

# **Project Monitoring Report (PMR)**

## **September 2023**

### **Peninsula Corridor Electrification Project (PCEP)**

#### **San Francisco to San Jose, CA**

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

November 10, 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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## **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 totaling \$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 nearing the end of construction and has begun the process of inspecting, 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. 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. BBII now expects to reach substantial completion on April 1, 2024, although progress in completing the OCS has been slower than anticipated. *Milestone 1, Segments 3 and 4 complete, was accomplished on September 15, 2023.* Completion of the remaining OCS work remains on the critical path, followed by low-voltage power drops and testing and commissioning. *BBII is current with its monthly schedule updates; the most recent is the August update with a September 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 August 31, 2023, the forecasted remaining contingency is \$ \$49.7 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 four (4) EMU trainsets have begun the burn-in process following the completion of electrification of Segments 3 and 4, and the successful completion of PTC and Electromagnetic Interference (EMI) testing of the vehicles. The trains are operating on the Santa Clara Drill Track and on the main tracks in Segments 3 and 4.*
  - *The five (5) remaining short-circuit tests will be conducted following the completion of the remaining electrification work, including Segments 1 and 2. Dates for those activities are currently under review.*
  - OCS productivity has improved as the targeted weekend shutdowns continue.
  - All signal cutovers have been completed, including the Reed Street crossing in Segment which is owned by the Union Pacific Railroad (UPRR).
  - Traction Power Substation (TPSS) No. 1 in South San Francisco has been energized using both incoming Pacific Gas & Electric (PG&E) lines.
  - Four (4) additional EMU trainsets are expected to arrive in the fourth quarter of 2023.
  - The JPB exercised part of its remaining options to purchase four (4) additional EMU trainsets; these vehicles will not be funded by the PCEP. The JPB also purchased a single hybrid Battery Electric Multiple Unit (BEMU) to provide wireless electrified service from San Jose to Gilroy.

- 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 | <i>Lack of internal alignment within the overall organization regarding the importance of holding BBII responsible for delivering a complete system that conforms to the specifications, both as to materials and workmanship.</i>                                   |
| Date Identified          | <i>September 2023</i>  |
| Status                   | <i>The PMOC has become aware that certain testing and commissioning activities may be moving forward before all predecessor requirements are satisfied.</i>  |
| Project Sponsor Action   | <i>PCEP leadership may be bending the rules to allow contract work to proceed before it is complete or be declared complete before it has satisfied all contract requirements.</i>   |
| PMOC Recommendation      | <i>The JPB's leadership should clearly define its expectations for PCEP personnel and the Electrification contractor, that all work, including construction, testing, and documentation, must be completed correctly before successor activities are undertaken.</i> |

|                          |   |
|--------------------------|---|
| 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 | 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 JPB states that the audit is complete.  |
| 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.   |

## 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:  |  | September 30, 2023  |   |   |   |
| Project Detail                               |  |   |   |   |   |
| Oversight Frequency:                         |  | Monthly   |   |   |   |
| Element                                      | Status   |   |   | Prior Status<br>(G/Y/R)   | Issue or Concern  |
|  |         |    |  |   |   |
|  | G  | Y   | R   |   |   |
| PMP  |  |    |   |    | The PMP requires updating to address testing and commissioning. An updated PMP has been received and is under review.   |
| MCC  |         |   |   |    | A few new individuals have been added to the PCEP team and the JPB continues to staff up to begin electrified rail operations.  |
| Cost   |         |   |   |    | 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. <i>The JPB reports that the forecasted remaining contingency is \$49.7 million out of the \$90 million in the scrubbed budget.</i>   |
| Schedule                                     |         |   |   |    | 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. Signal cutovers were completed in August 2023 as expected. <i>OCS Construction was completed on September 17, 2023. Milestone 1, Segments 3 and 4 ready for live-wire testing, was completed on September 15, 2023.</i> System Integrated Testing (SIT) is currently scheduled for completion on December 17, 2023. The 14 <sup>th</sup> 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                                      |  |  |   |  | The number of uncorrected items identified during punch list walks is significant. BBII has not fully explained the cause of the unexpected breaker activations during BBII’s third short-circuit test of the Segment 4 TPS. BBII has provided additional Buy America documentation which is under review by the JPB.   |
| Safety                                       |  |  |   |  | There was one (1) recordable incident in August 2023 and a total of five (5) recordable incidents in 2023. BBII’s Recordable Incident Rate (RIR) for 2023 is 1.65 and remains below the national average. The March 10, 2022, incident remains under investigation by the NTSB.   |
| Risk   |       |   |   |  | The number and severity of risks continues to decline.  |
| 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 August 31, 2023

| Project Status: In Construction |                         | Original (FFGA) | Current Forecast <sup>[1]</sup> | 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   | \$31,404,243                    | Current contingency usage is being tracked closely and has been           |
|                                 | Unallocated Contingency | \$162,620,294   | \$18,248,050                    |   |
|                                 | Total Contingency       | \$315,533,611   | \$49,652,293                    |   |

|                 |                          |                 |                   |  |
|-----------------|--------------------------|-----------------|-------------------|--|
|                 |                          |                 |                   | modest since the global settlement.  |
| <b>Schedule</b> | 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 |
|---|--|-----------------|------------------|
| <b>Total Expenditures</b> <sup>[4]</sup>    | Actual cost of all eligible expenditures completed to date <sup>[5]</sup>  | \$2,099,614,846 | 87.74%           |
| <b>Planned Value to Date</b> <sup>[2]</sup> | Estimated value of work planned to date <sup>[3]</sup>   | \$1,925,397,857 | 80.46%           |
| <b>Actual Value to Date</b>                 | Actual value of work completed to date <sup>[3]</sup>  | \$2,099,614,846 | 87.74%           |
| Contracts Status                            |  | Amount (\$)     | Percent          |
| <b>Total Contracts Awarded</b>              | Value of all contracts (design, support, construction, equipment) awarded; % of total value to be awarded <sup>[6]</sup> | \$2,266,244,976 | 96.71%           |
| <b>Construction Contracts Awarded</b>       | Value of construction contracts awarded; % of total construction value to be awarded <sup>[5]</sup>                      | \$1,854,293,443 | 100%             |
| <b>Physical Construction Completed</b>      | Value of physical construction (infrastructure) completed; % of total construction value completed                       | \$1,515,659,359 | 81.74%           |

| Rolling Stock Vehicle Status                        | Date Awarded | No. Ordered        | No. Delivered |
|---|--------------|--------------------|---------------|
| Electric Multiple Unit (EMU) commuter rail vehicles | 08/2016 (A)  | 133                | 28            |
| <b>Next Monthly Meeting Date:</b>                   |              | TBD September 2023 |               |
| <b>Next Quarterly Review Meeting Date:</b>          |              | TBD November 2023  |               |

**NOTES:**

[1] "Current estimate" is based on the re-baseline budget adopted by the 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 – August 2023 \$2,149,196,445  
Pre-FFGA Costs (\$49,581,599)  
Post-FFGA Costs \$2,099,614,846

[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:

Budgeted Contracts (Pre-FFGA) – Re-Baseline Budget \$2,442,690,697  
Pre-FFGA Costs (\$49,581,599)  
Forecasted Remaining Contingency (\$49,652,293)  
Budgeted Contracts (Post-FFGA) \$2,343,456,805

[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 contracts:

Executed value of Construction Contracts \$1,854,293,443  
Forecasted Construction Contract Changes 0  
Forecast of Value of Construction Contracts \$1,854,293,443



## 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%         |
| <b>Total</b>  | <b>\$2,393,351</b> | <b>\$1,927,735</b> | <b>81%</b>  |

\*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 September 2023. The information contained in this report is based on the PMOC's virtual project meeting attendance, participation in FTA's monthly review conducted on September 26, 2023, 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.
- 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 is awaiting BBII's updated Roadmap to Project Completion which is expected to revise its current substantial completion target of December 3, 2023.*
- 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 has developed a draft Recovery Plan Tracking Log which is attached as Appendix K.*

- 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 preparing to finalize its modified Readiness for Electrified Testing review. This report is focused on the PCEP's preparations for the initial electrification of Segment 4 and the start of live-wire testing and commissioning of the first EMU trainset. The PCEP team has accomplished those initial activities. 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 now 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 its revised draft Rail Activation Plan should be available for the PMOC's review in early October 2023. This version 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 JPB has accepted 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

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. A copy of the current organization chart is located in Appendix J.

- **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 SHPO asked that execution of the agreement await the October 20, 2023, expiration of the review period for the Native American tribes that are Consulting Parties to the agreement.* 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. *Primary*

*design work is essentially complete except for some remaining low-voltage wayside power units. Design-support activities continue with respect to issues encountered during testing and commissioning of the completed work.*

### ***Supervisory Control and Data Acquisition (SCADA) Equipment***

The JPB executed a sole-source contract with Aeronautical Radio, Incorporated (ARINC), 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. *Groundwater impacts to the new OCS in the tunnels have been noticed recently and investigations are underway to determine the extent of the problem and possible mitigation measures.*

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 used locomotives were not used in the start-up and testing of the newly installed OCS or TPS systems. Caltrain Operations reports that the electric locomotives will be used as rescue vehicles once electrified operations begin.*

### ***CEMOF Modifications***

The JPB awarded a contract to ProVen Management, Inc. for \$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. The JPB reports that it is nearing completion of the close-out of this contract.

## ***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 has been energized using both of PG&E's feeders. Sectionalization and short-circuit testing is complete.

## ***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 continues to staff up and train its personnel for duties on the electrified railroad. TASI staff will take over the isolation responsibilities for the OCS on October 1, 2023.

## **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 Two Speed Check Grade Crossing Approach Warning System (2SC). *All primary OCS, TPS, and Signals design work is complete.* The following issues remain active at this time:

- *Some design work remains active to support new low-voltage wayside power units. Design-support activities continue with respect to issues encountered during testing and commissioning of the completed work.*
- *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. There are five (5) short-circuit tests remaining to be completed; these tests are now expected to take place following the Completion of Milestone 1 when both Segments 3 and 4 are electrified.*

## **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 was completed using permits issued by the owner, pending completion of the transaction. The JPB submitted a draft request for concurrence to the FTA and is addressing the FTA's comments. The FTA also requested an explanatory letter from the JPB's legal counsel.*
- Staff continues to review electrical safety zones (ESZs) for potential changes due to OCS pole relocations.
- The Real Estate Department is assisting Rail Operations in acquiring areas/buildings for storage of spare parts and equipment needed to support the electrified railroad.

## **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 reports that the one remaining PG&E power line relocation in the vicinity of the Switching Station (SWS) in Segment 2 has been completed.

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 now agreed to make its payments to the JPB earlier than previously expected; this will relieve the anticipated cash flow issue in 2024.

The Transmission Load Operating Agreement (TLOA) between PG&E and the JPB has been executed for TPSS #1 in South San Francisco and the substation has been energized.

*PG&E must still approve the dates for BBII's remaining short-circuit tests on TPSS 1 and 2. The notification period for an outage at the East Grand Avenue substation serving TPSS-1 is quite lengthy due to the large number of customers served from that location.*

### ***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. All signal cutovers are now complete.

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 has submitted an update to its PTEPP to address the newly electrified system. The audit typically occurs within 180 days following the conditional approval of a new plan or significant amendment. The JPB has not reported any FRA action on its PTEPP. *The JPB had expected the visit to occur in September - October 2023, but that date has slipped and no additional information is available.*

## **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. Five (5) short-circuit tests remain to be performed. Re-testing will be done 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)***

*All remaining OCS construction was completed on September 7, 2023; however, significant work remains to complete the regulation of the wires in Segments 1 and 2. Crews that were performing OCS construction and installation are being reassigned to regulation work. Completion of the OCS*



remains on the project's critical path. BBII has brought additional on-track equipment from the United Kingdom (UK) and fielded additional crews to increase productivity. 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 September 31, 2023:***

- *All remaining wire runs were completed on September 17, 2023; only wire regulation work remains in Segments 1 and 2.*
- *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. The section of OCS that was removed to accommodate bridge construction is scheduled to be turned back to PCEP on October 21, 2023, and restoration is expected to begin in mid-November 2023.*

***Traction Power System (TPS)***

- *Traction Power Substation (TPSS) No. 1 in South San Francisco was energized using both incoming Pacific Gas & Electric (PG&E) lines. Sectionalization and short-circuit tests have been successfully completed.*
- *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 following the completion of Milestone 1, Segments 3 and 4 complete for live run testing.*
- *Approximately 93% of traction power facilities work is complete.*
- *Approximately 75% of fiber splicing is complete.*
- *Approximately 75% of communication installations for Traction Power are complete.*
- *- Work remaining includes energizations, commissioning, and testing.*
- *Grounding and bonding is complete in Segments 3 and 4, and a punch list review has been performed. Punch list of Segment 3 grounding and bonding is underway.*
- *Additional bonding and grounding will be required at Burlingame, San Bruno, and the 25<sup>th</sup> grade separation.*

***Signal System***

Cutover of the signal system is complete as of August 20, 2023. Submission and approval of final documentation will continue until completed. Installation of the JPB's wireless crossing optimization system will continue; this work will not affect rail operations. 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.

*Upcoming work on the signals and communications systems includes:*

- *Ongoing signal and comms punchlist walk in Segment 2, then Segment 1 to support final acceptance of signal and comms scope of work.*
- *Fire alarm system testing in Segment 1 completion.*
- *Completion of all fire alarm testing in Segments 2 and 1.*
- *Continued demolition of retired signal equipment.*
- *O&M training will be provided to TASI employees for Communications scope of work on 10/17, 10/18, and 10/19.*
- *Completion of Caltrain to city traffic signal preemption interconnection cable replacement at the following 6 locations. Whipple Ave., Charleston Rd., East Meadow Rd., Rengstorff Ave, Mary Ave. and Sunnyvale Ave.*

### ***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, as noted above, now expects that the tracks will be returned to service on October 21, 2023, and restoration of the OCS will begin in November 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 exercised part of its remaining options to purchase four (4) additional EMU trainsets; these vehicles will not be funded by the PCEP. The JPB also purchased a single hybrid Battery Electric Multiple Unit (BEMU) to provide wireless electrified service from San Jose to 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.

PCEP and Stadler reported the following progress on the vehicles:

- Testing of the EMU Positive Train Control (PTC) equipment has been successfully completed. This allows the EMUs to operate during normal hours on Segments 3 and 4.
- *A test train achieved 79 mph operation under PTC on Segments 3 and 4 on September 9, 2023.*
- *The 1,000 mile “burn-in” test has begun on the first trainset. This is a prerequisite for final acceptance.*
- *Refresher training of the EMU operators is continuing on the Santa Clara Drill Track during daylight hours.*
- *Live run testing on Segments 3 and 4, and at the CEMOF, is continuing.*
- Four (4) trainsets have been delivered to the JPB. *Four additional trainsets will be delivered before the end of 2023; two (2) in early November and two (2) in early December.*
- The following storage plan has been approved for the EMUs as they arrive on the property:
  - 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.

## 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. *The JPB reports that the CHSRA is somewhat delinquent in paying PCEP invoices, resulting in the need to draw on the agency’s letter of credit.*

*Table 2 below presents the PCEP costs as of August 31, 2023.* The JPB re-forecasts the estimated cost at completion (EAC) monthly.

**Table 2 – Project Cost Table at 8-31-2023 (\$ millions)<sup>[1]</sup>**

| FTA SCC Monthly - MPR Appendix D  |                          | Per 99 - 2023-08          |                        |                        |                             |   |
|---|--------------------------|---------------------------|------------------------|------------------------|-----------------------------|---|
| Description of Work   | FFGA Grant Budget<br>(A) | Re-Baseline Budget<br>(B) | Cost This Month<br>(C) | Cost To Date<br>(D)    | Estimate To Complete<br>(E) | Estimate At Completion<br>(F) = (D) + (E) |
| <b>10 - GUIDEWAY &amp; TRACK ELEMENTS</b>                                   | <b>\$14,256,739</b>      | <b>\$34,031,358</b>       | <b>\$2,548</b>         | <b>\$30,787,363</b>    | <b>\$2,059,086</b>          | <b>\$32,846,449</b>                       |
| 10.02 Guideway: At-grade semi-exclusive (allows cross-traffic)              | \$2,500,000              | \$2,387,096               | \$2,548                | \$351,418              | \$2,035,677                 | \$2,387,096                               |
| 10.07 Guideway: Underground tunnel  | \$8,110,649              | \$31,644,262              | \$0                    | \$30,435,945           | \$23,408                    | \$30,459,353                              |
| 10.07a Allocated Contingency  | \$3,646,090              | \$0                       | \$0                    | \$0                    | \$0                         | \$0                                       |
| <b>30 - SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. BLDGS</b>                  | <b>\$2,265,200</b>       | <b>\$10,046,714</b>       | <b>\$1,610</b>         | <b>\$9,871,391</b>     | <b>\$595,105</b>            | <b>\$10,466,497</b>                       |
| 30.03 Heavy Maintenance Facility  | \$1,344,000              | \$9,846,714               | \$1,610                | \$9,871,391            | \$395,105                   | \$10,266,497                              |
| 30.03a 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                                       |
| <b>40 - SITEWORK &amp; SPECIAL CONDITIONS</b>                               | <b>\$255,072,402</b>     | <b>\$438,895,518</b>      | <b>\$6,850,952</b>     | <b>\$470,891,557</b>   | <b>(\$18,555,949)</b>       | <b>\$452,335,607</b>                      |
| 40.01 Demolition, Clearing, Earthwork                                       | \$3,077,685              | \$10,748,067              | \$499,160              | \$10,894,221           | (\$146,154)                 | \$10,748,067                              |
| 40.02 Site Utilities, Utility Relocation                                    | \$62,192,517             | \$103,275,822             | \$1,259,520            | \$176,272,465          | (\$76,826,244)              | \$99,446,222                              |
| 40.02a 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              | \$211,236              | \$11,664,318           | \$377,875                   | \$12,042,192                              |
| 40.04 Environmental mitigation, e.g. wetlands, historic/archeologic, parks  | \$32,579,208             | \$20,989,303              | \$0                    | \$3,667,908            | \$16,673,873                | \$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               | \$369,562              | \$2,264,882            | \$470,118                   | \$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            | \$264,435,606             | \$4,511,475            | \$266,127,763          | \$26,262,335                | \$292,390,098                             |
| 40.08a Allocated Contingency  | \$20,160,000             | \$22,298,763              | \$0                    | \$0                    | \$12,261,482                | \$12,261,482                              |
| <b>50 - SYSTEMS</b>   | <b>\$504,445,419</b>     | <b>\$679,821,865</b>      | <b>\$11,208,912</b>    | <b>\$615,155,157</b>   | <b>\$64,683,066</b>         | <b>\$679,838,223</b>                      |
| 50.01 Train control and signals   | \$97,589,149             | \$112,460,517             | \$1,932,075            | \$143,243,509          | (\$29,993,917)              | \$113,249,592                             |
| 50.01a Allocated Contingency  | \$1,651,000              | \$4,950,000               | \$0                    | \$0                    | \$4,147,742                 | \$4,147,742                               |
| 50.02 Traffic signals and crossing protection                               | \$23,879,905             | \$79,475,273              | \$836,041              | \$30,579,701           | \$49,843,482                | \$80,423,183                              |
| 50.02a Allocated Contingency  | \$1,140,000              | \$500,000                 | \$0                    | \$0                    | (\$447,910)                 | (\$447,910)                               |
| 50.03 Traction power supply: substations                                    | \$69,120,009             | \$127,642,222             | \$1,408,179            | \$123,263,745          | \$6,759,599                 | \$130,023,345                             |
| 50.03a Allocated Contingency  | \$31,755,013             | \$2,861,411               | \$0                    | \$0                    | \$480,289                   | \$480,289                                 |
| 50.04 Traction power distribution: catenary and third rail                  | \$253,683,045            | \$336,585,173             | \$7,199,478            | \$312,912,029          | \$25,161,223                | \$338,073,251                             |
| 50.04a Allocated Contingency  | \$18,064,000             | \$6,350,000               | \$0                    | \$0                    | \$4,891,462                 | \$4,891,462                               |
| 50.05 Communications  | \$5,455,000              | \$5,547,000               | (\$166,860)            | \$5,156,173            | \$695,308                   | \$5,851,481                               |
| 50.05a Allocated Contingency  |                          | \$3,150,000               | \$0                    | \$0                    | \$2,845,519                 | \$2,845,519                               |
| 50.07 Central Control   | \$2,090,298              | \$300,269                 | \$0                    | \$0                    | \$300,269                   | \$300,269                                 |
| 50.07a Allocated Contingency  | \$18,000                 | \$0                       | \$0                    | \$0                    | \$0                         | \$0                                       |
| <b>60 - ROW, LAND, EXISTING IMPROVEMENTS</b>                                | <b>\$35,675,084</b>      | <b>\$33,344,581</b>       | <b>\$91,040</b>        | <b>\$22,932,729</b>    | <b>\$10,411,852</b>         | <b>\$33,344,581</b>                       |
| 60.01 Purchase or lease of real estate                                      | \$25,927,074             | \$33,160,590              | \$91,040               | \$22,798,737           | \$10,361,853                | \$33,160,590                              |
| 60.01a 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                                 |
| <b>70 - VEHICLES [96]</b>   | <b>\$625,544,147</b>     | <b>\$694,286,192</b>      | <b>\$1,523,460</b>     | <b>\$502,809,563</b>   | <b>\$184,523,575</b>        | <b>\$687,333,138</b>                      |
| 70.03 Commuter Rail   | \$589,167,291            | \$642,183,381             | \$1,523,460            | \$488,673,557          | \$160,491,412               | \$649,164,969                             |
| 70.03a Allocated Contingency  | \$9,472,924              | \$15,555,307              | \$0                    | \$0                    | \$2,000,000                 | \$2,000,000                               |
| 70.06 Non-revenue vehicles  | \$8,140,000              | \$17,239,237              | \$0                    | \$538,280              | \$16,700,958                | \$17,239,237                              |
| 70.06a Allocated Contingency  |                          | \$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                              |
| <b>80 - PROFESSIONAL SERVICES (applies to Cats. 10-50)</b>                  | <b>\$323,793,010</b>     | <b>\$464,899,724</b>      | <b>\$4,334,239</b>     | <b>\$437,426,215</b>   | <b>\$31,371,701</b>         | <b>\$468,797,916</b>                      |
| 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            | \$241,386,730             | \$1,309,797            | \$240,477,285          | \$2,102,752                 | \$242,580,037                             |
| 80.02a Allocated Contingency  | \$1,866,000              | \$500,000                 | \$0                    | \$0                    | (\$273,185)                 | (\$273,185)                               |
| 80.03 Project Management for Design and Construction                        | \$72,029,265             | \$151,617,659             | \$2,094,577            | \$138,094,297          | \$16,441,432                | \$154,535,729                             |
| 80.03a Allocated Contingency  | \$9,388,080              | (\$0)                     | \$0                    | \$0                    | (\$0)                       | (\$0)                                     |
| 80.04 Construction Administration & Management                              | \$23,677,949             | \$50,737,213              | \$980,845              | \$44,841,741           | \$5,895,472                 | \$50,737,213                              |
| 80.04a 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               | (\$0)                  | \$6,291,001            | \$290,850                   | \$6,581,851                               |
| 80.06 Legal; Permits; Review Fees by other agencies, cities, etc.           | \$7,167,275              | \$10,183,908              | (\$50,980)             | \$7,302,484            | \$3,441,424                 | \$10,743,908                              |
| 80.06a Allocated Contingency  | \$556,000                | \$650,000                 | \$0                    | \$0                    | \$650,000                   | \$650,000                                 |
| 80.07 Surveys, Testing, Investigation, Inspection                           | \$3,287,824              | \$210,957                 | \$0                    | \$58,254               | \$152,703                   | \$210,957                                 |
| 80.08 Start up  | \$1,797,957              | \$392,173                 | \$0                    | \$71,920               | \$392,173                   | \$464,093                                 |
| 80.08a Allocated Contingency  | \$628,000                | \$2,350,000               | \$0                    | \$0                    | \$2,278,080                 | \$2,278,080                               |
| <b>Subtotal (10 - 80)</b>   | <b>\$1,761,052,001</b>   | <b>\$2,355,325,952</b>    | <b>\$24,012,762</b>    | <b>\$2,089,873,975</b> | <b>\$275,088,436</b>        | <b>\$2,364,962,410</b>                    |
| <b>90 UNALLOCATED CONTINGENCY</b>   | <b>\$162,620,295</b>     | <b>\$27,884,507</b>       | <b>\$0</b>             | <b>\$0</b>             | <b>\$18,248,050</b>         | <b>\$18,248,050</b>                       |
| <b>Subtotal (10 - 90)</b>   | <b>\$1,923,672,296</b>   | <b>\$2,383,210,460</b>    | <b>\$24,012,762</b>    | <b>\$2,089,873,975</b> | <b>\$293,336,485</b>        | <b>\$2,383,210,460</b>                    |
| <b>100 FINANCE CHARGES</b>  | <b>\$6,998,638</b>       | <b>\$9,898,638</b>        | <b>\$286,488</b>       | <b>\$9,740,871</b>     | <b>\$157,767</b>            | <b>\$9,898,638</b>                        |
| <b>Total Project Cost (10 - 100)</b>  | <b>\$1,930,670,934</b>   | <b>\$2,393,109,098</b>    | <b>\$24,299,250</b>    | <b>\$2,099,614,846</b> | <b>\$293,494,252</b>        | <b>\$2,393,109,098</b>                    |

[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 2 below summarizes the project contingency as of August 31, 2023, for the revised project budget.

**Table 2 – Contingency Status (\$ millions) <sup>[1]</sup>**

| Contingency Category | Original Baseline Contingency (YOE) | Revised Contingency Budget (YOE) | Current Contingency (YOE)       | % of Construction Complete and % Revised Contingency Remaining <sup>3</sup> |
|----------------------|-------------------------------------|----------------------------------|---------------------------------|---|
| Allocated            | \$152.9                             | \$62.1                           | \$31,404,243                    | 81.74%  |
| Unallocated          | \$162.6                             | \$27.9                           | \$18,248,050                    |   |
| <b>TOTAL</b>         | <b>\$315.5</b>                      | <b>\$90.0</b>                    | <b>\$49,652,293<sup>2</sup></b> | <b>55.17%</b>   |

[1] Totals may not add due to rounding.

[3] Data as of August 31, 2023.

[2] Estimate at Completion

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 3 below provides some metrics related to the effectiveness of the IRL through September 19, 2023. The total value of changes approved through the shared risk pool as of September 19, 2023, is \$10,755,940.* The IRL metrics are routinely shared with the PCEP's Change Management Board.

**Table 3 – Issue Resolution Log Metrics (September 19, 2023)**

| DESCRIPTION  | QTY | %     |
|--|-----|-------|
| Total Quantity of IRL Items Opened                               | 342 | -     |
| IRL Items Closed without Commercial Implication                  | 128 | 37.4% |
| IRL Items Pending Technical Resolution                           | 20  | 5.8%  |
| Technical Resolution Agreed, Pending Commercial Agreement        | 14  | 4.1%  |
| Tech. Resolution & Comm. Implications Agreed (Pending Signature) | 5   | 1.5%  |
| Technical Resolution & Commercial Implications Agreed (< \$10k)  | 14  | 4.1%  |
| Total IRL Items Approved   | 161 | 47.1% |

## 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          |
| <b>TOTAL</b> |                       | <b>\$462.4 million</b> |

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.

EMU Contract Changes: No activity this period.

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 August 2023 with a Data Date of September 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 September 20, 2023, or a delay of 113 days from the agreed upon reforecast date. Milestone 1 was completed on September 15, 2023.* The forecast dates for Substantial Completion and Final Acceptance have recovered the previous slip and are now April 1, 2024, and July 30, 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 October 1, 2023, includes the BBII, Stadler, and ARINC schedules as well as some PCEP dates. The updated IMS was presented and discussed at the PCEP monthly schedule review meeting held on September 25, 2023.*

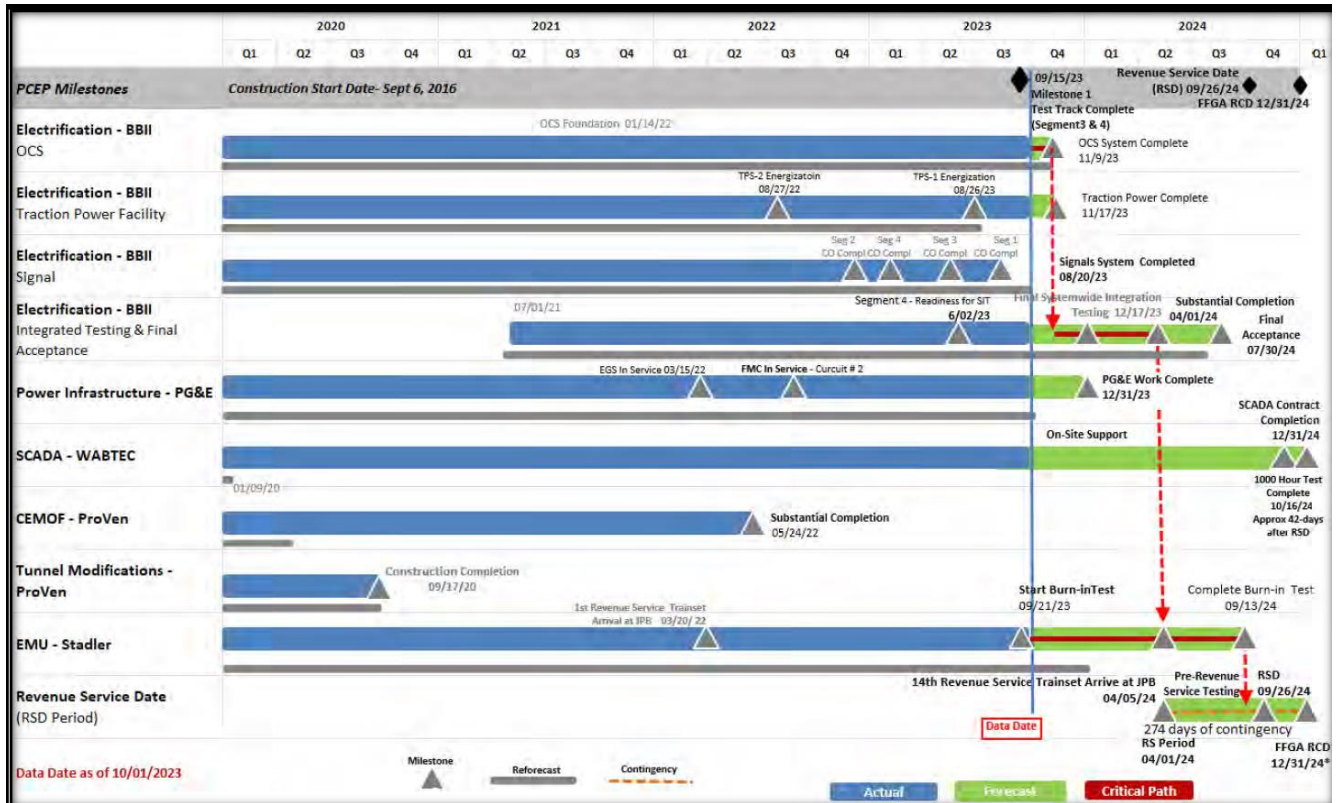
### ***EMU Schedule***

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 14<sup>th</sup> trainset on March 22, 2024, and commencement of the Revenue Service with its new EMUs in September 2024. The JPB recently issued a change order for the installation of Broadband Wi-Fi equipment on the new EMUs. Part of the fleet will have the equipment installed by Stadler in Salt Lake City prior to shipment to JPB. The remaining units, including those already received by the JPB, will be modified at the CEMOF prior to being placed into revenue service. The PCEP team continues to work with Stadler to refine schedule details related to receiving, testing, and burn-in of the EMUs. *Stadler plans to deliver four (4) more trainsets to Caltrain before the end of calendar year 2023,*

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



**Figure 2 – Summary Project Schedule (Data Date 10-1-2023)**



The forecasted dates above are based on BBII's and Stadler's July 2023 schedule updates with Data Dates of 8/1/2023.

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

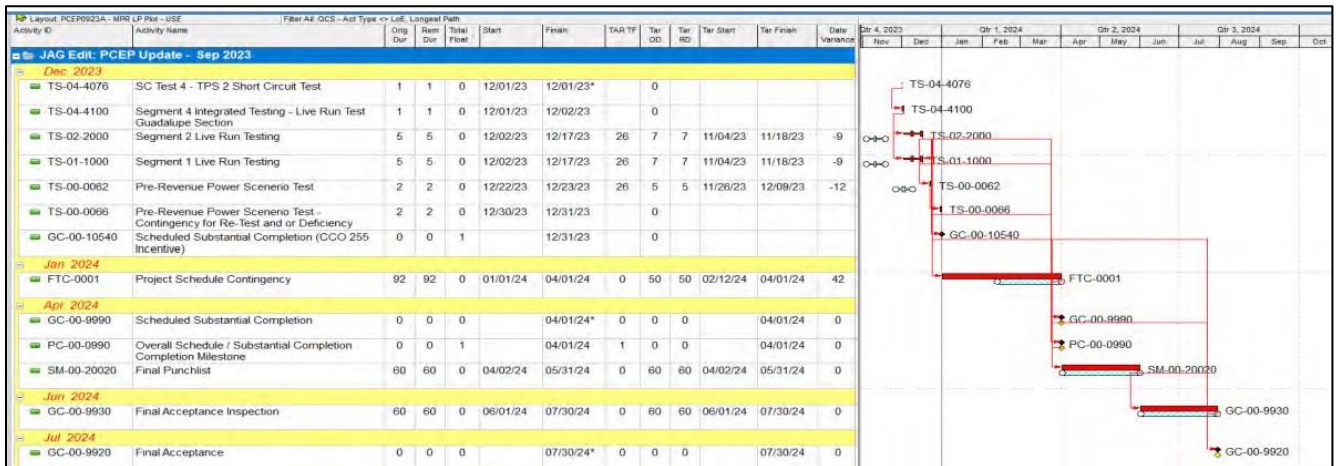




Table 4 below presents the JPB's analysis of BBII's August 2023 Schedule Update.

**Table 4 – Project Schedule Milestone Analysis**

| Milestones                                   | Reforecast Dates (Dec '22) | Current Dates (Aug '23) | Milestone Finish Date Variance | Total Float | Remarks  |
|--|----------------------------|-------------------------|--------------------------------|-------------|--|
| Completion of Milestone 1 (Segments 3 and 4) | 5/28/23                    | 9/20/23                 | -114                           | -114        | <i>Delayed by the failures in the Segment 3 and 4 integrated testing and delays in issuing the certificate of compliance for Milestone 1. This milestone signifies that all infrastructure required for live run testing were complete, and milestone 1 limit is certified for compliance and is ready for Burn in which is scheduled to start on 9/25/2023.</i> |
| Substantial Completion                       | 4/1/24                     | 4/1/24                  | 0                              | 0           |  |
| Scheduled Final Acceptance                   | 7/30/24                    | 7/30/24                 | 0                              | 0           |  |
| Revenue Service Date (RSD)                   | 9/26/24                    | 9/26/24                 | 0                              | N/A         |  |
| FFGA Required Completion Date (RCD)          | 12/31/24                   | 12/31/24                | 0                              | N/A         |  |

### **Recent Significant Schedule Changes**

#### **PG&E Low Voltage Energization**

*The duration of PG&E design and construction has become a concern due to the overall lack of progress. BBII has added all current low power drop applications to the schedule to track the progress of the low power drops. Several locations have required re-design by PG&E or additional procurement of materials, which may affect the overall low voltage completion date.*

#### **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 has changed this month to the final Segment 4 Short Circuit Testing. This work is followed by Live Run Testing in Segments 1 and 2 followed by the 92-day Project Schedule Contingency, Substantial Completion, and Final Acceptance.*

*Source: PCEP September 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.

*Installation of the OCS is now complete. Construction crews have been shifted to regulation work. 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 who is furnishing four (4) additional crews to help regulate the installed OCS.

### ***Schedule Contingency Status***

The JPB's latest schedule, taken from the September 25, 2023, Monthly Schedule Review meeting presentation, continues to project a Substantial Completion Date of April 1, 2024, a Revenue Service Date (RSD) of September 26, 2024, and a Final Acceptance Date of July 30, 2024. This schedule provides a total of 274 days 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 5 below.

**Table 5 – BBII Schedule Performance Incentives**

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

### ***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 14<sup>th</sup> trainset for arrival on April 5, 2024.*

### **PMOC Observations:**

- The PMOC's opinion is that BBII has made progress and is now near current in submitting its progress schedules.
- The PMOC is pleased that the PCEP team is again holding regular monthly schedule review meetings. The presentation materials and analysis of contractor schedules are helpful. The PMOC encourages the PCEP team to complete the integration of the growing list of Rail Activation activities into the otherwise complete Integrated Master Schedule so that the full scope of project activities can be easily assessed.
- Schedule risk continues to decline as construction work is completed and the pace of testing and commissioning activities increases.
- The JPB conducted a Monte Carlo schedule risk analysis in July 2023 using the Integrated Master Schedule with a data date of July 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.
- 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.

## **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 Interim Chief Officer (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 July 2023 in keeping with the quarterly schedule established with the Change Management Board (CMB) members. Monte Carlo analysis was conducted on the risks appearing on the July 21, 2023, risk register. Cost of risk, to a probability of 65% (P65) is \$20.7 million, a slight decrease from the \$23.2 million calculated in April 2023.

A Monte Carlo schedule risk analysis was also conducted using the Integrated Master Schedule with a data date of July 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. 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 July 31, 2023, was \$49.7 million, a further decline from the \$57.4 million balance on June 30, 2023. The contingency drawdown associated with the BBII contract continues at a modest pace. The PCEP team continues to be confident that there will be a positive contingency balance at the completion of the PCEP.*

- **PMOC Observation:** The PMOC is pleased that the cost of risk continues to decline, and 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.

## 2.16 Quality Assurance / Quality Control (QA/QC)

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

### *Infrastructure Projects*

- *The JPB reports that no Non-Conformance Reports were issued or closed during September 2023, either by the JPB or by BBII.*
- *BBII is continuing to work on building the indented bill of materials (IBOM). A meeting was held to discuss this IBOM. BBII completed a draft IBOM and JPB reviewed the document and provided comments regarding how the end products, components, and subcomponents were structured.*
- *The PCEP Quality team reported on the following ongoing activities:*
  - *Short Circuit Testing Failure #2/Traction Power System Integration*
  - *BBII Daily Inspection Report transmission to JPB within the timeframe required by the Contract.*
  - *Testing submittals not being submitted by BBII per contract time periods.*
  - *Shop Drawing/Issued for Construction Submittal Process*
  - *Flooding of Traction Power Facilities due to rain and facility equipment (sump pumps) not being installed.*
  - *Theft of Copper for grounding and bonding*
  - *OCS Torque Requirements*
- *The JPB reported on the results of four (4) surveillance audits performed on BBII related to red-line drawing production; general quality procedures, e.g., BBII QC daily reports; as-built drawings; and project specifications.*
- *The JPB reviewed and audited quality documentation submitted by BBII related to CCTV monitors; electromagnetic and radio frequency interference; OCS regulation and miscellaneous installation in Segment 2; and TPS-1 Phase Break Interlock Test.*
- *The JPB continues to review Material Receiving Reports (MRR) to assure that the quality, testing, and Buy America requirements are met and included in the receiving document package.*
- *Issued, received, monitored, and tracked NCRs/CDRs to assure compliance with approved QMPs. Also monitored corrective and preventative actions for compliance with QMP and the effectiveness of the actions.*
- *Assisted and monitored the project closeout process including punch lists.*
- *Maintained a field presence with PCEP field quality auditor/inspector.*

### *EMU Quality*

- *Stadler reported that its supplier for Glass Reinforced Plastic (GRP) stairway panels has now passed fire testing and Stadler is in the process of closing its First Article Inspection (FAI).*
- *PCEP continues to work with Stadler to improve their Salt Lake City based QC/QA processes, focusing on workmanship non-compliances and hold point inspections.*
- *Quality and consistency are improving as the workforce is stabilizing.*

- **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 recordable injuries or accidents reported in September 2023. There was one recordable injury in August 2023 for a total of five (5) recordable incidents in 2023. BBII's Recordable Incident Rate for 2023 is 1.48. Overall, since the project's inception, the RIR is at 1.58, which is below the national average of 2.5.*

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 JPB met with the NTSB on September 14, 2023. The NTSB representatives were impressed with the Enhanced Employee Protection System (EEPS).*

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:

- *OCS and EMU First Responder was conducted in San Francisco in early October. Redwood City, San Carlos, and Belmont are being conducted this month. All First Responder training will be completed by the end of October 2023.*
- *Police Departments along the corridor are also currently being scheduled by the Transit Police to receive this training also.*
- *To date there have been 96 classes for Emergency Responders (769 people trained) and over 225 3rd party contractors and tenant railroad employees.*
- *EMU familiarization training for fire departments will be re-scheduled after energization and prior to revenue service.*
- *Continued safety special task force working group including TASI, Rail Operations, and PCEP to address communications, process, and procedure improvements.*
- *The JPB's annual live training exercise is scheduled for December 10, 2023, at the Bayshore/Visitation station area.*

## **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)***

- *Five separate short-circuit test remain, including the re-test of TPSS 2. These tests will be conducted after both Segments 3 and 4 are completed and electrified.*
- *The final cutover of signals in Segment 1 and the UPRR's Reed Street crossing in Segment 4 has been completed.*
- *TASI will take over OCS isolation responsibilities from BBII on October 1, 2023.*
- *BBII continues to participate in the project-wide Systems Integration, Safety and Security Certification Committee, Testing and Commissioning, and Rail Activation meetings.*

### ***EMU Contract***

- *Testing of the EMUs with 25 kV power is continuing on the Segment 3 and 4 main tracks and on the Santa Clara Drill Track (SCDT). One of the EMUs has begun the 1,000-mile burn-in process, which is part of its final acceptance. Based on initial results, the 1,000 mile burn-in process can be completed in approximately seven (7) days on the current shortened alignment.*
- *One EMU (309) was damaged during the filming of an initial pantograph test. Repairs are expected to take approximately one (1) week and should be completed in October 2023.*
- *The EMU consultant has completed the Operations and Maintenance Plan for the EMUs and an update to the Rail Fleet Management Plan (RFMP).*
- *EMU operators will continue to receive refresher training on the vehicles 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 current focus has expanded beyond preparing for initial live wire testing, which is now underway, to include more of the elements necessary for the railroad to operate safely and reliably. These include staffing for supervisory and non-supervisory positions; completion of the necessary training for operations and management personnel; acquisition and storage of spare parts and special tools; resolution of any outstanding third-party issues, timely completion of the various required plans; and completion of the safety and security certification requirements. *The RAC also tracks the JPB's progress in acquiring the necessary real estate and buildings to support storage of Maintenance of Way (MOW) equipment and materials.*

*The Rail Activation Manager completed a re-write of the Rail Activation Plan (RAP) and the plan has been finalized. 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 concerned that there may be a lack of internal alignment within the overall organization regarding the importance of holding BBII responsible for delivering a complete system that conforms to the specifications, both as to materials and workmanship.*
- The PMOC has completed the final draft of a modified Readiness for Electrified Testing review. The review is focused on the initial electrification of Segment 4 and the start of live-wire testing and commissioning of the first EMU trainset. The FTA transmitted the final draft to the JPB for comment on July 11, 2023, and no comments were received. The PMOC expects to complete the report in October 2023. 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 and cooperation between the JPB and BBII have improved under the PCEP's new leadership and through the renewed vigorous partnering effort.
- Unexpected issues continue to arise as the contractors and the PCEP teams perform punch list reviews of the constructed work and continue the testing and commissioning process. Completion of the electrification contract is getting closer and leadership on both sides is urging all personnel to remain focused, work safely, and produce a quality job.

## **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 |
| ADA      | Americans with Disabilities Act                        |
| ARINC    | Aeronautical Radio, Incorporated                       |
| ATP      | Alternate Technical Proposal                           |
| BBII     | Balfour-Beatty Infrastructure, Inc.                    |
| BCCF     | Back-up Central Control Facility                       |
| BEMU     | Battery Electric Multiple Unit                         |
| Cal/OSHA | California Office of Occupational Safety and Health    |
| Caltrans | California Department of Transportation                |
| CAR      | Corrective Action Request                              |
| CC       | FTA's Core Capacity Improvement Program                |
| CCF      | Central Control Facility                               |
| CCSF     | City and County of San Francisco                       |
| CDR      | Construction Discrepancy Report                        |
| CEMOF    | Central Equipment Maintenance and Operations Facility  |
| 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                 |
| D-B      | Design-Build   |
| DBB      | Design-Bid-Build                                       |
| DBE      | Disadvantaged Business Enterprise                      |
| EA       | Environmental Assessment                               |
| EAC      | Estimate at Completion                                 |
| EE       | Entry into Engineering                                 |
| EEPS     | Enhanced Employee Protection System                    |
| EOR      | Engineer of Record                                     |
| EMI      | Electromagnetic Interference                           |
| EMU      | Electric Multiple Unit Rail Vehicle                    |
| EPREP    | Emergency Preparedness Plan                            |
| ESZ      | Electrical Safety Zone                                 |
| FA       | Final Acceptance                                       |
| FAI      | First Article Inspection                               |
| FAT      | Factory Acceptance Test                                |
| FD       | Final Design   |
| FFGA     | Full Funding Grant Agreement                           |
| FLSC     | Fire Life Safety Committee                             |
| FRA      | Federal Railroad Administration                        |
| FTA      | Federal Transit Administration                         |
| FY       | Fiscal Year  |
| GRP      | Glass Reinforced Plastic                               |
| IBOM     | Indented Bill of Material                              |
| ICO      | Interim Chief Officer                                  |
| IMS      | Integrated Master Schedule                             |

| Acronyms     | List of Terms   |
|--------------|---|
| 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   |
| MCC          | Management Capacity and Capability                    |
| <i>MOW</i>   | <i>Maintenance of Way</i>                             |
| MRR          | Material Receiving Report                             |
| MPS          | Master Project Schedule                               |
| NCR          | Non-conformance Report                                |
| NEPA         | National Environmental Policy Act                     |
| NTP          | Notice to Proceed                                     |
| NTSB         | National Transportation Safety Board                  |
| OCS          | Overhead Contact System/Overhead Catenary System      |
| OHA          | Operational Hazard Analysis                           |
| PCEP         | Peninsula Corridor Electrification Program            |
| PD           | Project Development Phase                             |
| PG&E         | Pacific Gas and Electric                              |
| PHA          | Preliminary Hazard Assessment                         |
| PMOC         | Project Management Oversight Contractor               |
| PMP          | Project Management Plan                               |
| ProVen       | ProVen Management, Inc.                               |
| PS           | Paralleling Station for Traction Power Supply         |
| PTC          | Positive Train Control                                |
| PTCSP        | Positive Train Control Safety Plan (FRA)              |
| 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                                  |
| 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)                     |
| ROW          | Right of Way  |
| RSD          | Revenue Service Date or Revenue Service Demonstration |
| RWP          | Roadway Worker Protection                             |
| SamTrans     | San Mateo County Transit District                     |
| SCADA        | Supervisory Control and Data Acquisition              |
| SCC          | Standard Cost Category                                |
| SCDT         | Santa Clara Drill Track                               |
| SCVTA/VTA    | Santa Clara Valley Transportation Authority           |
| SCVWD        | Santa Clara Valley Water District                     |
| SF           | City of San Francisco                                 |
| SHPO         | State Historic Preservation Office                    |
| SIT          | System Integrating Testing                            |

| Acronyms | List of Terms                                     |
|----------|---|
| SLC      | Salt Lake City                                    |
| SP       | Southern Pacific Transportation Company           |
| SSCP     | Safety and Security Certification Plan            |
| SSMP     | Safety and Security Management Plan               |
| SSOA     | State Safety Oversight Agency                     |
| SSWP     | Site Specific Work Plan                           |
| SWS      | Switching Station                                 |
| TASI     | Transit America Services, Inc.                    |
| TIRCP    | Transportation and Intercity Rail Capital Program |
| TLOA     | Transmission Load Operating Agreement             |
| TPS      | Traction Power System                             |
| TPSS     | Traction Power Substation                         |
| TrAMS    | Transportation Award Management System            |
| TUN/TUP  | Temporary Use Notice/Temporary Use Permit         |
| TVA      | Threat and Vulnerability Analysis                 |
| UPRR     | Union Pacific Railroad                            |
| UK       | United Kingdom                                    |
| VAT      | <i>Vehicle Acceptance Test</i>                    |
| 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   |                                |  |   |
|---|--------------------------------|--|---|
| <b>Project Overview</b>   |                                |  |   |
| Project Mode  | Commuter Rail                  |  |   |
| Project Phase   | FFGA – Construction            |  |   |
| Project Delivery Methods  | Design-Build, Design-Bid-Build |  |   |
| <b>Project Plans</b>  | <b>Version</b>                 | <b>Review by FTA</b>   | <b>Status</b>   |
| 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   |   |
| <b>Safety and Security Authority</b>  |                                |  |   |
| 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?  | Y                              | QPRM No. 24 was held on August 29, 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.                                 |
| <b>SSMP Monitoring</b>  |     |  |
| 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? <ul style="list-style-type: none"> <li>• Activation Plan and Procedures</li> <li>• Integrated Test Plan and Procedures</li> <li>• Operations and Maintenance Plan</li> <li>• Emergency Operations Plan</li> </ul> | Y<br>Y<br>Y<br>Y | 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.  |
| <b>Construction Safety</b>  |                  |   |
| 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 five (5) recordable incidents in 2023. BBII's Recordable Incident Rate for 2023 is 1.48. Overall, since the project's inception, the RIR is at 1.58, 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.  |
| <b>Federal Railroad Administration</b>   |     |  |
| If a shared track, has the project sponsor submitted its waiver request application to FRA?<br>(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 Emergency Preparedness Plan (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?   | Y   | QPRM No. 24 was held on August 29, 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 determined that JPB should submit a combined RFA for both the 2SC solution and the Crossing Optimization Process.<br><br>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                      | All cutovers have been completed.<br><br>The RFA will be submitted after the completion of the 2SC installations and after the completion of the Crossing Optimization program.<br><br>The JPB is staying in close touch with the FRA, and the FRA has witnessed the cutovers. |

## Attachment D Top Project Risks

*Risk number 331 is currently the top risk. Risks ranked 2-4 remain unchanged. Changes from the prior report are indicated in italics.*

| Risk No.  | Risk Category |        | Risk Description  | Status  |
|---|---------------|--------|---|---|
|   | Cost          | Sched. |   |   |
| 331   | X             | X      | <i>Delays to project because the system (or portions of the system) cannot be energized without impedance bonds.</i>  | <i>BBII is implementing mitigation measures to deter theft of the impedance bonds while a longer term solution is investigated.</i>   |
| 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:<br>1. Inefficiencies due to lack of proper work planning.<br>2. Lack of resources (labor and equipment).<br>3. Insufficient TASI support resources and track access. | 1. Additional resources and equipment from the contractor, which has already been implemented.<br>2. Use of weekend shutdowns and an agreement on TASI resource number has been implemented as well.<br>3. Bringing in a subcontractor to supplement resources.<br>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;<br>2. Implement configuration control process.<br>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.  |
| <b><i>Top six (5) risks as listed on the September 15, 2023 Risk Register</i></b> |               |        |   |   |

## Attachment E Awarded Contracts

The current list of contracts numbers 195. Ninety-five (95) contracts have values over \$50,000, and eighty (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 August 31, 2023.

| Contractor Name   | Contract Value      |
|---|---------------------|
| BALFOUR BEATTY INFRASTRUCTURE, INC                      | \$ 1,097,149,880.96 |
| STADLER US INC  | \$ 564,986,270.86   |
| TRANSITAMERICA SERVICES, INC. - Other scopes            | \$ 133,228,274.95   |
| PACIFIC GAS & ELECTRIC COMPANY - SA scopes              | \$ 124,106,400.00   |
| GANNETT FLEMING TRANSIT & RAIL SYSTEMS                  | \$ 67,743,400.00    |
| PROVEN MANAGEMENT, INC. - Tunnel scope                  | \$ 47,059,351.90    |
| URS CORPORATION   | \$ 36,361,332.00    |
| JACOBS PROJECT MANAGEMENT CO.                           | \$ 35,500,000.00    |
| LTK CONSULTING SERVICES, INC.                           | \$ 29,177,672.96    |
| B & G TRANSPORTATION GROUP, LLC                         | \$ 11,350,067.72    |
| RAIL SURVEYORS AND ENGINEERS, INC.                      | \$ 10,180,031.02    |
| PROVEN MANAGEMENT, INC. - CEMOF scope                   | \$ 9,476,816.16     |
| JPMORGAN CHASE BANK, N.A.                               | \$ 8,853,865.41     |
| HNTB CORPORATION  | \$ 8,652,751.32     |
| Hatch Associates Consultants, Inc                       | \$ 8,229,739.22     |
| ARINC INCORPORATED                                      | \$ 5,523,853.39     |
| RREF III-P TOWER PLAZA LLC                              | \$ 4,939,139.57     |
| ICF JONES & STOKES, INC.                                | \$ 4,785,407.78     |
| FIRST AMERICAN TITLE COMPANY                            | \$ 4,609,000.60     |
| NC 2121 SEC VENTURES LLC                                | \$ 4,394,220.07     |
| STATE OF CALIFORNIA                                     | \$ 3,629,200.00     |
| SAN MATEO COUNTY TRANSIT DISTRICT                       | \$ 2,861,267.23     |
| PRICE FORBES & PARTNERS, LTD                            | \$ 2,804,082.05     |
| DCONSULT, LLC.  | \$ 2,471,349.92     |
| SHIMMICK/DISNEY JOINT VENTURE                           | \$ 2,400,000.00     |
| NORMAN E. MATTEONI ATTORNEY BAR TRUST                   | \$ 2,016,000.00     |
| USI INSURANCE SERVICES NATIONAL, INC.                   | \$ 1,993,650.50     |
| PROVEN MANAGEMENT, INC. - SSF scope                     | \$ 1,866,575.18     |
| BENDER ROSETHAL, INC.                                   | \$ 1,713,196.74     |
| WELLS FARGO INSURANCE SERVICES USA, INC                 | \$ 1,493,268.60     |
| SFO AIRPORTER, INC.                                     | \$ 1,400,000.00     |
| WSP USA INC   | \$ 1,380,423.13     |
| COMPUCOM SYSTEMS, INC.                                  | \$ 1,370,249.38     |
| TRANSITAMERICA SERVICES, INC. - Santa clara drill track | \$ 1,186,015.00     |
| MNS ENGINEERS, INC.                                     | \$ 1,093,716.58     |
| ASSOCIATED RIGHT OF WAY                                 | \$ 1,092,389.50     |
| WABTEC TRANSPORTATION SYSTEMS LLC                       | \$ 1,023,099.27     |

## 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 exercised some of its remaining options and purchased four (4) additional trainsets prior to the option expiration date of August 15, 2023; these options will not be funded by the PCEP. JPB also purchased one additional hybrid battery-electric multiple unit trainset to provide demonstration service between San Jose and Gilroy.
- **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 (P)   |                              |
| Segment 4 Complete to Begin EMU Testing:          | 11/2019    | 7/15/2023 (A)    |                              |
| Revised Milestone 1 (Segments 3 and 4) Complete   | N/A        | 9/13/2023 (A)    |                              |
| Completion of Interconnection from PG&E to TPSS 2 | N/A        | 1/29/2021 (A)    |                              |
| Design/Build Substantial Completion:              | 02/2019    | 4/1/2024 (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. *Milestone 1, Segments 3 and 4 available for EMU testing occurred on September 13, 2023, and the burn in of the EMU vehicles has begun.* The first four (4) EMU trainsets have completed 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 now scheduled to be re-connected in mid-November 2023.* 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 JPB has requested a waiver from the FTA related to the required service necessary to satisfy the FFGA core capacity requirements due to the dramatic drop in ridership as a result of the COVID-19 pandemic. The waiver request is under consideration.

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 September 28, 2023. The current focus is on completing various Vehicle Acceptance Tests (VAT) for the EMUs and completing the 1,000 mile burn-in for each trainset.*

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 is shown in Figure H-1.

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

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**

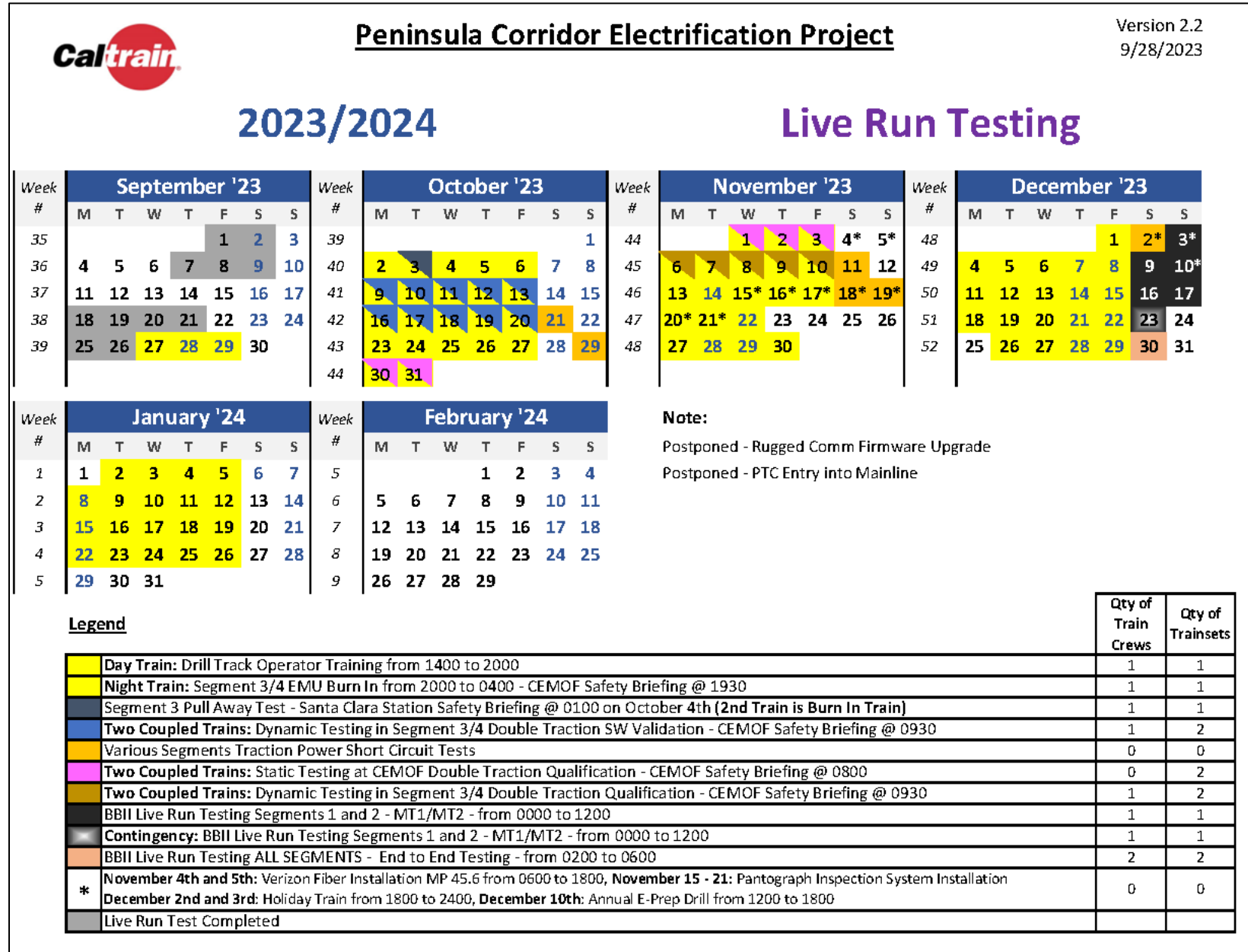
1. Short Circuit Test
2. SCDT Site Specific Work Plan (SSWP) with SCDT Operating Plan (Maintenance handled by BBII)
3. TUP Issued for SCDT based on an approved SCDT SSWP and successful pre-requisite tests
4. SCDT Testing including EMU Static Tests, EMU Bump Test, and SCDT Live Wire Testing, performed 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

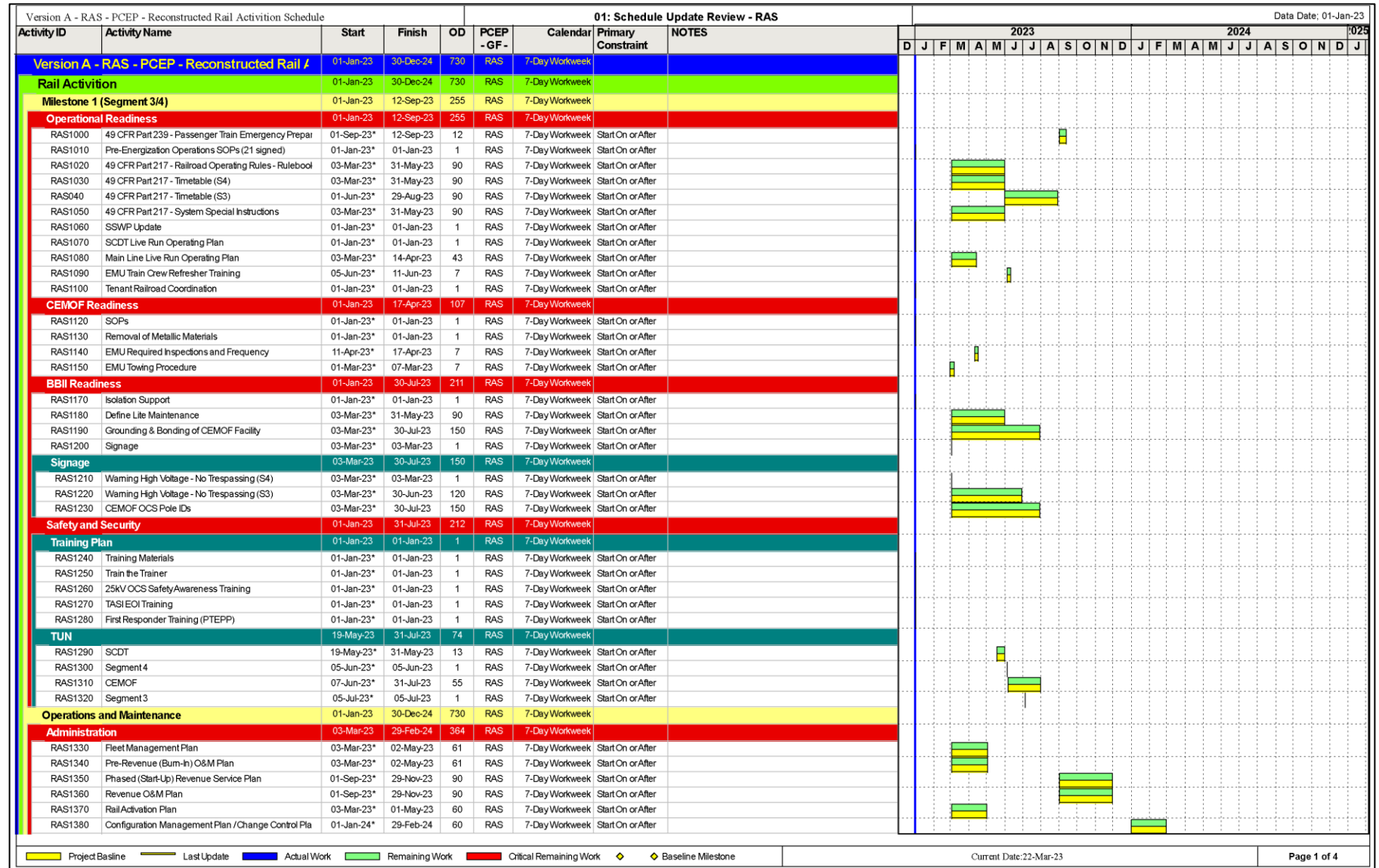
**This process will continue repeating for Segments 2 and then 1.**

Figure H-1 Live Run Testing Schedule (September 28, 2023)



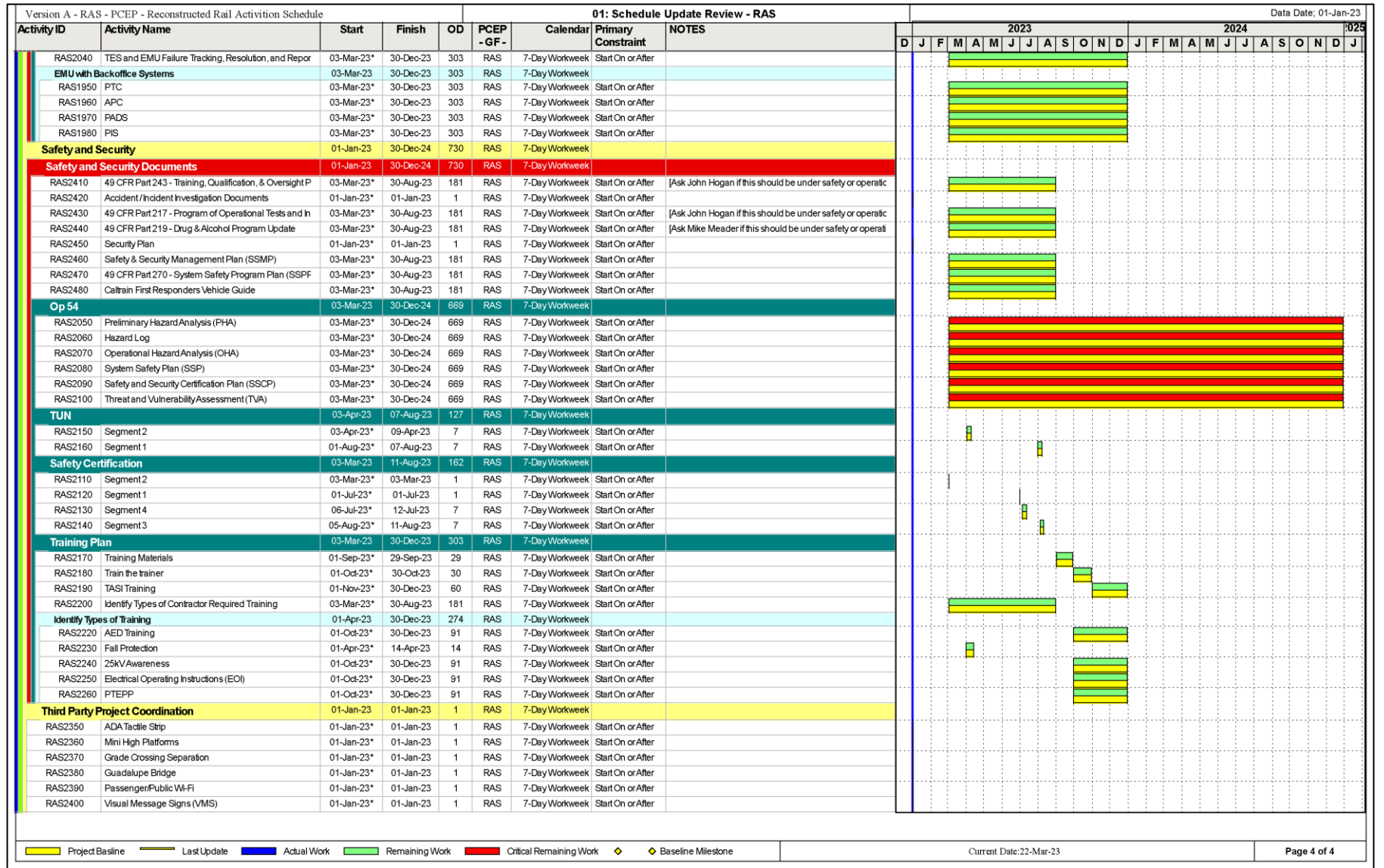


### Figure H-2 Rail Activation Schedule



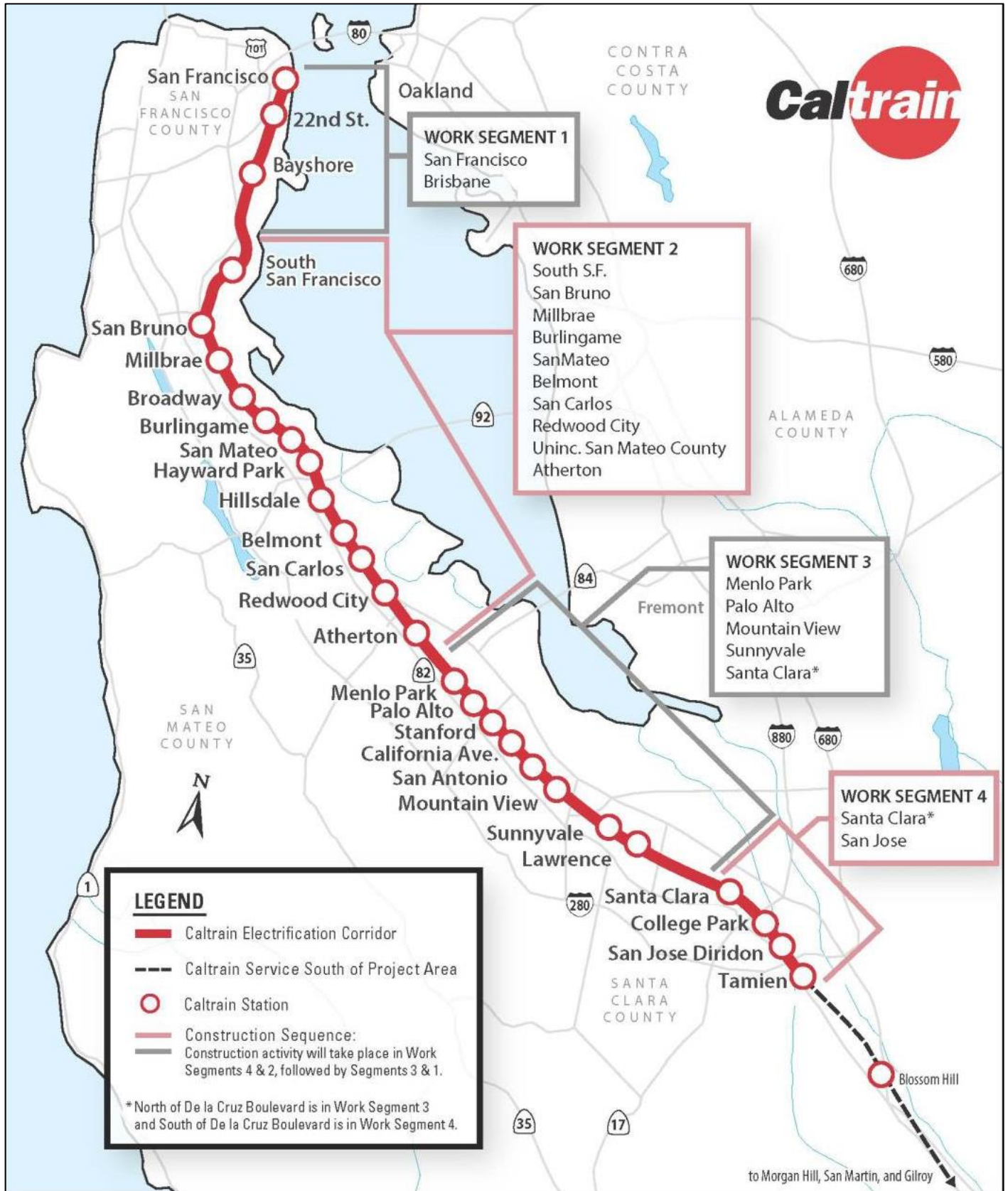




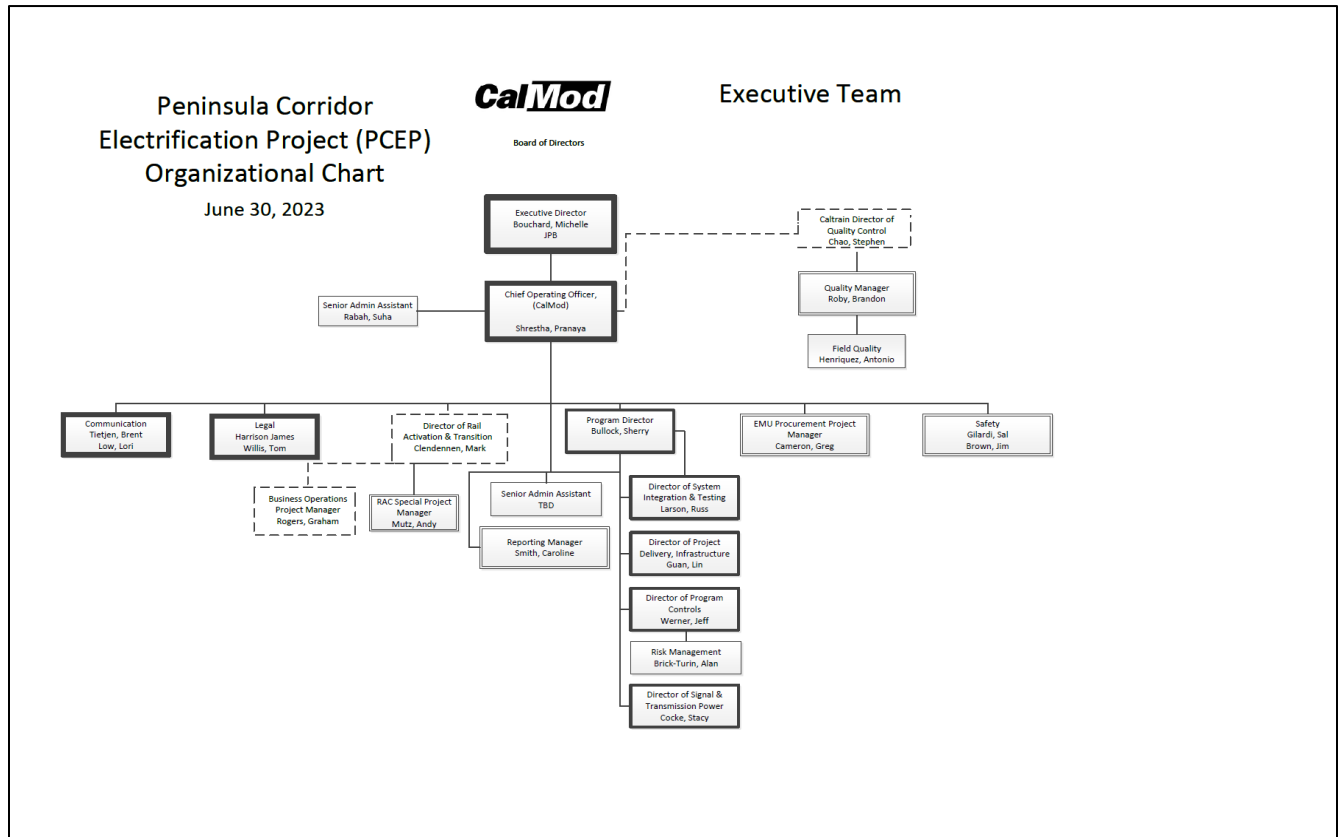




## Attachment I Project Map



## Attachment J JPB Executive Team Organization



## Attachment K PCEP Recovery Plan Tracking Log

### Peninsula Corridor Electrification Project FTA Recovery Plan Tracker July 2023

| NUMBER            | PMOC RECOMMENDATION  | STATUS             |
|-------------------|--|--------------------|
| <b>1</b>          | <b>Promptly resolve the large number of open items on the Issue Resolution Log (IRL).</b>  | <b>In Progress</b> |
| <b>Discussion</b> | <p>IRL metrics as of March 23, 2022, shortly after the Global Settlement was concluded, was 146 items opened, 41 closed No Commercial Implication (NCI); 4 approved and 5 Commercial Implication Pending L4 Acceptance (CIP) for a total of 101 unresolved items (69.2%).</p> <p>IRL metrics as of October 14, 2022, shortly after the current version of the Recovery Plan was submitted, 264 items opened, 61 closed NCI; 62 approved and 1 CIP for a total of 141 unresolved items (53.4%).</p> <p>IRL metrics as of July 17, 2023, 327 opened, 122 closed NCI; 139 approved and 46 CIP for a total of 66 unresolved items (20.2%). These statistics demonstrate considerable progress is working off the backlog of unresolved IRL items.</p> <p><u>JPB Prior Comment:</u> These IRL items are getting resolves daily and Level 2 and Level are meeting weekly to close and resolve outstanding items. The following table provides the status of IRL as of the end of March. There are 23.2% IRL are outstanding (71 items), BBII senior management has assigned additional resource from UK with focusing on resolving aging IRLs.</p> |                    |
| <b>2</b>          | <b>Update the schedule section of the Plan to reflect the current status of the project and any revised logic for its completion.</b>  |                    |
| <b>Discussion</b> |  |                    |
| <b>3</b>          | <b>Complete the integration of all PCEP schedules, including the schedule details contained in the BBII testing and commissioning Microsoft Project schedule, and the Rail Activation activities, at the earliest possible time.</b>   |                    |
| <b>Discussion</b> |  |                    |
| <b>4</b>          | <b>Promptly resolve schedule related issues identified during its review of BBII's monthly schedule updates, and any schedule or time-related elements associated with any Issue Resolution Log (IRL) items that are not disposed of without commercial implications</b>   |                    |
| <b>Discussion</b> |  |                    |
| <b>5</b>          | <b>Implement the industry standard forensic scheduling practices that the PMOC has repeatedly recommended.</b>   |                    |
| <b>Discussion</b> |  |                    |
| <b>6</b>          | <b>Upon receipt of a significant request for change or a claim, the JPB should immediately assign an experienced cost estimator to review the cost of the proposed change and develop an independent cost estimate (ICE) for purposes of negotiations.</b>   | <b>Complete</b>    |

| NUMBER            | PMOC RECOMMENDATION  | STATUS  |
|-------------------|--|---|
| <b>Discussion</b> | <p><i>The JPB reports that it is assigning an estimator to all significant contractor requests for additional compensation.</i></p> <p><u>JPB Prior Comment:</u> Please provide specific example when this has not been done. The lesson learned from global settlement and previous phase of the project, the project delivery was hijacked by settling changes (request for changes and change request). The approach of shared risk is to focus on resolution of issues and implement the resolutions. Once the scope and resolution are defined with level 1 technical team. The JPB PCPE estimator team is involved and develop ICE in support of commercial discussion, it has been the process for each IRL.</p>  |   |
| <b>7</b>          | <b>Update the PCEP Cost Contingency Drawdown Curve to reflect the current contingency balance and the updated Integrated Master Project Schedule.</b>  | <b>Completed</b>  |
| <b>Discussion</b> | <p><i>A Cost Contingency Drawdown Curve, updated through March 2023, was included in the Rev. 7 Addendum dated May 12, 2023.</i></p> <p><u>JPB Prior Comment:</u> JPB updates contingency drawdown every month as part of monthly program cost update and list detail contingency draw down table in the monthly progress report.</p>  |   |
| <b>8</b>          | <b>Maintain, or increase if necessary, the current PCEP staffing levels which consist of experienced executives, seasoned professionals, and subject matter experts, professional support staff, and clerical and administrative resources until final acceptance of the electrification contract and close-out of the FFCA.</b>   | <b>Completed</b>  |
| <b>Discussion</b> | <p><i>The PCEP team is adequately staffed for most activities; however, the PMOC's opinion is that additional personnel are needed to timely address the very large number of punch list inspections required and the proper review of final documents from the contractor.</i></p> <p><u>JPB Prior Comment:</u> This is completed. JPB have increased staffing level since December 2021 rebaseline effort, currently we are fully staffed with senior management team, subject experts and field CM support; the only area we have difficult to fill is project administrative staff. CalMod senior management are performing performance evaluation in April 2023 and evaluate project staffing plan for the remaining project duration including close out. It is critical to retain key resources through project completion.</p> |   |
| <b>9</b>          | <b>Conduct another Monte Carlo risk analysis that addresses both cost and schedule risk at the earliest possible opportunity.</b>  | <b>Completed March 31, 2023</b>   |
| <b>Discussion</b> | <p><i>The JPB conducted a risk assessment update using a Monte Carlo cost and schedule simulation in March 2023.</i></p> <p><u>JPB Prior Comment:</u> JPB has been conducting cost Monte Carlo analysis quarterly and is in the process of performing schedule risk Monte Carlos analysis based on just completed reforecast schedule</p>  |   |
| <b>10</b>         | <b>Update the PCEP Schedule Contingency Drawdown Curve based on the updated Integrated Master Schedule and the results of the Monte Carlo schedule risk analysis</b>   | <b>Open</b>   |
| <b>Discussion</b> | <p><i>The most recent schedule contingency drawdown curve is contained in the Recovery Plan Rev. 7 dated September 30, 2022.</i></p> <p><u>JPB Prior Comment:</u> JPB is performing schedule contingency analysis for each monthly progress schedule, and we will evaluate and provide updated schedule contingency draw down during monthly progress schedule review as the project progresses.</p>   | <i>A Schedule Contingency Drawdown Curve updated to reflect the results of the March 2023 Schedule Risk</i> |



| NUMBER            | PMOC RECOMMENDATION   | STATUS                                    |
|-------------------|---|---|
|                   |   | <i>Assessment has not been submitted.</i> |
|                   |   |   |
| <b>11</b>         | <b>Update the funding section of the Plan to reflect the additional funding that has been secured</b>   | <b>Completed March 2023</b>               |
| <b>Discussion</b> | <p><i>A Funding Plan Addendum was submitted to the FTA on March 7, 2023 which updates and clarifies the funding sources and amounts that will be used to satisfy the budget increase of \$462 million.</i></p> <p>JPB Prior Comment: Agreed and completed. We have sent the updated funding section of the recovery plan on March 27, 2023.</p> |   |

**NOTES:**

PMOC Comments in italics.

JPB Prior Comments from S. Bullock e-mail dated April 7, 2024 with attachment.

## Attachment L 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 19 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.