/2023 (P)	
Systems Integration Testing Completed:	01/2019	*12/17/2023*	
Segment 4 Complete to Begin EMU Testing:	11/2019	*7/15/2023 (P)*	
Revised Milestone 1 (Segments 3 and 4) Complete	N/A	*7/31/2023 (P)*	
Completion of Interconnection from PG&E to TPSS 2	N/A	1/29/2021 (A)	
Design/Build Substantial Completion:	02/2019	*4/10/2024 (P)*	
Conditional Acceptance of First EMU Trainset:		7/25/2022 (A)	
PG&E Provides Permanent Power:	09/2021	8/27/2022(A)	
Pre-Revenue Operation Completed:	05/2020	09/25/2024 (P)	
Revenue Service Date (without Risk Contingency):	12/2021	04/15/2024 (P)	
Revenue Service Date (with Risk Contingency)	N/A	09/26/2024	
FFGA Required Completion Date (RCD):	05/2020	12/31/2024 (P)*	

Note: *JPB's proposed FFGA RCD in its Recovery Plan
Currently, the RSD with contingency is 9/26/2024, the same date that the JPB had been using as the RCD; the JPB has proposed a revised FFGA RCD of 12/31/2024 in its Recovery Plan.

Attachment H Roadmap to Electrified Rail Service

Electrified operations on the Caltrain system will occur in stages. The first stage will be the electrification of Segment 4 of the PCEP, including a designated test track. For clarity, Segment 4 is the southerly most segment of the PCEP. Initial electrification will require completion of TPSS 2; completion of the interconnection between PG&E's FMC substation in San Jose and TPSS 2; completion of the OCS system in Segment 4; completion of the signals, communications, and SCADA systems in Segment 4; and testing and commissioning of the above components as well as safety certification of the relevant components. Traction power substation #2 (TPSS-2) was electrified on August 27, 2022, and testing of the traction power components is underway. The contractor has encountered repeated problems in successfully completing short-circuit testing of the TPS and OCS in Segment 4. *The schedule for live-wire testing in Segment 4 was placed on-hold while the test failure which occurred on May 20-21, 2023 was reviewed. Because the test demonstrated that the protection function operated as planned, JPB and BBII decided to proceed with initial testing of the EMUs on the Santa Clara Drill Track (SCDT), followed by OCS testing on Segment 4 main tracks and at the CEMOF. Following the electrification of Segments 4 and 3, the burn-in of the EMU vehicles will commence. The first four EMU trainsets have begun dynamic testing on the SCDT and Segment 4 main tracks.* The JPB negotiated a change with BBII, its Electrification contractor, to redefine Milestone 1 to include all work in Segments 3 and 4. This change has created a 21 mile stretch of electrified track which will permit more efficient burn-in of the EMUs. The OCS in the southerly most portion of Segment 4 has been temporarily disconnected to allow replacement of the Guadalupe River bridge. *The OCS is scheduled to be re-connected by September 30, 2023, however, that date may slip slightly. Following the restoration of the OCS, the end -to-end testing of Segments 3 and 4 will be conducted. A short-circuit re-test will be conducted following the electrification of Segments 3 and 4.*

The second stage of electrification will include the completion of the remaining Segments 1 and 2, and the individual elements of each plus the integrated testing, commissioning, and safety certification of the entire project. Final Completion for purposes of the JPB's Core Capacity FFGA requires fourteen (14) seven-car trainsets in weekday revenue service. The FFGA has a Required Completion Date (RCD) of August 22, 2022. The JPB has proposed a revised RCD of December 31, 2024, in its Recovery Plan dated September 30, 2022. The JPB is currently forecasting the commencement of Revenue service with its new EMUs on September 26, 2024.

The PCEP has an active Rail Activation Committee (RAC) to coordinate the various activities needed to successfully initiate electrified rail operations. The RAC is chaired by Mark Clendennen and includes representatives from JPB employees assigned to the PCEP, PCEP's technical consultants, the JPB's Rail Operations group, and more recently from BBII, the Electrification contractor. The RAC has refined its meetings which provide more detailed coordination between rail operations, systems integration, and testing and commissioning activities. *The RAC meets weekly on Thursday mornings; the most recent meeting was held on July 27, 2023. The current focus is on live wire testing on Segment 4 main tracks and preparations for electrification of Segment 3.*

The JPB held a Testing and Commissioning Workshop on December 14, 2021, for all of the electrification and related contractors. The objective of the workshop was to assess the readiness of the project to achieve Interim Milestone 1, Segment 4 Ready for EMU Testing. The workshop was generally regarded as beneficial by the PCEP team.

The Rail Activation Manager reports that a draft rewrite of the Rail Activation Plan has been completed and the draft has been reviewed by PCEP leadership as well as select members of the RAC. The PMOC has received a copy for its review. *The revised plan has an increased emphasis on the JPB's readiness to operate revenue service with electrified equipment.*

The PCEP risk lead has completed incorporating the Rail Activation risks into a consolidated risk register for the PCEP. The RAC's Rail Activation Schedule is now integrated with the body of the Integrated Master Schedule; this provides the PCEP team with a fully integrated project schedule for the first time. Rail activation activities continue to be refined by the RAC.

The RAC has transitioned to a Live Run Testing Schedule to communicate when these important activities will occur. A copy of the new Live Run Testing Schedule most recent Segment 4 Testing and Commissioning schedule is shown in Figure H-1.

The RAC, until very recently, included additional information in its meeting minutes related to significant events such as issuance of Certificates of Operational Conformance (COC) and the sequence of activities needed to accomplish the Rail Activation process. Those details are shown below.

Table H-1 High Level Schedule Recap (July 27, 2023)

ACTIVITY	*PROJECTED SCHEDULE*
CEMOF Live Run YT 1 - 4	***TBD***
S4 Mainline Live Run (minus CEMOF and PS7)	***Tentative 7/21/23 night.***
S3 Mainline Live Run	***8/4/23***
S4 PTC	***TBD***
S4 EMI	***TBD***
S3 PTC	***TBD***

The following is the current listing of the sequence of events that will be required to generate a Certificate of Operational Conformance (COC) for electrified operations in Segment 4. The COC will be issued by the contractor

Certification of Conformance Sequence - Segment 4

1. Short Circuit Test
2. SCDT SSWP with SCDT Operating Plan (Maintenance handled by BBII)
3. TUP Issued for SCDT based on an approved SCDT SSWP and successful pre-requisite tests
4. SCDT Testing including EMU Static Tests, EMU Bump Test, and SCDT Live Wire Testing, performed following the SCDT SSWP
5. Segment 4 SSWP with Segment 4 Operating Plan
6. TUP Issued for Segment 4 based on an approved Segment 4 SSWP and successful pre-requisite tests
7. Segment 4 Live Wire Testing performed following Segment 4 SSWP
8. CEMOF SSWP with CEMOF Operating Plan
9. TUP Issued for CEMOF based on an approved CEMOF SSWP and successful pre-requisite tests
10. CEMOF Live Wire Testing performed following the CEMOF SSWP
11. Pre-Revenue (EMU Burn-In) O&M Plan for only Segment 4 (Maintenance handled by BBII)
12. Segment 4 Certificate of Conformance issued based on Pre-Revenue (EMU Burn-In) O&M Plan for only Segment 4 and successful pre-requisite tests

Each phase builds on the previous. When Segment 3 is ready, the following steps will take place:

1. Segment 3 SSWP with Segment 4 Operating Plan

2. TUP Issued for Segment 3 based on an approved Segment 3 SSWP and successful pre-requisite tests
3. Segment 3 Live Wire Testing performed following Segment 3 SSWP
4. Update the Pre-Revenue (EMU Burn-In) O&M Plan to incorporate Segment 3
5. Segment 3 Certificate of Conformance issued based on Pre-Revenue (EMU Burn-In) O&M Plan for Segment 3 and 4 only and successful pre-requisite tests

This process will continue repeating for Segments 2 and then 1.

Figure H-1 Live Run Testing Schedule (July 26, 2023)

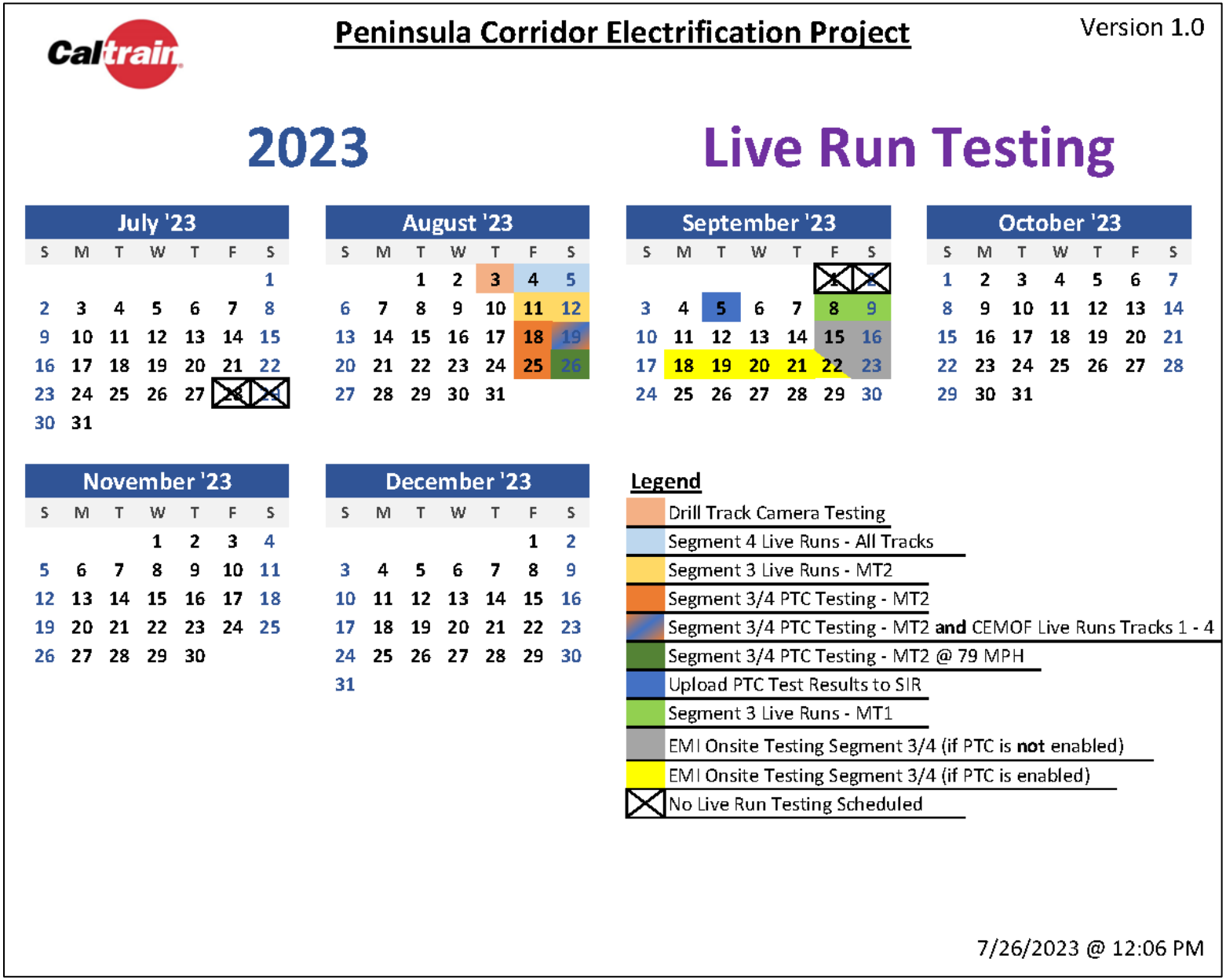
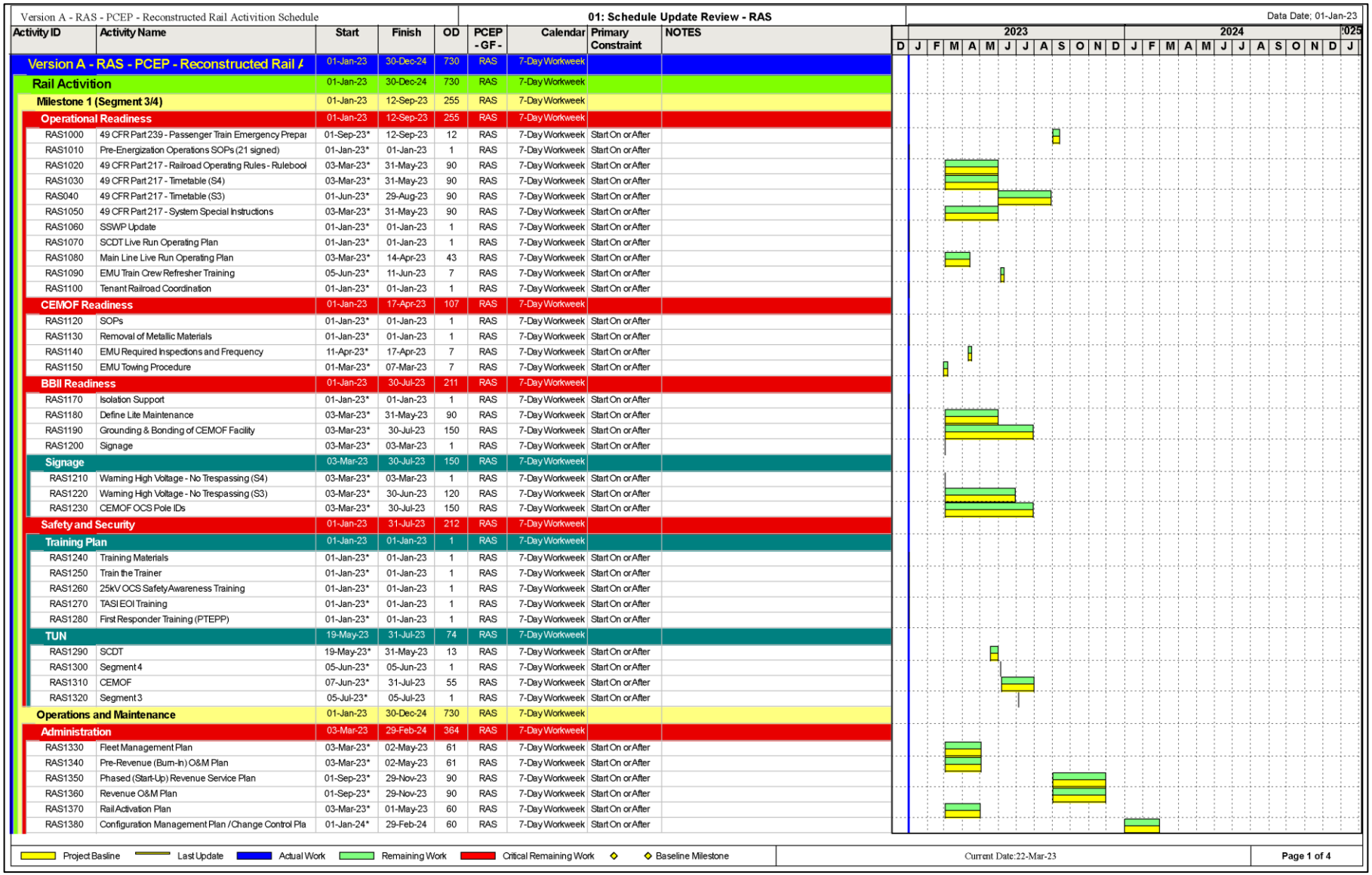
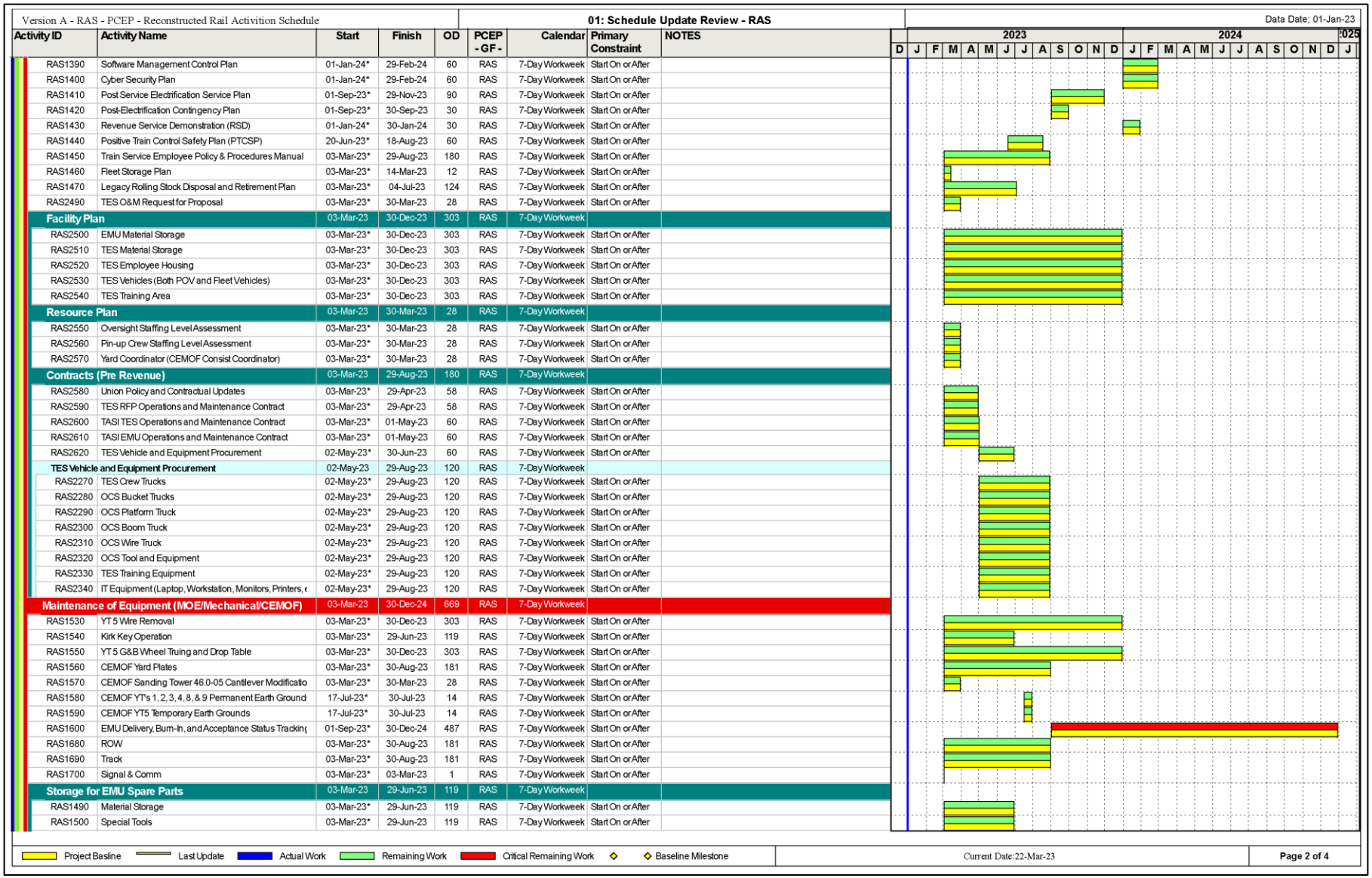


Figure H-2 Rail Activation Schedule



Activity ID	Activity Name	Start	Finish	OD	PCEP - GF -	Calendar	Primary Constraint	NOTES
Version A - RAS - PCEP - Reconstructed Rail A		01-Jan-23	30-Dec-24	730	RAS	7-Day Workweek		
Rail Activition		01-Jan-23	30-Dec-24	730	RAS	7-Day Workweek		
Milestone 1 (Segment 3/4)		01-Jan-23	12-Sep-23	255	RAS	7-Day Workweek		
Operational Readiness		01-Jan-23	12-Sep-23	255	RAS	7-Day Workweek		
RAS1000	49 CFR Part 239 - Passenger Train Emergency Prepar	01-Sep-23*	12-Sep-23	12	RAS	7-Day Workweek	Start On or After	
RAS1010	Pre-Energization Operations SOPs (21 signed)	01-Jan-23*	01-Jan-23	1	RAS	7-Day Workweek	Start On or After	
RAS1020	49 CFR Part 217 - Railroad Operating Rules - Rulebool	03-Mar-23*	31-May-23	90	RAS	7-Day Workweek	Start On or After	
RAS1030	49 CFR Part 217 - Timetable (S4)	03-Mar-23*	31-May-23	90	RAS	7-Day Workweek	Start On or After	
RAS040	49 CFR Part 217 - Timetable (S3)	01-Jun-23*	29-Aug-23	90	RAS	7-Day Workweek	Start On or After	
RAS1050	49 CFR Part 217 - System Special Instructions	03-Mar-23*	31-May-23	90	RAS	7-Day Workweek	Start On or After	
RAS1060	SSWP Update	01-Jan-23*	01-Jan-23	1	RAS	7-Day Workweek	Start On or After	
RAS1070	SCDT Live Run Operating Plan	01-Jan-23*	01-Jan-23	1	RAS	7-Day Workweek	Start On or After	
RAS1080	Main Line Live Run Operating Plan	03-Mar-23*	14-Apr-23	43	RAS	7-Day Workweek	Start On or After	
RAS1090	EMU Train Crew Refresher Training	05-Jun-23*	11-Jun-23	7	RAS	7-Day Workweek	Start On or After	
RAS1100	Tenant Railroad Coordination	01-Jan-23*	01-Jan-23	1	RAS	7-Day Workweek	Start On or After	
CEMOF Readiness		01-Jan-23	17-Apr-23	107	RAS	7-Day Workweek		
RAS1120	SOPs	01-Jan-23*	01-Jan-23	1	RAS	7-Day Workweek	Start On or After	
RAS1130	Removal of Metallic Materials	01-Jan-23*	01-Jan-23	1	RAS	7-Day Workweek	Start On or After	
RAS1140	EMU Required Inspections and Frequency	11-Apr-23*	17-Apr-23	7	RAS	7-Day Workweek	Start On or After	
RAS1150	EMU Towing Procedure	01-Mar-23*	07-Mar-23	7	RAS	7-Day Workweek	Start On or After	
BBII Readiness		01-Jan-23	30-Jul-23	211	RAS	7-Day Workweek		
RAS1170	Isolation Support	01-Jan-23*	01-Jan-23	1	RAS	7-Day Workweek	Start On or After	
RAS1180	Define Lite Maintenance	03-Mar-23*	31-May-23	90	RAS	7-Day Workweek	Start On or After	
RAS1190	Grounding & Bonding of CEMOF Facility	03-Mar-23*	30-Jul-23	150	RAS	7-Day Workweek	Start On or After	
RAS1200	Signage	03-Mar-23*	03-Mar-23	1	RAS	7-Day Workweek	Start On or After	
Signage		03-Mar-23	30-Jul-23	150	RAS	7-Day Workweek		
RAS1210	Warning High Voltage - No Trespassing (S4)	03-Mar-23*	03-Mar-23	1	RAS	7-Day Workweek	Start On or After	
RAS1220	Warning High Voltage - No Trespassing (S3)	03-Mar-23*	30-Jun-23	120	RAS	7-Day Workweek	Start On or After	
RAS1230	CEMOF OCS Pole IDs	03-Mar-23*	30-Jul-23	150	RAS	7-Day Workweek	Start On or After	
Safety and Security		01-Jan-23	31-Jul-23	212	RAS	7-Day Workweek		
Training Plan		01-Jan-23	01-Jan-23	1	RAS	7-Day Workweek		
RAS1240	Training Materials	01-Jan-23*	01-Jan-23	1	RAS	7-Day Workweek	Start On or After	
RAS1250	Train the Trainer	01-Jan-23*	01-Jan-23	1	RAS	7-Day Workweek	Start On or After	
RAS1260	25kV OCS Safety Awareness Training	01-Jan-23*	01-Jan-23	1	RAS	7-Day Workweek	Start On or After	
RAS1270	TASI EOI Training	01-Jan-23*	01-Jan-23	1	RAS	7-Day Workweek	Start On or After	
RAS1280	First Responder Training (PTEPP)	01-Jan-23*	01-Jan-23	1	RAS	7-Day Workweek	Start On or After	
TUN		19-May-23	31-Jul-23	74	RAS	7-Day Workweek		
RAS1290	SCDT	19-May-23*	31-May-23	13	RAS	7-Day Workweek	Start On or After	
RAS1300	Segment 4	05-Jun-23*	05-Jun-23	1	RAS	7-Day Workweek	Start On or After	
RAS1310	CEMOF	07-Jun-23*	31-Jul-23	55	RAS	7-Day Workweek	Start On or After	
RAS1320	Segment 3	05-Jul-23*	05-Jul-23	1	RAS	7-Day Workweek	Start On or After	
Operations and Maintenance		01-Jan-23	30-Dec-24	730	RAS	7-Day Workweek		
Administration		03-Mar-23	29-Feb-24	364	RAS	7-Day Workweek		
RAS1330	Fleet Management Plan	03-Mar-23*	02-May-23	61	RAS	7-Day Workweek	Start On or After	
RAS1340	Pre-Revenue (Burn-In) O&M Plan	03-Mar-23*	02-May-23	61	RAS	7-Day Workweek	Start On or After	
RAS1350	Phased (Start-Up) Revenue Service Plan	01-Sep-23*	29-Nov-23	90	RAS	7-Day Workweek	Start On or After	
RAS1360	Revenue O&M Plan	01-Sep-23*	29-Nov-23	90	RAS	7-Day Workweek	Start On or After	
RAS1370	Rail Activation Plan	03-Mar-23*	01-May-23	60	RAS	7-Day Workweek	Start On or After	
RAS1380	Configuration Management Plan /Change Control Pla	01-Jan-24*	29-Feb-24	60	RAS	7-Day Workweek	Start On or After	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Finish
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Primary Constraint
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2024
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RAS1400 Cyber Security Plan 01-Jan-24* 29-Feb-24 60 RAS 7-Day Workweek Start On or After
RAS1410 Post Service Electrification Service Plan 01-Sep-23* 29-Nov-23 90 RAS 7-Day Workweek Start On or After
RAS1420 Post-Electrification Contingency Plan 01-Sep-23* 30-Sep-23 30 RAS 7-Day Workweek Start On or After
RAS1430 Revenue Service Demonstration (RSD) 01-Jan-24* 30-Jan-24 30 RAS 7-Day Workweek Start On or After
RAS1440 Positive Train Control Safety Plan (PTCSP) 20-Jun-23* 18-Aug-23 60 RAS 7-Day Workweek Start On or After
RAS1450 Train Service Employee Policy & Procedures Manual 03-Mar-23* 29-Aug-23 180 RAS 7-Day Workweek Start On or After
RAS1460 Fleet Storage Plan 03-Mar-23* 14-Mar-23 12 RAS 7-Day Workweek Start On or After
RAS1470 Legacy Rolling Stock Disposal and Retirement Plan 03-Mar-23* 04-Jul-23 124 RAS 7-Day Workweek Start On or After
RAS2490 TES O&M Request for Proposal 03-Mar-23* 30-Mar-23 28 RAS 7-Day Workweek Start On or After
Facility Plan 03-Mar-23 30-Dec-23 303 RAS 7-Day Workweek
RAS2500 EMU Material Storage 03-Mar-23* 30-Dec-23 303 RAS 7-Day Workweek Start On or After
RAS2510 TES Material Storage 03-Mar-23* 30-Dec-23 303 RAS 7-Day Workweek Start On or After
RAS2520 TES Employee Housing 03-Mar-23* 30-Dec-23 303 RAS 7-Day Workweek Start On or After
RAS2530 TES Vehicles (Both POV and Fleet Vehicles) 03-Mar-23* 30-Dec-23 303 RAS 7-Day Workweek Start On or After
RAS2540 TES Training Area 03-Mar-23* 30-Dec-23 303 RAS 7-Day Workweek Start On or After
Resource Plan 03-Mar-23 30-Mar-23 28 RAS 7-Day Workweek
RAS2550 Oversight Staffing Level Assessment 03-Mar-23* 30-Mar-23 28 RAS 7-Day Workweek Start On or After
RAS2560 Pin-up Crew Staffing Level Assessment 03-Mar-23* 30-Mar-23 28 RAS 7-Day Workweek Start On or After
RAS2570 Yard Coordinator (CEMOF Consist Coordinator) 03-Mar-23* 30-Mar-23 28 RAS 7-Day Workweek Start On or After
Contracts (Pre Revenue) 03-Mar-23 29-Aug-23 180 RAS 7-Day Workweek
RAS2580 Union Policy and Contractual Updates 03-Mar-23* 29-Apr-23 58 RAS 7-Day Workweek Start On or After
RAS2590 TES RFP Operations and Maintenance Contract 03-Mar-23* 29-Apr-23 58 RAS 7-Day Workweek Start On or After
RAS2600 TASI TES Operations and Maintenance Contract 03-Mar-23* 01-May-23 60 RAS 7-Day Workweek Start On or After
RAS2610 TASI EMU Operations and Maintenance Contract 03-Mar-23* 01-May-23 60 RAS 7-Day Workweek Start On or After
RAS2620 TES Vehicle and Equipment Procurement 02-May-23* 30-Jun-23 60 RAS 7-Day Workweek Start On or After
TES Vehicle and Equipment Procurement 02-May-23 29-Aug-23 120 RAS 7-Day Workweek
RAS2270 TES Crew Trucks 02-May-23* 29-Aug-23 120 RAS 7-Day Workweek Start On or After
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RAS2310 OCS Wire Truck 02-May-23* 29-Aug-23 120 RAS 7-Day Workweek Start On or After
RAS2320 OCS Tool and Equipment 02-May-23* 29-Aug-23 120 RAS 7-Day Workweek Start On or After
RAS2330 TES Training Equipment 02-May-23* 29-Aug-23 120 RAS 7-Day Workweek Start On or After
RAS2340 IT Equipment (Laptop, Workstation, Monitors, Printers, 02-May-23* 29-Aug-23 120 RAS 7-Day Workweek Start On or After
Maintenance of Equipment (MOE/Mechanical/CEMOF) 03-Mar-23 30-Dec-24 669 RAS 7-Day Workweek
RAS1530 YT 5 Wire Removal 03-Mar-23* 30-Dec-23 303 RAS 7-Day Workweek Start On or After
RAS1540 Kirk Key Operation 03-Mar-23* 29-Jun-23 119 RAS 7-Day Workweek Start On or After
RAS1550 YT 5 G&B Wheel Truing and Drop Table 03-Mar-23* 30-Dec-23 303 RAS 7-Day Workweek Start On or After
RAS1560 CEMOF Yard Plates 03-Mar-23* 30-Aug-23 181 RAS 7-Day Workweek Start On or After
RAS1570 CEMOF Sanding Tower 46.0-05 Cantilever Modificatio 03-Mar-23* 30-Mar-23 28 RAS 7-Day Workweek Start On or After
RAS1580 CEMOF YT's 1, 2, 3, 4, 8, & 9 Permanent Earth Ground 17-Jul-23* 30-Jul-23 14 RAS 7-Day Workweek Start On or After
RAS1590 CEMOF YT5 Temporary Earth Grounds 17-Jul-23* 30-Jul-23 14 RAS 7-Day Workweek Start On or After
RAS1600 EMU Delivery, Burn-In, and Acceptance Status Tracking 01-Sep-23* 30-Dec-24 487 RAS 7-Day Workweek Start On or After
RAS1680 ROW 03-Mar-23* 30-Aug-23 181 RAS 7-Day Workweek Start On or After
RAS1690 Track 03-Mar-23* 30-Aug-23 181 RAS 7-Day Workweek Start On or After
RAS1700 Signal & Comm 03-Mar-23* 03-Mar-23 1 RAS 7-Day Workweek Start On or After
Storage for EMU Spare Parts 03-Mar-23 29-Jun-23 119 RAS 7-Day Workweek
RAS1490 Material Storage 03-Mar-23* 29-Jun-23 119 RAS 7-Day Workweek Start On or After
RAS1500 Special Tools 03-Mar-23* 29-Jun-23 119 RAS 7-Day Workweek Start On or After
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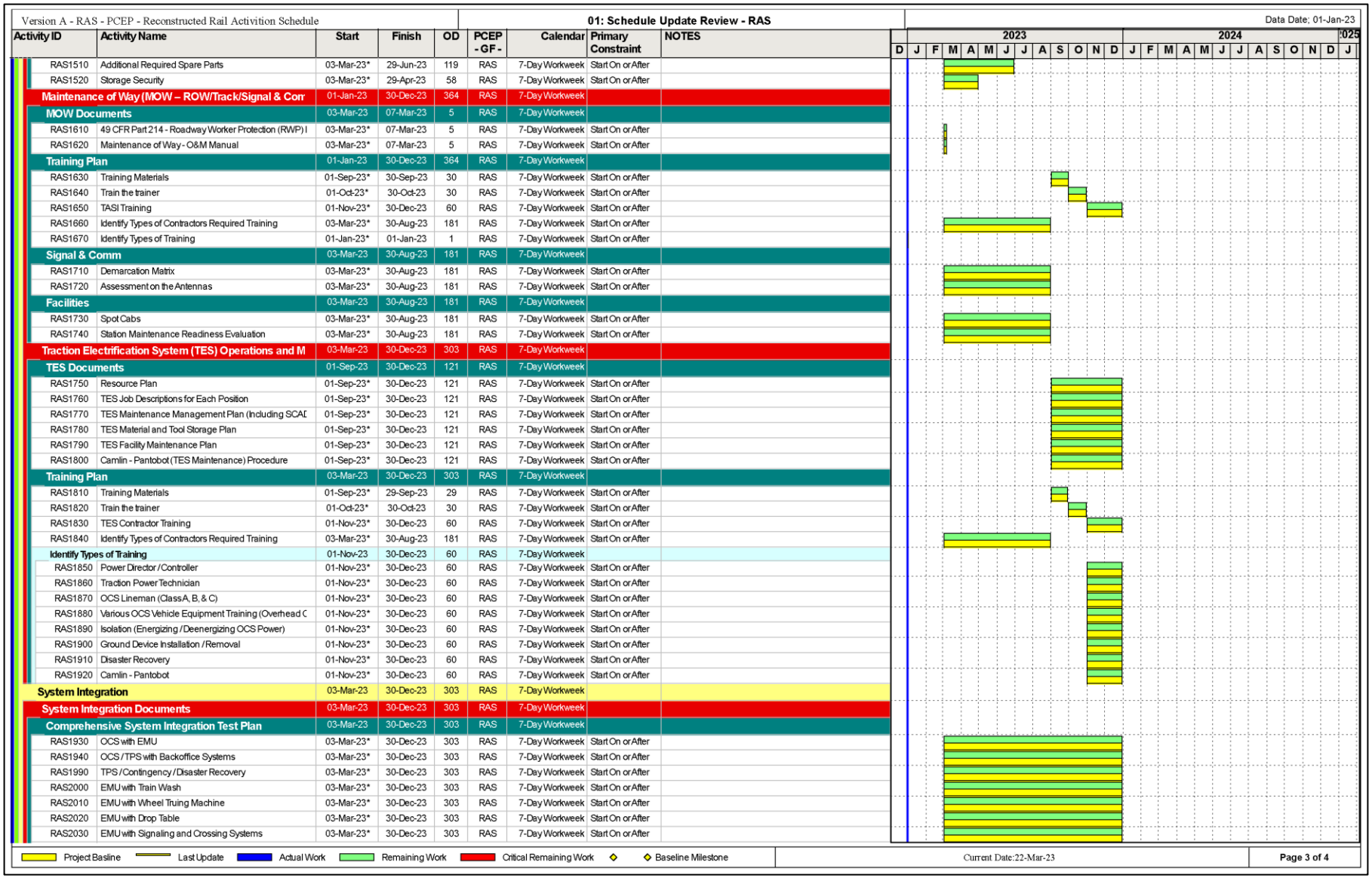
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2024
2025
D J F M A M J J A S O N D J F M A M J J A S O N D J
Activity ID | Activity Name | Start | Finish | OD | PCEP -GF- | Calendar | Primary Constraint | NOTES
RAS1510 Additional Required Spare Parts 03-Mar-23* 29-Jun-23 119 RAS 7-Day Workweek Start On or After
RAS1520 Storage Security 03-Mar-23* 29-Apr-23 58 RAS 7-Day Workweek Start On or After
Maintenance of Way (MOW – ROW/Track/Signal & Com 01-Jan-23 30-Dec-23 364 RAS 7-Day Workweek
MOW Documents 03-Mar-23 07-Mar-23 5 RAS 7-Day Workweek
RAS1610 49 CFR Part 214 - Roadway Worker Protection (RWP) I 03-Mar-23* 07-Mar-23 5 RAS 7-Day Workweek Start On or After
RAS1620 Maintenance of Way - O&M Manual 03-Mar-23* 07-Mar-23 5 RAS 7-Day Workweek Start On or After
Training Plan 01-Jan-23 30-Dec-23 364 RAS 7-Day Workweek
RAS1630 Training Materials 01-Sep-23* 30-Sep-23 30 RAS 7-Day Workweek Start On or After
RAS1640 Train the trainer 01-Oct-23* 30-Oct-23 30 RAS 7-Day Workweek Start On or After
RAS1650 TASI Training 01-Nov-23* 30-Dec-23 60 RAS 7-Day Workweek Start On or After
RAS1660 Identify Types of Contractors Required Training 03-Mar-23* 30-Aug-23 181 RAS 7-Day Workweek Start On or After
RAS1670 Identify Types of Training 01-Jan-23* 01-Jan-23 1 RAS 7-Day Workweek Start On or After
Signal & Comm 03-Mar-23 30-Aug-23 181 RAS 7-Day Workweek
RAS1710 Demarcation Matrix 03-Mar-23* 30-Aug-23 181 RAS 7-Day Workweek Start On or After
RAS1720 Assessment on the Antennas 03-Mar-23* 30-Aug-23 181 RAS 7-Day Workweek Start On or After
Facilities 03-Mar-23 30-Aug-23 181 RAS 7-Day Workweek
RAS1730 Spot Cabs 03-Mar-23* 30-Aug-23 181 RAS 7-Day Workweek Start On or After
RAS1740 Station Maintenance Readiness Evaluation 03-Mar-23* 30-Aug-23 181 RAS 7-Day Workweek Start On or After
Traction Electrification System (TES) Operations and M 03-Mar-23 30-Dec-23 303 RAS 7-Day Workweek
TES Documents 01-Sep-23 30-Dec-23 121 RAS 7-Day Workweek
RAS1750 Resource Plan 01-Sep-23* 30-Dec-23 121 RAS 7-Day Workweek Start On or After
RAS1760 TES Job Descriptions for Each Position 01-Sep-23* 30-Dec-23 121 RAS 7-Day Workweek Start On or After
RAS1770 TES Maintenance Management Plan (Including SCAI 01-Sep-23* 30-Dec-23 121 RAS 7-Day Workweek Start On or After
RAS1780 TES Material and Tool Storage Plan 01-Sep-23* 30-Dec-23 121 RAS 7-Day Workweek Start On or After
RAS1790 TES Facility Maintenance Plan 01-Sep-23* 30-Dec-23 121 RAS 7-Day Workweek Start On or After
RAS1800 Camlin - Pantobot (TES Maintenance) Procedure 01-Sep-23* 30-Dec-23 121 RAS 7-Day Workweek Start On or After
Training Plan 03-Mar-23 30-Dec-23 303 RAS 7-Day Workweek
RAS1810 Training Materials 01-Sep-23* 29-Sep-23 29 RAS 7-Day Workweek Start On or After
RAS1820 Train the trainer 01-Oct-23* 30-Oct-23 30 RAS 7-Day Workweek Start On or After
RAS1830 TES Contractor Training 01-Nov-23* 30-Dec-23 60 RAS 7-Day Workweek Start On or After
RAS1840 Identify Types of Contractors Required Training 03-Mar-23* 30-Aug-23 181 RAS 7-Day Workweek Start On or After
Identify Types of Training 01-Nov-23 30-Dec-23 60 RAS 7-Day Workweek
RAS1850 Power Director / Controller 01-Nov-23* 30-Dec-23 60 RAS 7-Day Workweek Start On or After
RAS1860 Traction Power Technician 01-Nov-23* 30-Dec-23 60 RAS 7-Day Workweek Start On or After
RAS1870 OCS Lineman (Class A, B, & C) 01-Nov-23* 30-Dec-23 60 RAS 7-Day Workweek Start On or After
RAS1880 Various OCS Vehicle Equipment Training (Overhead C 01-Nov-23* 30-Dec-23 60 RAS 7-Day Workweek Start On or After
RAS1890 Isolation (Energizing / Deenergizing OCS Power) 01-Nov-23* 30-Dec-23 60 RAS 7-Day Workweek Start On or After
RAS1900 Ground Device Installation / Removal 01-Nov-23* 30-Dec-23 60 RAS 7-Day Workweek Start On or After
RAS1910 Disaster Recovery 01-Nov-23* 30-Dec-23 60 RAS 7-Day Workweek Start On or After
RAS1920 Camlin - Pantobot 01-Nov-23* 30-Dec-23 60 RAS 7-Day Workweek Start On or After
System Integration 03-Mar-23 30-Dec-23 303 RAS 7-Day Workweek
System Integration Documents 03-Mar-23 30-Dec-23 303 RAS 7-Day Workweek
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RAS1930 OCS with EMU 03-Mar-23* 30-Dec-23 303 RAS 7-Day Workweek Start On or After
RAS1940 OCS / TPS with Backoffice Systems 03-Mar-23* 30-Dec-23 303 RAS 7-Day Workweek Start On or After
RAS1990 TPS / Contingency / Disaster Recovery 03-Mar-23* 30-Dec-23 303 RAS 7-Day Workweek Start On or After
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RAS2010 EMU with Wheel Truing Machine 03-Mar-23* 30-Dec-23 303 RAS 7-Day Workweek Start On or After
RAS2020 EMU with Drop Table 03-Mar-23* 30-Dec-23 303 RAS 7-Day Workweek Start On or After
RAS2030 EMU with Signaling and Crossing Systems 03-Mar-23* 30-Dec-23 303 RAS 7-Day Workweek Start On or After
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Remaining Work
Critical Remaining Work
Baseline Milestone
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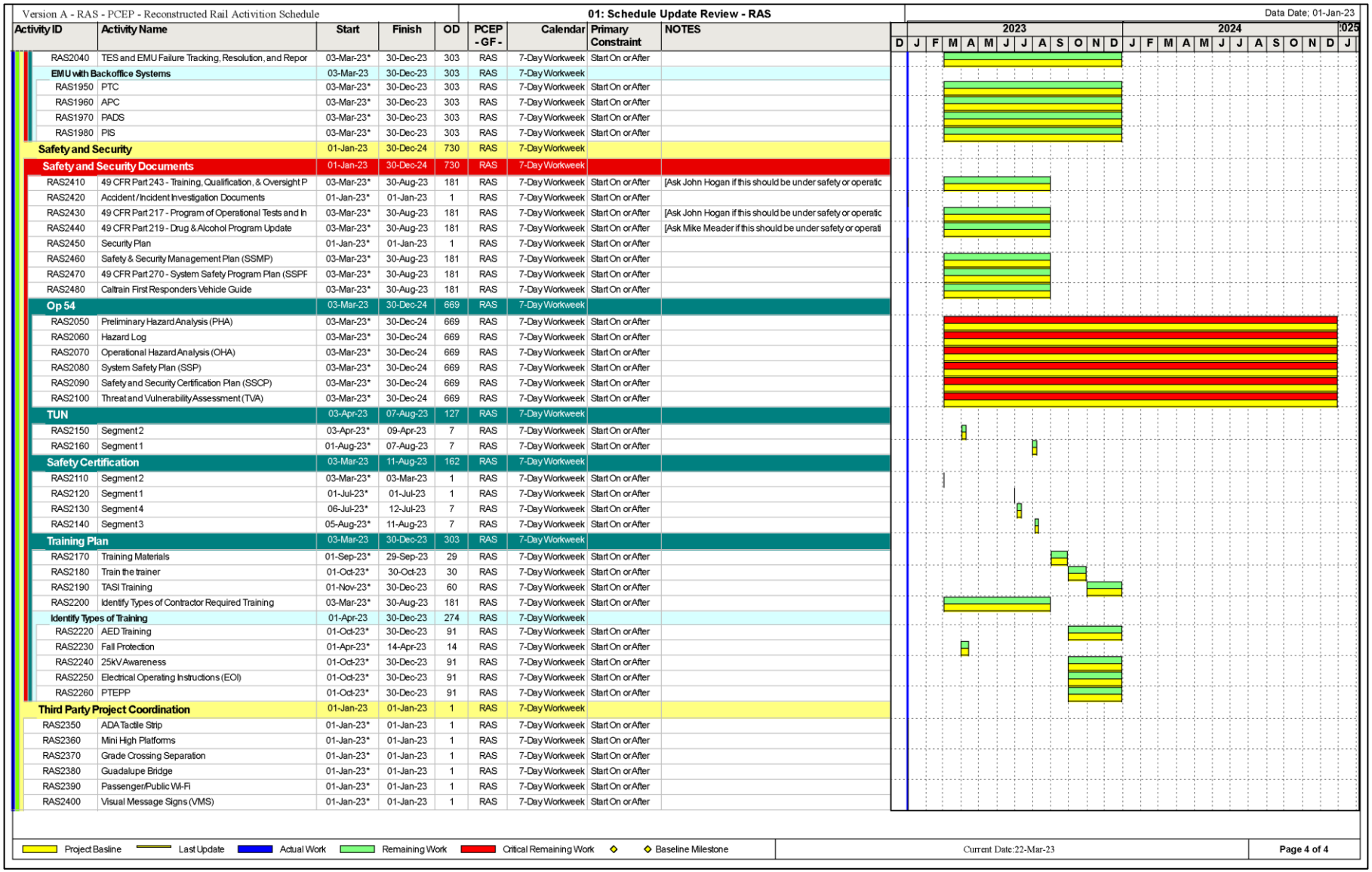
Page 3 of 4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Activity Name
Start
Finish
OD
PCEP - GF -
Calendar
Primary Constraint
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2023
2024
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EMU with Backoffice Systems 03-Mar-23 30-Dec-23 303 RAS 7-Day Workweek
RAS1950 PTC 03-Mar-23* 30-Dec-23 303 RAS 7-Day Workweek Start On or After
RAS1960 APC 03-Mar-23* 30-Dec-23 303 RAS 7-Day Workweek Start On or After
RAS1970 PADS 03-Mar-23* 30-Dec-23 303 RAS 7-Day Workweek Start On or After
RAS1980 PIS 03-Mar-23* 30-Dec-23 303 RAS 7-Day Workweek Start On or After
Safety and Security 01-Jan-23 30-Dec-24 730 RAS 7-Day Workweek
Safety and Security Documents 01-Jan-23 30-Dec-24 730 RAS 7-Day Workweek
RAS2410 49 CFR Part 243 - Training, Qualification, & Oversight P 03-Mar-23* 30-Aug-23 181 RAS 7-Day Workweek Start On or After [Ask John Hogan if this should be under safety or operatic
RAS2420 Accident / Incident Investigation Documents 01-Jan-23* 01-Jan-23 1 RAS 7-Day Workweek Start On or After
RAS2430 49 CFR Part 217 - Program of Operational Tests and In 03-Mar-23* 30-Aug-23 181 RAS 7-Day Workweek Start On or After [Ask John Hogan if this should be under safety or operatic
RAS2440 49 CFR Part 219 - Drug & Alcohol Program Update 03-Mar-23* 30-Aug-23 181 RAS 7-Day Workweek Start On or After [Ask Mike Meader if this should be under safety or operati
RAS2450 Security Plan 01-Jan-23* 01-Jan-23 1 RAS 7-Day Workweek Start On or After
RAS2460 Safety & Security Management Plan (SSMP) 03-Mar-23* 30-Aug-23 181 RAS 7-Day Workweek Start On or After
RAS2470 49 CFR Part 270 - System Safety Program Plan (SSPF 03-Mar-23* 30-Aug-23 181 RAS 7-Day Workweek Start On or After
RAS2480 Caltrain First Responders Vehicle Guide 03-Mar-23* 30-Aug-23 181 RAS 7-Day Workweek Start On or After
Op 54 03-Mar-23 30-Dec-24 669 RAS 7-Day Workweek
RAS2050 Preliminary Hazard Analysis (PHA) 03-Mar-23* 30-Dec-24 669 RAS 7-Day Workweek Start On or After
RAS2060 Hazard Log 03-Mar-23* 30-Dec-24 669 RAS 7-Day Workweek Start On or After
RAS2070 Operational Hazard Analysis (OHA) 03-Mar-23* 30-Dec-24 669 RAS 7-Day Workweek Start On or After
RAS2080 System Safety Plan (SSP) 03-Mar-23* 30-Dec-24 669 RAS 7-Day Workweek Start On or After
RAS2090 Safety and Security Certification Plan (SSCP) 03-Mar-23* 30-Dec-24 669 RAS 7-Day Workweek Start On or After
RAS2100 Threat and Vulnerability Assessment (TVA) 03-Mar-23* 30-Dec-24 669 RAS 7-Day Workweek Start On or After
TUN 03-Apr-23 07-Aug-23 127 RAS 7-Day Workweek
RAS2150 Segment 2 03-Apr-23* 09-Apr-23 7 RAS 7-Day Workweek Start On or After
RAS2160 Segment 1 01-Aug-23* 07-Aug-23 7 RAS 7-Day Workweek Start On or After
Safety Certification 03-Mar-23 11-Aug-23 162 RAS 7-Day Workweek
RAS2110 Segment 2 03-Mar-23* 03-Mar-23 1 RAS 7-Day Workweek Start On or After
RAS2120 Segment 1 01-Jul-23* 01-Jul-23 1 RAS 7-Day Workweek Start On or After
RAS2130 Segment 4 06-Jul-23* 12-Jul-23 7 RAS 7-Day Workweek Start On or After
RAS2140 Segment 3 05-Aug-23* 11-Aug-23 7 RAS 7-Day Workweek Start On or After
Training Plan 03-Mar-23 30-Dec-23 303 RAS 7-Day Workweek
RAS2170 Training Materials 01-Sep-23* 29-Sep-23 29 RAS 7-Day Workweek Start On or After
RAS2180 Train the trainer 01-Oct-23* 30-Oct-23 30 RAS 7-Day Workweek Start On or After
RAS2190 TASI Training 01-Nov-23* 30-Dec-23 60 RAS 7-Day Workweek Start On or After
RAS2200 Identify Types of Contractor Required Training 03-Mar-23* 30-Aug-23 181 RAS 7-Day Workweek Start On or After
Identify Types of Training 01-Apr-23 30-Dec-23 274 RAS 7-Day Workweek
RAS2220 AED Training 01-Oct-23* 30-Dec-23 91 RAS 7-Day Workweek Start On or After
RAS2230 Fall Protection 01-Apr-23* 14-Apr-23 14 RAS 7-Day Workweek Start On or After
RAS2240 25kV Awareness 01-Oct-23* 30-Dec-23 91 RAS 7-Day Workweek Start On or After
RAS2250 Electrical Operating Instructions (EOI) 01-Oct-23* 30-Dec-23 91 RAS 7-Day Workweek Start On or After
RAS2260 PTEPP 01-Oct-23* 30-Dec-23 91 RAS 7-Day Workweek Start On or After
Third Party Project Coordination 01-Jan-23 01-Jan-23 1 RAS 7-Day Workweek
RAS2350 ADA Tactile Strip 01-Jan-23* 01-Jan-23 1 RAS 7-Day Workweek Start On or After
RAS2360 Mini High Platforms 01-Jan-23* 01-Jan-23 1 RAS 7-Day Workweek Start On or After
RAS2370 Grade Crossing Separation 01-Jan-23* 01-Jan-23 1 RAS 7-Day Workweek Start On or After
RAS2380 Guadalupe Bridge 01-Jan-23* 01-Jan-23 1 RAS 7-Day Workweek Start On or After
RAS2390 Passenger/Public Wi-Fi 01-Jan-23* 01-Jan-23 1 RAS 7-Day Workweek Start On or After
RAS2400 Visual Message Signs (VMS) 01-Jan-23* 01-Jan-23 1 RAS 7-Day Workweek Start On or After
Project Basline
Last Update
Actual Work
Remaining Work
Critical Remaining Work
Baseline Milestone
Current Date:22-Mar-23
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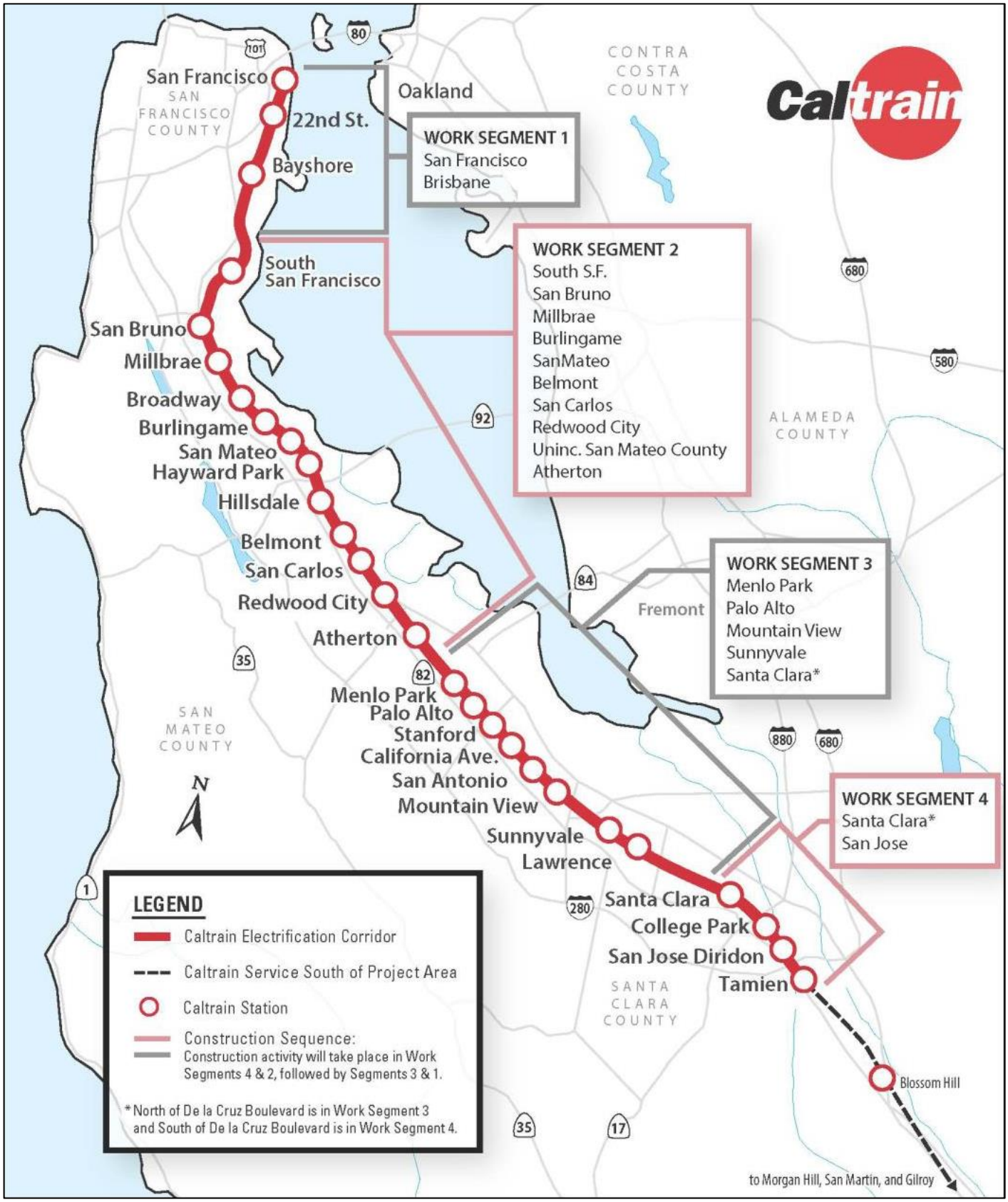
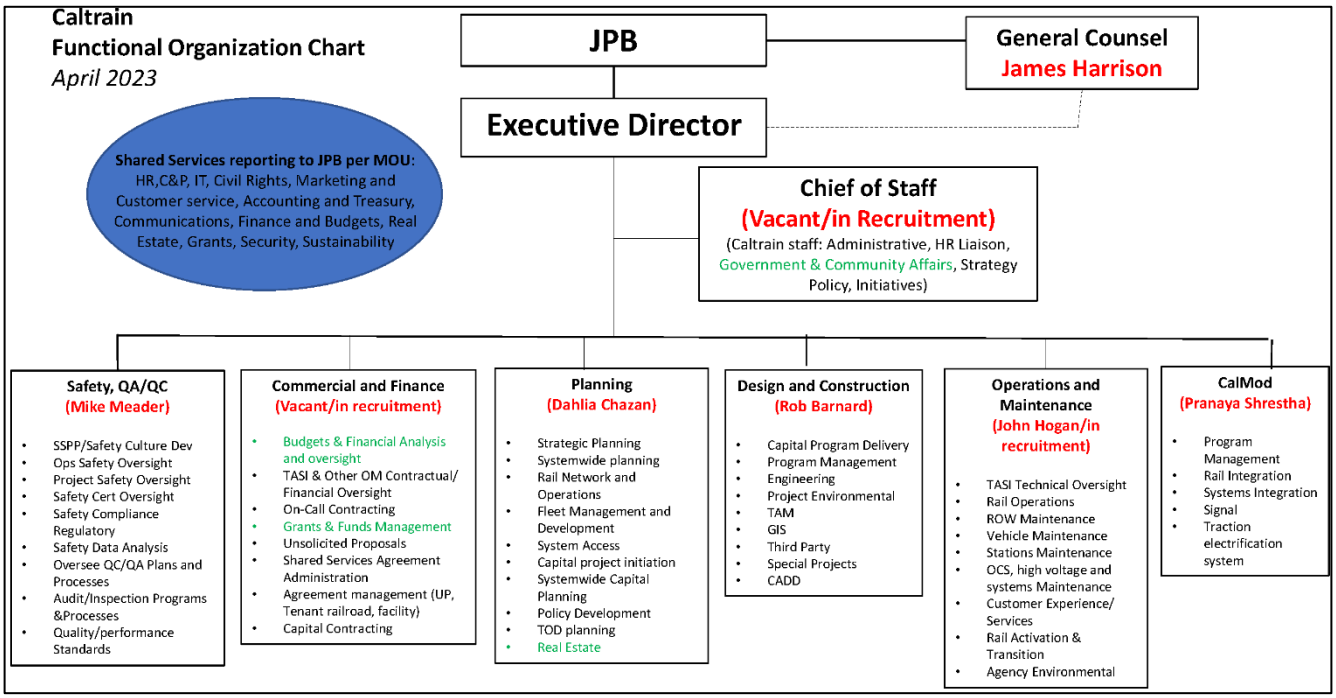
Attachment I Project Map



Attachment J JPB Functional Organization

Caltrain's Executive Director announced a functional re-organization on March 1, 2023; the new organization took effect on April 1, 2023. Mike Meader, Director of Safety and QA/QC has gained responsibility for the Quality function in the organization.



Attachment K PMOC Team

The report was prepared by the Task Order Manager, **Mike Eidlin**, J.D. (KKCS) who has more than 40 years of complex project management experience including over 28 years in transit. Mr. Eidlin possesses a B.S. degree, a graduate Degree of Engineer, and a Juris Doctor degree. He is a licensed attorney in the State of Oregon. He has been working as a PMOC for 17 years.

Brett L. Rekola, **P.E. (KKCS)** contributed to the preparation of the report and provided the Quality Assurance of the report. Mr. Rekola is the Program Manager for KKCS' FTA PMOC prime contract. He is a California professional civil engineer with more than thirty (30) years of experience managing railroad maintenance, planning, and design, construction, and rail operations. He has served as a program manager delivering port/rail/public works projects and programs.

Nancy Voltura (KKCS) assisted with the report. Ms. Voltura has over forty (40) years of Quality Assurance (QA) experience working as a QA Engineer, QA Auditor, and QA Manager on large design and construction projects. Ms. Voltura is a trained Apparent Cause Analyst evaluating heavy construction quality issues, is a trained professional QA Auditor and has been a certified Lead QA Auditor per ASME/NQA-1 and N45.2.23 standards.

Kevin Byers, P.S.P. (KKCS) assisted with the report. He is KKCS' Project Scheduling Manager, holds a B.S. degree in Construction Management, and has 29 years of experience in scheduling and claims analysis for railroad and rail transit projects.

Dan Holzman, P.E., (KKCS) assisted with the report and is KKCS' Cost Estimation Manager. Mr. Holzman has a B.S. degree in Environmental Engineering and M.S. degree in Civil Engineering and holds a license as a Professional Engineer in Massachusetts. He has over thirty-eight (38) years of experience in construction and engineering and is a Certified Cost Professional.

The administrative Quality Control review of this report was done by **Chelsea Ellis, (KKCS)**. Ms. Ellis has a Bachelor of Science degree in Business Administration and more than ten (10) years of experience providing quality review checks on various technical documents. Ms. Ellis was assisted by **Janice Johnson, (KKCS)**, who also serves as the Contracts & Terms Manager. Ms. Johnson has a background in English Studies and over twenty (20) years of experience providing quality review checks of PMOC work products.