Quarterly Monitoring Report – February 2018

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

April 23, 2018

PMOC Contract Number: DTFT60-14-D-00018
Task Order Number: 005
Project Number: DC-27-5346
Work Order Numbers: 06
OPs Referenced: 25 - Recurring Oversight and Related Reports
01 - Administrative Conditions and Requirements

PMOC Firm: **Kal Krishnan Consulting Services, Inc. (KKCS)**
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Length of Time Firm Assigned to Project: 2 Years, 8 months
Length of Time Person Assigned to Project: 2 Years, 8 months

2) Executive Summary

A. Project Description

The Project Sponsor is the Peninsula Corridor Joint Powers Board (JPB) which operates rail service as Caltrain. The JPB is responsible for managing and delivering the project.

The Peninsula Corridor Electrification Project (PCEP) corridor is approximately 51 miles in length. This Core Capacity Improvement Project (CC) includes two components: infrastructure and rolling stock. The infrastructure component is comprised of the installation of Traction Power Substations (TPSS) and 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 will be enlarged to accommodate the expanded clearance envelope of the electrified vehicles.

The rolling stock component includes the design and procurement of ninety-six (96) Electric Multiple Unit (EMU) rail vehicles to replace approximately 75 percent of the existing diesel rolling stock. Caltrain's Central Equipment Maintenance and Operation Facility (CEMOF) will also be 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 is separately installing a Communications Based Overlay Signal System - Positive Train Control (CBOSS-PTC), which is an advanced signal system that includes federally-mandated safety improvements.

The project will be constructed primarily in the existing Caltrain corridor on right-of-way (ROW) controlled by JPB/Caltrain. Additional ROW will be required to accommodate the TPSS and related facilities as well as elements of the OCS system; any ROW transactions will be made in accordance with the Uniform Relocation Act.

The PCEP Final Environmental Impact Report (FEIR) forecasts Caltrain ridership of 69,151 daily boardings in the year 2020 and 111,427 daily boardings in 2040, including service in 2040 to the Transbay Transit Center. This ridership represents an increase of 21.1% and 32.1% respectively, over the projected Caltrain ridership in those years without the core capacity improvements.

B. Project Status

- The FFGA for the project was executed on May 23, 2017.
- The project is in construction. The JPB issued a full Notice to Proceed (NTP) to the EMU supplier on June 1, 2017 and a full NTP to the Electrification design-build contractor on June 19, 2017.
- The JPB conducted a Risk Refresh Workshop on September 18-19, 2017; this was the first comprehensive risk update since the award of the FFGA. *The PCEP team held the second quarterly risk management meeting with the Electrification contractor in January 2018.*
- *The PMOC, at the request of the FTA, conducted an on-site visit and focused meetings on January 3-5, 2018. The PMOC conducted its quarterly on-site monitoring visit and meetings on February 21-23, 2018.*

- *The JPB issued an Invitation for Bids (IFB) on February 19, 2018 for the notching of four (4) rail tunnels located in Segment 1 of the project; bids are due on April 6, 2018.*

C. Core Accountability Information through January 2017

FFGA Core Accountability Items			
Project Status: **In Construction**		Original at FFGA	Current Estimate (EAC)
Cost	Cost Estimate	$ 1,930,670 934	$ 1,930,670 934
Contingency	Unallocated Contingency[1]	$ 162,620,294	$132,878,765
	Total Contingency[2] (Allocated plus Unallocated)	$ 315,533,611	$245,784,211
Schedule	Final Completion Date	August 22, 2022	August 22, 2022
		Amount ($)	Percent
Planned Value to Date[3,4]	Total budgeted cost of work scheduled to date (if available)	$337,605,601	17.49%
Earned Value to Date[4]	Budgeted cost of work completed to date, i.e., actual total value of work earned or done (if available)	$266,782,767	13.82%
Actual Cost[4]	Total cost of work completed to date (actual total expenditures)	$238,467,763	12.35%
		Amount ($)	Percent
Contracts	Total contracts awarded to date[5]	$1,403,397,896	70.87%
	Total construction contracts awarded to date[4] (construction & vehicle contracts only)	$1,257,760,436	64.80%
	Physical construction work completed[6,7] (amount of construction contract work actually completed)	$238,467,763	18.96%
Major Issue	Status	Comments/Actions/Planned Actions	
Constant Warning Time (CWT) for Grade Crossings	*Conceptual solution subject to confirmation by the Union Pacific Railroad (UPRR), the Federal Railroad Administration (FRA) and the California Public Utilities Commission (CPUC).*	*Prototype design underway; meeting with FRA scheduled for March 7, 2018.*	
Construction of PG&E sub-station modifications to provide permanent power for rail operations.	*Execution of Supplement 4 to PG&E contract delayed by the JPB to review PG&E's proposed allocation of costs.*	*The JPB states that PG&E thinks that construction can be completed in time to support the final testing and commencement of EMU service.*	

Date of Next Monitoring Visit:	*TBD - May 2018*
Date of Next Quarterly Review Meeting:	*TBD - June 2018*

Core Accountability Table Footnotes:

[1] Current estimate for Unallocated Contingency includes known change orders that will draw from Unallocated Contingency.

[2] Current estimate for Total Contingency includes known change orders that will draw from Total Contingency.

[3] Planned Value to Date is based upon the Program Schedule and Estimate that were updated in October 2017 to reflect the FFGA delay.

[4] Work is defined as construction or manufacturing by Balfour Beatty, Stadler, PG&E, CEMOF, Tunnel Modification, and Required Projects.

[5] Based on a project value of $1,980,252,533.

[6] Percent of the "Total construction contracts awarded to date (construction & vehicle contracts only)."

[7] Contracts that are Design Build include design costs, which are part of the contract award amount stated above.

D. Major Problems and/or Issues

- The Electrification contractor may be unable to develop grade crossing modifications that meet operational requirements prior to scheduled testing and commissioning of the system, which may delay commissioning. *As noted above, the Electrification contractor has proposed a conceptual solution to provide CWT, which is acceptable to the JPB and has been agreed to by the UPRR, subject to its final review and demonstration. Design of two (2) crossings in Segment 4 using the proposed system is underway. The final approval of an acceptable CWT system rests with the California Public Utilities Commission (CPUC) following FRA review. A meeting between the JPB and the FRA to review the proposed solution is scheduled for March 7, 2018.*
- Much of the Electrification contractor's OCS foundation work must be performed during periods when rail operations have been partially restricted by contractually established work windows. The JPB reports that there continue to be problems in maximizing the available track access time, whether as a result of the contractor's actions, or in some cases because of rail operations' issues. These issues are resulting in additional costs to the project and are reducing production.
- Implementation of the CBOSS-PTC system (as a separate project within the CalMod program) is significantly behind schedule. Construction of the system is complete; however, completion of testing and the start of revenue service demonstration of the system have been delayed. *The JPB's recent approval of a contract with Wabtec to complete implementation of Caltrain's PTC system is a positive step. This decision will allow Stadler to proceed with finalizing the on-board PTC equipment for the EMUs, an activity that had been on-hold. The PMOC remains concerned that testing of the PTC system and the possibility that PTC may degrade the reliability of revenue operations following its implementation, may cause impacts to the PCEP.*
- The JPB's progress in acquiring the needed real estate is still behind the original plan; however, progress continues to improve. *The relocation of Loop Bus from the site for Traction Power Sub-station (TPSS) #2 is complete and the site has been turned over to the*

Electrification contractor. The refinement of the design for the overhead contact system (OCS) and the traction power system (TPS) has resulted in the identification of several new parcels, which may result in some delays to construction.

- *The JPB has identified an alternative location for Paralleling Station #2 (PS-2) that is within its Bayshore Station property. This alternative location resolves the property acquisition issue identified in the PMOC's November 2017 report. The JPB is currently working with the City and County of San Francisco (CCSF) to define appropriate traffic mitigation measures for this new location. Some additional NEPA/CEQA filings may be necessary as a result of this change.*
- Pacific Gas & Electric (PG&E) must modify two (2) existing electrical sub-stations to provide the power necessary to operate the electrified rail system. *The design and construction of these sub-station modifications are now on the project's critical path.* A Master Agreement between the JPB and PG&E is in place and Supplements 1, 2, 3 and 5 to the Master Agreement have been executed. *The JPB approved execution of Supplement 4 at its February 2018 meeting; this Supplement includes the cost of constructing the work, and the allocation of costs between the parties. The JPB requested additional review of the cost allocation provisions before the Supplement is executed and that work is underway. The PMOC understands that PG&E will not finalize its construction contracts until the Supplement is executed.*
- The timely relocation of overhead utilities is still considered a significant risk to OCS construction.

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4) Significant PMOC Observations

This monitoring report covers the period from November 3, 2017 through February 23, 2018. Quarterly Progress Review Meeting (QPRM) No. 5 was held on November 30, 2017; that meeting is documented in the Report dated January 8, 2017. The PMOC conducted a non-routine visit to the project on January 3-5, 2018 at the request of the FTA; the results of that visit are documented in a Trip Report dated January 8, 2018. This report contains information obtained during site visits, meeting attendance, document reviews, telephone conversations and general interaction with the project sponsor's personnel.

A. Project Status

Environmental Process

The JPB prepared an Environmental Assessment (EA) under the National Environmental Policy Act (NEPA) and received a Finding of No Significant Impact (FONSI) from FTA in 2009. The JPB, in conjunction with the FTA and other federal and state agencies including the National Fish and Wildlife Service, National Marine Fisheries Service, and the State Historic Preservation Office (SHPO), decided to review the FONSI and the FEIR, considering the time that had passed since the FONSI's issuance and recent changes in the context of the project. The FTA issued a letter to the JPB on February 11, 2016, accepting the findings of the environmental re-evaluation of the PCEP conducted by the JPB; this action completes the NEPA process for the PCEP. The JPB formally certified its Final Environmental Impact Report (FEIR) under the California Environmental Quality Act (CEQA) on January 8, 2015 and subsequently adopted Addendum No. 1 to the 2015 PCEP FEIR on February 4, 2016. The JPB also approved inclusion of the new site for Paralleling Station 7 (PS 7) for the PCEP.

The JPB completed an environmental assessment of the modifications to the two (2) PG&E substations and the interconnection between the substations and PCEP's TPSS #1 and TPSS #2. The JPB adopted Addendum #3 to the PCEP Final Environmental Impact Report (FEIR) and approved inclusion of PG&E substation improvements and interconnections to the JPB Substations for PCEP at its October 5, 2017 meeting. The NEPA Re-evaluation documentation of these project changes is under FTA review.

Support Services and Design

The JPB awarded contracts in early 2014 for Program Management Consultant Services; EMU Vehicle Consultant Services; and Electrification Services. The scope and status of work for each of the consultant contracts is described as follows:

Program Management: The consultant team provides various program management support services such as document control, project controls including estimating and scheduling, quality assurance, risk management and contract administration during implementation of the PCEP.

EMU Services: The consultant team provides EMU management and oversight support services which included development of the vehicle procurement documents, and now encompasses vehicle design reviews, Buy America compliance services, monitoring and inspection during vehicle manufacture/assembly, integration of on-board systems with the CBOSS/PTC Project, design of modifications to the CEMOF; and support during the delivery, testing and commissioning of the EMUs.

The EMU Services team is currently working on the following tasks:

- *Completed all major Preliminary Design Reviews for the EMU and is closing-out the documentation so that work on the Final Design Review submittals can begin.*
- *The JPB has decided on the final configuration of the CEMOF modifications and design work is moving ahead; a March 2018 date for advertising the CEMOF Modifications contract is anticipated.*
- *Supporting the JPB in discussions with the FRA on EMU compliance issues.*
- Assisting with the procurement of two (2) used AEM-7 electrified locomotives to be used for initial testing of the newly electrified tracks. *The purchase agreement will be presented to the JPB for its approval at the April 2018 meeting.*
- *Preparing a report on overall system operating requirements for Caltrain's equipment fleet in anticipation of mixed diesel and electric train operations and possible longer train consists.*

Electrification Services: The consultant provides management and oversight support services which included development of the procurement documents and participation in negotiation of the design-build contract. The consultant now provides design reviews and monitoring, and support of manufacture/assembly of products, construction, installation, integrated testing, and commissioning related to overhead catenary systems, traction power substations, communications, supervisory control and data acquisition (SCADA), rail signaling, and train controls.

The Electrification Services team is currently working on the following activities:

- *Continued to support the JPB in various ways related to resolution of the Constant Warning Time issue at grade crossings. These activities include interaction with BBII, the UPRR, and FRA and will soon involve the CPUC.*
- Providing oversight and direction to the Balfour-Beatty Infrastructure, Inc. (BBII) team.
- Supporting discussions and negotiations with BBII related to various change orders.
- Monitoring and reporting on BBII's field activities including tree-trimming, pot-holing of OCS pole locations, and OCS foundation construction.
- Participating in weekly meetings with the JPB's CBOSS-PTC management team.
- *Providing oversight and direction to ARINC, the SCADA supplier.*
- *Providing technical direction, as needed, to BBII related to PG&E's design of temporary and permanent power connections to the traction power system.*
- Supporting the JPB's staff in identifying utilities located within the corridor and working with the utilities to develop relocation plans, as necessary.
- Reviewing submittals and other materials prepared by BBII and ARINC.

Other Design Work: Design work is underway to support the following two (2) construction contracts:

Tunnel Notching (four tunnels) for vehicle clearance: This design work is being carried out by members of the Electrification consultant's design team. The design team is also preparing a separate design and specification package for tunnel drainage improvements on tunnels 1 and 4. The drainage work will be completed as a Concurrent Non-Project Activity (CNPA) by the tunnel notching contractor. *The IFB for the Tunnel Notching contract was advertised on February 19, 2018; bids are due April 6, 2018. The design team is supporting the procurement process by assisting with production of Addenda and responding to contractor questions.*

Modifications to the CEMOF facility to accommodate the new EMU vehicles: This design work is being performed by members of the vehicle consultant's design team.

The JPB has decided on the final configuration for the CEMOF facility. Modifications will include electrifying Yard Track #5 as part of the Electrification contract. The scope of the CEMOF Modification contract will consist of widening sections of the existing pit and extending the pit on yard track #5 to permit service and inspection of a six (6) car train set, constructing and installing a movable gantry to permit car-top access to EMUs on yard track #3, and other minor improvements. *The CEMOF Modification contract is expected to be advertised in March 2018 with award in October 2018.* Construction of the modifications will follow electrification of the yard and is expected to be complete by July 2019. A plan view of the modifications to the CEMOF is attached as Appendix G.

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 JPB has identified the following CNPAs:

- Drainage improvements for tunnels 1 and 4; *this work is in procurement.*
- OCS foundations as part of the South San Francisco Station construction; *this work is in construction.*
- OCS foundations as part of the 25th Avenue Grade Separation Project in San Mateo; *this work is in construction.*
- OCS foundations as part of the Los Gatos Bridge project; *this work is complete*.
- Trackwork on the Santa Clara Drill Track. *This work was originally planned to be done under the Los Gatos Bridge Project, but that did not occur. The JPB is considering options to complete the work; however, initial shifting of the track to allow OCS foundation construction to take place will be performed by BBII.*
- New Control Point at CP Brittan; *this work is currently on-hold.*

Value Engineering (VE): 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 (ATP) to reduce cost or improve 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.

Procurement

The following two (2) awarded contracts comprise the majority of the PCEP scope:

Electrification: The electrification of the corridor is being performed using a design-build contract which was awarded to Balfour-Beatty Infrastructure, Inc. (BBII) and executed on August 15, 2016. The JPB issued an LNTP to the contractor on September 6, 2016 covering those activities permitted by the FTA's Automatic Pre-Award Authority for projects in Engineering. The JPB had planned to issue a Full NTP on March 1, 2017 following award of the FFGA. The JPB extended the LNTP to June 30, 2017 in late-February 2017 once it became apparent that the FFGA was delayed. The JPB issued a full NTP to BBII on June 19, 2017. *The JPB reported that contract negotiations are complete on a Change Order with BBII to address the delayed issuance of the NTP; however, some additional internal processes will be performed prior to contract execution.*

EMU Vehicles: The 96 EMUs are being supplied by Stadler US under a contract that was executed on August 15, 2016. The JPB issued an LNTP to Stadler on September 6, 2016 and had planned to issue a Full NTP on March 1, 2017, following award of the FFGA. The JPB extended the LNTP to June 30, 2017 in late-February 2017 once it became apparent that the FFGA was delayed. The JPB issued a full NTP to Stadler on June 1, 2017. Design of the vehicles is being performed in Switzerland and final assembly of the vehicles will occur at a location near Salt Lake City, Utah. *The JPB's EMU consultant visited the Salt Lake City facility during late January 2018 to verify Stadler's Buy America compliance and progress in arranging for American equipment suppliers.*

- *The FRA granted the JPB's request for a waiver of compliance from a portion of 49 CFR §238.113(a)(2), Emergency window exits for the restroom car of its new 6-car Electric Multiple Unit (EMU) trainsets, on February 9, 2018.*
- The JPB reported that work continues on two (2) significant change orders affecting the EMUs. Other changes related to technical specifications are also under review.
    - Deferring installation of on-board vehicle lifts until initiation of high-speed rail service requires access to high-level platforms.
    - Changing placement and capacity of wheelchair lifts in toilet cars to reflect new load standards for lifts.

Tunnel Modifications: *As noted above, the JPB issued an IFB on February 19, 2018 for the notching of four (4) rail tunnels located in Segment 1, as well as drainage improvements on two (2) of the tunnels; bids are due on April 6, 2018.* Construction work is now scheduled to begin in October 2018, in coordination with Electrification construction in Segment 1, to take advantage of track outages in that Segment. *Both the Tunnel Notching and Electrification work are being scheduled to avoid impacting Caltrain service during the Major League Baseball season.*

CEMOF Modifications: *A contract for modifications to the CEMOF is expected to be advertised for competitive bids in March 2018, with an October 2018 construction start date.*

Construction of the modifications will follow electrification of the yard and is expected to be complete by July 2019.

Supervisory Control and Data Acquisition (SCADA) Equipment: The JPB approved award of a contract to ARINC, Inc. for supply of the SCADA equipment at its August 2017 meeting. *The contract was executed in September 2017 and design and integration activities are underway. The SCADA contract is being managed by the Electrification consultant.*

Used Electrified Locomotives: The JPB plans to acquire two (2) used electrified locomotives to perform initial testing of the electrification system. The objective is to avoid inadvertent damage to the new EMUs by using them to test the electrification system. The locomotives were previously leased by Amtrak and have been returned to their owner. One unit will be used for testing and the second unit will be used for spare parts in the event of breakdown. The locomotives will be disposed of after testing has been completed. *The purchase agreement will be presented to the JPB for its approval at the April 2018 meeting.*

Electrification Design-Build Contract

Design and Design-related Activity: Balfour-Beatty Infrastructure, Inc. (BBII) is responsible for the Final Design of the electrification and related facilities under the terms of its D-B contract with the JPB. The firm of PGH Wong Engineering, Inc., is the Engineer of Record for the work. Work was initiated following the JPB's issuance of an LNTP on September 6, 2016; this was followed by issuance of a full NTP to BBII on June 19, 2017. The following design and design-related activities are currently under way:

- Preparation of contractually required plans and submittals.
- Advancing OCS design in Segments 2 and 4.
- *95% OCS foundation designs and pole layouts in Segment 2 Work Area 3 were completed.*
- *Continued design review coordination with local jurisdictions for the OCS design in Segments 2 and 4, including responses to comments from the jurisdictions.*
- Continued potholing of OCS foundation locations in Segments 2 and 4 in advance of construction.
- *Design of the 115kV interconnection with PG&E at the TPSS-2 location continues.*
- *A preferred solution to provide Constant Warning Time (CWT) at grade crossings has been identified, and tentatively agreed to by the UPRR. Design work has commenced on the Virginia and Auzerais crossings in Segment 4, which will serve as prototypes for the proposed solution. The designs for these crossings will be reviewed by the UPRR prior to presentation to outside agencies. Completion of design for the remainder of the signalized crossings is being impacted until the CWT solution is approved.*
- *Line of Sight analysis in Segment 4A mainline continues.*
- *Continue coordination with Caltrans on the design of bridge barriers for Caltrans structures.*

Construction Activity: The JPB provided the following report on construction activity:

- *Tree trimming and tree removal in Segment 2, WA 4 and Segment 4, WAs A and B.*

- Relocation of signal cable for potholing in 2/4.
- *Potholing for differing site conditions and OCS foundations in 2/4 and Segment 4. Potholing continues to encounter a significant number of differing site conditions, which has slowed progress. BBII's sub-contractor recently increased the number of potholing rigs and crews to improve the overall production rate. The JPB's Construction Management team continues to issue Field Orders to remove the obstacles and compensate the contractor for the impact of these conditions.*
- OCS foundation construction in 2/4.
- *Preparation of Burlingame and Redwood City siding areas for upcoming foundation work.*
- *The JPB and BBII held a regularly scheduled Partnering session in January 2018.*
- *The JPB and BBII held a regularly scheduled briefing of its Disputes Review Board (DRB) in January 2018.*

  - **PMOC Observation:** *Foundation productivity has declined and is of concern. Productivity has been affected by the need to clear foundation locations of unexpected obstacles, or in some cases relocate the foundations. Productivity has also been affected by occasional problems in achieving timely access to on-track work areas during the prescribed work windows. The drilling sub-contractor has recently added more potholing equipment, which should improve the clearance process. More recently, the JPB has altered its position regarding providing Transit America Services, Inc*. (*TASI) signal maintainer support during the movement of rail mounted equipment through grade crossing, which has resulted in the cancellation of some planned work by the contractor.*

  - **PMOC Recommendation:** *The PCEP team, with the support and assistance of Caltrain Operations, should take steps to promptly resolve the recent issue related to the safe movement of construction equipment through grade crossings, and/or work by crews in close proximity to the crossings.*

    The JPB should track and segregate the extra costs incurred to relocate foundations or otherwise avoid or relocate the fiber optic cable installed by the CBOSS-PTC contractor. The JPB should produce a report documenting the sources of funds used for the original installation of the CBOSS-PTC cabling, and documenting the costs incurred to date by the PCEP as described above. The report should also document any specifications or other technical direction given to the CBOSS-PTC contractor that required that contractor to avoid the areas and locations where the interferences have, or in the future occur. The JPB should provide this report to the FTA and the PMOC by February 5, 2018. To the extent that the CBOSS-PTC contractor is found to have installed the fiber optic cable in contravention of the applicable contractual requirements, thus leading to the conflicts and remedial actions by the PCEP, the JPB should consider initiating a back charge or other action to recover its extra costs. The PMOC notes that the FTA may decline to participate in costs associated with remediating the CBOSS-PTC fiber optic conflicts.

Real Estate Acquisition

The PCEP is acquiring real estate for three (3) primary purposes: (1) for 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. The corridor has been sub-divided into four (4) segments numbered from north to south to more effectively manage the electrification and other related work. Initial Electrification construction is taking place in Segments 4 and 2, and will be followed by construction in Segments 1 and 3. Segment 4 includes electrification of a test track for testing and acceptance of the EMUs. Real estate acquisition is being coordinated with Electrification construction activities. New access dates were agreed to as part of the negotiation of a change order related to the late award of the FFGA. Those dates are tied to the contractor's schedule need dates in each of the Segments and Work Areas. These new dates allow additional time for the JPB to complete acquisition of the properties.

The corridor spans three counties and the JPB must collaborate with Santa Clara County on the south, its home county of San Mateo, and the City and County of San Francisco on the north to exercise eminent domain power as necessary during the ROW acquisition process. The JPB executed an agreement with the Santa Clara Valley Transportation Authority (VTA) to exercise eminent domain on behalf of the JPB for property acquired in Santa Clara County, which includes all of Segment 4 and some portions of Segment 3. The VTA Board adopted Resolutions of Necessity (RONs) on behalf of the JPB and the JPB subsequently filed an Eminent Domain proceeding on one parcel in Santa Clara County. *That parcel, the site of TPSS #2, is now in the JPB's possession. RONs for the Segment 3 parcels in Santa Clara County will be requested from the VTA Board on April 5, 2018, as the first step in the eminent domain process.*

The JPB also executed an agreement with the San Mateo County Transit District (SamTrans) to act as the condemning agency for all property in San Mateo County. San Mateo County includes all properties in Segment 2 and some properties in Segments 1 and 3. *The SamTrans Board previously approved RONs for properties in Segment 2 and there are currently three (3) active Eminent Domain actions in Segment 2.*

The JPB has been unsuccessful in reaching an agreement with the City Supervisor for the City of San Francisco related to the City's exercise of eminent domain powers on behalf of the JPB for properties located within the City and County of San Francisco (CCSF). The CCSF includes only properties in Segment 1 that will be needed later in the construction schedule.

The JPB reports that appraisals are in progress for all remaining properties, except those newly identified parcels in Segment 2.

The JPB has obtained concurrence from the FTA on the valuation of the UPRR parcel for PS-7, and an updated appraisal for the parcel for TPSS #2.

The status of real estate activity is presented in Table 1 below.

Table 1 – Real Estate Status (*1-31-2018*)

Segment	No. of Parcels Needed	Appraisals Completed	Offers Presented	*Offers Accepted*	Acquisition Status		
					Escrow Closed	Eminent Domain Action Filed	Parcel Possession
1	8	*2*	0	0	0	0	0
2	27	*26*	*25*	21	*20*	*3*	*20*
3	*10*	*9*	6	*2*	0	0	0
4	9	*9*	8	1	0	1	0
Additional Parcels	*3*	*0*	*0*	*0*	*0*	*0*	*0*
TOTAL	***57***	***46***	**39**	***24***	***20***	***4***	***20***

Notes:

1. During design development, the real estate requirements may adjust to accommodate design refinements. Parcel requirements will adjust accordingly. The table in this report reflects the current property needs for the Project.
2. The two (2) remaining parcels in Segment 2 are owned by JPB's member agency SamTrans and the UPRR.
3. *The JPB has reached a verbal agreement with the UPRR on its parcel in Segment 4.*
4. Four (4) of the Segment 4 parcels are owned by one owner, PG&E.
5 *The three (3) newly identified parcels are in Segment 2.*

- **PMOC Observation:** The progress of real estate acquisition continues to be slower than anticipated. *The PMOC expects that the Electrification contractor is likely to request compensation for some delays associated with the late delivery of real estate parcels.*

  The JPB's receipt of possession of the site for TPSS #2, and relocation of the owner and tenant, clears the way for demolition of the structure, and start of work on TPSS #2. The completion of TPSS#2 is required for electrification of the test track in Segment 4 and the testing of the EMU vehicles.

- **PMOC Issues/Concern:** *The JPB has identified an alternate location for Paralleling Station #2 (PS-2) at its Bayshore Station site; this eliminates the need to acquire the problematic parcel within the CCSF. The JPB is working with the City of San Francisco to finalize the scope of some minor traffic improvements in the vicinity of the station as a result of this change.*

Third-party Agreements and Coordination

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

Jurisdictional Agreements for Construction and Maintenance

The JPB reports that as of January 31, 2018, it has executed all agreements except those with the Town of Atherton (Segment 2), and the City of Palo Alto (Segment 3). The agreement with the City and County of San Francisco (CCSF) (Segment 1) was executed on November 30, 2017. The agreement with the City of Palo Alto is progressing; comments have been received from the City's attorney and the agreement is being finalized. The JPB continues to work with the Town of Atherton to finalize that agreement.

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 VTA and SamTrans will exercise eminent domain authority on behalf of the JPB, if such action is required, to acquire the real property rights located in the respective counties for the PCEP. It now appears unlikely that the CCSF will approve an agreement.

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 has notified the power utilities, including PG&E, Palo Alto Power and Silicon Valley Power, and the communications utilities, including Verizon and others that they must relocate their utility lines to avoid conflicts with the PCEP.

- *The JPB reports that PG&E is continuing to relocate its power lines.*
- *The JPB reports that it has finalized an agreement with* Verizon *to complete the overhead relocation of its Communication lines by the end of 2018 or any associated costs will be payable to the JPB. The JPB will provide necessary flagging support to allow Verizon to complete the work.*
- *The JPB reports that Silicon Valley Power has produced a schedule for relocation of its lines, but also reports that the company has already consumed considerable schedule float.*
- *The JPB reported that Palo Alto Power has acknowledged financial responsibility for relocation of its lines. Because the community has an ordinance that prohibits tall utility poles, the relocated lines will be placed under the tracks as permitted by the JPB's standards.*

The Electrification contractor, in the course of moving some of its rail-mounted construction equipment, has encountered conflicts with overhead electric utility lines crossing Caltrain's tracks. The contractor is taking additional measures to precisely identify and mark any locations where conflicts may exist, and the JPB is working with PG&E to raise the lines. The JPB reports that PG&E's clearance procedure is quite time consuming.

The JPB thinks that the cost of some of the utility relocations may be higher than originally anticipated.

The JPB is also negotiating 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, 2, 3 and 5 to that agreement. Supplement 1 is for scoping and design services; Supplement 2 is for PG&E oversight of design and construction; *Supplement 3 includes the costs for engineering and design of the modifications and funding for the procurement of long lead-time equipment; and*

Supplement 5 is for the supply of temporary power for initial system and vehicle testing. Supplement 3 was approved by the JPB at its July 6, 2017 meeting and executed thereafter. *The JPB approved execution of Supplement 4 at its February 2018 meeting; this Supplement includes the cost of constructing the work, and the allocation of costs between the parties. The JPB requested additional review of the cost allocation provisions before the Supplement is executed and that work is underway. The PMOC understands that PG&E will not finalize its construction contracts until the Supplement is executed. PG&E's supply of permanent power to the PCEP is on the project's critical path.*

California Public Utilities Commission (CPUC)

The CPUC has responsibility for grade crossing safety in California. The PCEP's proposed solution to providing Constant Warning Time at grade crossings must be approved by the CPUC before the modifications can be installed and the crossings returned to service. The JPB plans to meet with the FRA to gain its concurrence with the proposed solution prior to meeting with the CPUC; a date for this meeting has not been established.

The CPUC is the State Safety Oversight Agency (SSOA) for California. The CPUC is currently in Stage 3 of the federal SSO certification process; the State has submitted all required documents to the FTA and is engaged in a dialogue with the FTA to address comments and questions. Where applicable, all required legislation has been enacted. If the CPUC fails to complete the federal certification requirements prior to April 15, 2019, federal law does not allow the FTA to award any federal public transportation funds to any public transportation agencies throughout that state until certification is achieved.

Union Pacific Railroad (UPRR)

The JPB is engaged in on-going confidential negotiations with the UPRR regarding a variety of issues. The UPRR 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. The UPRR is considering selling its rights to operate freight service in the Caltrain corridor to a short line operator. This arrangement, if completed, could simplify bringing the freight service operator into conformance with the JPB's CBOSS-PTC system.

The UPRR recently imposed an increased lateral clearance requirement of 15 ft. between its MT-1 (northbound) track in Segment 4 of the corridor and some of the planned OCS pole locations. The typical clearance for railroad tracks is 8 ft. 6 in. The PCEP team reports that it has reached agreement with the UPRR on the placement of all but four (4) poles, and continues to work with the railroad to resolve the remaining conflicts.

California High Speed Rail Authority (CHSRA)

The California High-Speed Rail Authority (CHSRA) proposes to operate in blended service with Caltrain in the PCEP corridor in the future. The CHSRA published its 2016 Business Plan in February 2016; that plan calls for advancing the planned construction of the line from Diridon Station in San Jose to a station north of Bakersfield. That line meets State Proposition 1A requirements, including non-subsidized operations, and it can be built with available funding from Proposition 1A bonds, federal funds, and the continued anticipated Cap and Trade proceeds. The JPB and the CHSRA executed a bilateral agreement in August 2016 related to the timing of funding that CHSRA will provide to the PCEP.

The JPB has been continuously involved in technical discussions with the CHSRA to ensure that the facilities being constructed as part of the PCEP are consistent with those being planned by the CHSRA. Representatives of the CHSRA are now participating regularly in a variety of PCEP meetings.

The JPB reported that it is moving forward with a plan to relocate a number of the 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. Prior to the issuance of a change order to BBII, the CHSRA will complete an environmental assessment to ensure that there are no new or substantially significant environmental impacts beyond those that were environmentally cleared in the PCEP EIR and EA. This documentation will be shared with the FTA. All costs associated with the pole relocation work will be paid for by the CHSRA. The JPB adopted the Final Environmental Impact Report (FEIR) Addendum #2: Inclusion of Overhead Contact System (OCS) pole and wire relocations to accommodate California High Speed Rail Authority (CHSRA) Service, at its October 5, 2017 meeting. The NEPA Re-evaluation documentation of this project change is under FTA review.

The JPB recently established a separate project, led by its planning group, to support the CHSRA as a stakeholder. The JPB is represented on several working groups including Infrastructure and Operations. Funding for the JPB's participation in this effort comes from the CHSRA.

Federal Railroad Administration (FRA)

The JPB has provided EMU design review packages to the FRA. The JPB has also sent letters regarding the Caltrain waiver and its interpretation to the FRA, and these letters are being processed by the FRA. *The JPB is holding monthly conference calls with the FRA and the FRA conducted an on-site visit on November 28 - 29, 2017.*

The FRA granted the JPB's request for a waiver of compliance from a portion of 49 CFR §238.113(a)(2), Emergency window exits for the restroom car of its new 6-car Electric Multiple Unit (EMU) trainsets, on February 9, 2018. The request was docketed as FRA-2017-0104.

Permits

The JPB reported that some permits issued by various regulatory agencies were amended based on new or more complete information. Among the permits affected are those issued by the U.S. Army Corps of Engineers, the California Department of Fish and Wildlife, and the San Francisco Regional Water Quality Control Board (RWQCB). *The U.S. Fish and Wildlife Service granted a 30-day extension for work within the sensitive environmental area; this extension may be sufficient to complete the one remaining OCS pole foundation in Segment 2, Work Area 5.*

- **PMOC Observation:** Gauging the progress on PG&E and UPRR issues continues to be difficult because of confidentiality restrictions placed on the participants.

B. Project Management Plan (PMP) and Sub-Plans

The JPB has recently provided updates to the following management plans and sub-plans:

- *Fleet Management Plan (FMP) Rev. 1, August 1, 2017*
- *Program Management Plan (PMP) Rev. 2, October 16, 2017*
- *Quality Management Plan (QMP) Rev. 2, November 2017*
- *Risk Identification and Mitigation Plan (RIMP) Rev. 1, December 1, 2017*
    - *Cost Contingency Development Process and Reporting, September 7, 2017*
    - Schedule Contingency Development Process and Reporting, November 9, 2017

The PMOC plans to review selected updates in the coming months.

C. Project Management Capacity and Capability

The PMOC's most recent assessment of the JPB and PCEP organizations was performed in December 2016, in conjunction with its evaluation of the project's readiness to receive an FFGA. Both organizations have made changes since that time. *The most significant, recent change is the appointment of John Funghi as CalMod Chief Officer, replacing Michael Burns who had served in that capacity since February 2016. Mr. Funghi was most recently employed by the San Francisco Municipal Transportation Agency (SFMTA) as Program Director for the Central Subway Project.* An updated PCEP organization chart is attached as Appendix D.

The JPB also reported the following recent changes to its organization and that of the PCEP:

- *Matt Scanlon has joined the JPB as Deputy Director, Railroad Systems Engineering.*
- *Stacy Cocke has been promoted to Deputy Director, Change Management and Environmental Compliance for PCEP.*
- *Josh Averill has been appointed Acting Administrative Services Manager for PCEP.*
- *Sandra Redmon, PCEP Document Control Lead, has left the project.*

    - **PMOC Observation:** *Mr. Funghi brings significant recent project management experience to the PCEP, and the PMOC expects to see some changes in the PCEP organization over the coming months as Mr. Funghi becomes familiar with the project and his team.*

D. Project Cost

Table 2 below presents the PCEP cost estimate, dated November 16, 2016, as the estimate was revised and incorporated into the FFGA. *The JPB is re-forecasting the estimated cost at completion (EAC) monthly and will likely re-baseline the Capital Cost Estimate following the execution of the last two (2) major contracts in the late summer or fall of 2018.*

Table 2 – Project Cost

STANDARD COST CATEGORY	Base Year Dollars w/o Contingency (X000)	Base Year Dollars Allocated Contingency (X000)	Base Year Dollars TOTAL (X000)	YOE Dollars TOTAL (X000)
10 GUIDEWAY & TRACK ELEMENTS (51 route miles)	9,930,050	3,443,415	13,373,465	14,256,739
20 STATIONS, STOPS, TERMINALS, INTERMODAL (NONE)	0	0	0	0
30 SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. BLDGS	1,727,666	396,732	2,124,398	2,265,200
40 SITEWORK & SPECIAL CONDITIONS	197,354,697	42,465,878	239,820,575	255,072,402
50 SYSTEMS	429,641,995	46,687,882	476,329,877	504,445,419
60 ROW, LAND, EXISTING IMPROVEMENTS	26,526,146	8,447,380	34,973,526	35,675,084
70 VEHICLES (96)	564,044,890	8,364,433	572,409,323	625,544,147
80 PROFESSIONAL SERVICES (applies to Cats. 10-50)	279,886,974	29,338,981	309,225,955	323,793,010
90 UNALLOCATED CONTINGENCY			150,353,131	162,620,295
100 FINANCE CHARGES			6,600,802	6,998,638
Total Project Cost (10 - 100)			**1,805,211,052**	**1,930,670,934**

Note: Totals may not add due to rounding.

Project Expenditures

The status of the PCEP budget and expenditures through December 31, 2017, in SCC format, is shown on Table 3. The JPB states that the costs associated with extension of the LNTPs to the NTP date will be drawn from contingency and no increase in the overall Estimated Cost at Completion (EAC) is expected.

PMOC Note: The JPB publicly reports expenditures against a total project budget of $1,980,252,533. This higher amount includes expenditures prior to the project's entry into the 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.

Table 3 – Project Expenditures in SCC Format (12-31-2017)

Description of Work	Approved Budget (A)	Cost This Month (B)	Cost To Date (C)	Estimate To Complete (D)	Estimate At Completion (E) = (C) + (D)
10 - GUIDEWAY & TRACK ELEMENTS	**$14,256,739**	**$0**	**$0**	**$14,356,739**	**$14,356,739**
10.02 Guideway: At-grade semi-exclusive (allows cross-traffic)	$2,500,000	$0	$0	$2,600,000	$2,600,000
10.07 Guideway: Underground tunnel	$8,110,649	$0	$0	$8,110,649	$8,110,649
10.07 Allocated Contingency	$3,646,090	$0	$0	$3,646,090	$3,646,090
30 - SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. BLDGS	**$2,265,200**	**$0**	**$0**	**$2,265,200**	**$2,265,200**
30.03 Heavy Maintenance Facility	$1,344,000	$0	$0	$1,344,000	$1,344,000
30.03 Allocated Contingency	$421,200	$0	$0	$421,200	$421,200
30.05 Yard and Yard Track	$500,000	$0	$0	$500,000	$500,000
40 - SITEWORK & SPECIAL CONDITIONS	**$255,072,402**	**$6,885,749**	**$59,282,142**	**$220,492,927**	**$279,775,069**
40.01 Demolition, Clearing, Earthwork	$3,077,685	$0	$170,000	$2,907,685	$3,077,685
40.02 Site Utilities, Utility Relocation	$62,192,517	$6,174,948	$15,626,387	$61,566,130	$77,192,517
40.02 Allocated Contingency	$25,862,000	$0	$0	$25,862,000	$25,862,000
40.03 Haz. mat'l, contam'd soil removal/mitigation, ground water treatments	$2,200,000	$0	$0	$2,200,000	$2,200,000
40.04 Environmental mitigation, e.g. wetlands, historic/archeologic, parks	$32,579,208	$60,000	$250,125	$32,429,083	$32,679,208
40.05 Site structures including retaining walls, sound walls	$568,188	$0	$0	$568,188	$568,188
40.06 Pedestrian / bike access and accommodation, landscaping	$804,933	$0	$0	$804,933	$804,933
40.07 Automobile, bus, van accessways including roads, parking lots	$284,094	$0	$0	$284,094	$284,094
40.08 Temporary Facilities and other indirect costs during construction	$107,343,777	$650,801	$43,235,630	$73,710,814	$116,946,444
40.08 Allocated Contingency	$20,160,000	$0	$0	$20,160,000	$20,160,000
50 - SYSTEMS	**$502,706,079**	**$1,087,607**	**$10,347,986**	**$487,268,507**	**$497,616,493**
50.01 Train control and signals	$97,589,149	$0	$1,000,000	$98,389,149	$99,389,149
50.01 Allocated Contingency	$1,651,000	$0	$0	$800,000	$800,000
50.02 Traffic signals and crossing protection	$23,879,905	$0	$0	$23,879,905	$23,879,905
50.02 Allocated Contingency	$1,140,000	$0	$0	$1,140,000	$1,140,000
50.03 Traction power supply: substations	$70,671,121	$0	$2,912,478	$67,758,643	$70,671,121
50.03 Allocated Contingency	$28,464,560	$0	$0	$28,464,560	$28,464,560
50.04 Traction power distribution: catenary and third rail	$253,683,045	$1,087,607	$6,435,508	$249,541,652	$255,977,159
50.04 Allocated Contingency	$18,064,000	$0	$0	$9,731,300	$9,731,300
50.05 Communications	$5,455,000	$0	$0	$5,455,000	$5,455,000
50.07 Central Control	$2,090,298	$0	$0	$2,090,298	$2,090,298
50.07 Allocated Contingency	$18,000	$0	$0	$18,000	$18,000
60 - ROW, LAND, EXISTING IMPROVEMENTS	**$35,675,084**	**$464,634**	**$9,585,227**	**$26,089,857**	**$35,675,084**
60.01 Purchase or lease of real estate	$25,927,074	$464,634	$9,561,029	$16,366,045	$25,927,074
60.01 Allocated Contingency	$8,748,010	$0	$0	$8,748,010	$8,748,010
60.02 Relocation of existing households and businesses	$1,000,000	$0	$24,198	$975,803	$1,000,000
70 - VEHICLES (96)	**$625,571,647**	**$307,350**	**$79,289,462**	**$546,412,944**	**$625,702,407**
70.03 Commuter Rail	$590,042,791	$307,350	$79,289,462	$509,874,089	$589,163,551
70.03 Allocated Contingency	$8,624,924	$0	$0	$9,634,924	$9,634,924
70.06 Non-revenue vehicles	$8,140,000	$0	$0	$8,140,000	$8,140,000
70.07 Spare parts	$18,763,931	$0	$0	$18,763,931	$18,763,931
80 - PROFESSIONAL SERVICES (applies to Cats. 10-50)	**$325,532,351**	**$5,991,718**	**$178,228,595**	**$151,727,514**	**$329,956,109**
80.01 Project Development	$130,350	$0	$280,180	-$149,830	$130,350
80.02 Engineering (not applicable to Small Starts)	$181,346,859	$4,220,617	$137,482,546	$49,484,904	$186,967,450
80.02 Allocated Contingency	$1,742,144	$0	$0	$545,311	$545,311
80.03 Project Management for Design and Construction	$72,910,901	$1,508,649	$32,586,735	$40,324,166	$72,910,901
80.03 Allocated Contingency	$9,270,000	$0	$0	$9,270,000	$9,270,000
80.04 Construction Administration & Management	$23,677,949	$202,029	$2,522,583	$21,155,365	$23,677,949
80.04 Allocated Contingency	$19,537,000	$0	$0	$19,537,000	$19,537,000
80.05 Professional Liability and other Non-Construction Insurance	$4,305,769	$0	$2,555,769	$1,750,000	$4,305,769
80.06 Legal; Permits; Review Fees by other agencies, cities, etc.	$6,341,599	$60,423	$2,796,034	$3,545,566	$6,341,599
80.06 Allocated Contingency	$556,000	$0	$0	$556,000	$556,000
80.07 Surveys, Testing, Investigation, Inspection	$3,287,824	$0	$4,747	$3,283,077	$3,287,824
80.08 Start up	$1,797,957	$0	$0	$1,797,957	$1,797,957
80.08 Allocated Contingency	$628,000	$0	$0	$628,000	$628,000
Subtotal (10 - 80)	**$1,761,079,501**	**$14,737,058**	**$336,733,412**	**$1,448,613,689**	**$1,785,347,101**
90 UNALLOCATED CONTINGENCY [5]	**$162,592,795**	**$0**	**$0**	**$138,325,195**	**$138,325,195**
Subtotal (10 - 90)	**$1,923,672,296**	**$14,737,058**	**$336,733,412**	**$1,586,938,884**	**$1,923,672,296**
100 FINANCE CHARGES	**$6,998,638**	**$346,218**	**$2,177,861**	**$4,820,777**	**$6,998,638**
Total Project Cost (10 - 100)	**$1,930,670,934**	**$15,083,276**	**$338,911,274**	**$1,591,759,660**	**$1,930,670,934**

Project Funding

The PCEP is relying on several sources of funding to complete the project. Table 4 below summarizes the JPB's funding plan, as updated through June 23, 2017. The updated funding plan shows total funding of $1,930,670,934 including $647 million in Section 5309 funds. The plan also includes federal funding from the Section 5307 Urbanized Area Formula program of $287,150,000.

The JPB also 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.

Table 4 – Project Funding Summary

Funding Source	Planned/Budgeted*	Committed*	Total ($x1000)
Local	$0	$996,521	$996,521
Federal	0	$934,150	$934,150
Total	**$574,043**	**$1,356,628**	**$1,930,671**

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

E. Project Schedule

The FFGA was executed on May 23, 2017.

The JPB has completed the update of its Master Project Schedule (MPS). The current schedule reflects the execution of the FFGA, the issuance of the final NTPs to the EMU and Electrification contractors, and the impacts to the overall project resulting from these delays. The JPB reports the following based on its review of the contractors' schedules:

- The substantial completion date for the Electrification contract has slipped by 104 days to August 10, 2020; this delay does not affect the project's critical path.
- The delivery of the first six (6) EMU trainsets will be delayed, with the first trainset arriving approximately three (3) months later than expected. No impact is expected to the deliveries of the remaining trainsets.

The PCEP's most recent schedule includes a soft opening for revenue service on April 22, 2022, with a partial fleet of EMU vehicles, and a full Revenue Service Date (RSD) of August 22, 2022.

- **PMOC Observation:** Schedule contingency has been reduced by the delayed award of the FFGA and its impact on other project activities. The PMOC calculates that the remaining schedule contingency is 256 calendar days based on the duration between the planned Revenue Service Date of December 9, 2021, and the FFGA Final Completion Date (FCD) of August 22, 2022. This schedule contingency is slightly less than the 345 days that would be recommended using the procedure in OP 40, which would yield an FCD of November 19, 2022, based on a starting date of March 1, 2018.
- *The JPB recently revised its schedule for weekend interruptions of rail service in Segment 1 to permit Electrification construction and concurrent work on the Tunnel Notching contract. The service interruptions must now take place*

following the close of the 2018 Major League Baseball season. This constraint was not present at the time the Electrification contract was awarded and it is not clear how this will impact the Electrification contractor's accepted baseline schedule. The PMOC's opinion is that the JPB's decision will likely result in a Change Request from the Electrification contractor.

Table 5 below, which is based on the MPS C16.03, shows the current projected dates for completion of various significant project activities.

Table 5 – Schedule Status

Milestone	Baseline	Grantee Forecast	PMOC Forecast
NEPA Re-evaluation Completion:	Not in MPS	2/11/2016 (A)	2/11/2016 (A)
Entry into Engineering:	Not in MPS	6/1/2016 (A)	8/12/2016 (A)
New Starts/Core Capacity Grant Agreement:	Not in MPS	5/23/2017 (A)	5/23/2017 (A)
Design/Build Limited Notice to Proceed	Not in MPS	9/6/2016(A)	9/6/2016(A)
Design/Build Notice to Proceed:	12/08/15 (P)	6/19/2017 (A)	6/19/17 (A)
Vehicle Procurement Award:	01/08/16 (P)	8/15/2016 (A)	8/15/2016(A)
Final Engineering (FE) Completion:	04/03/18 (P)	3/14/2018	*9/13/19*
Systems Integration Testing Completed:	01/29/19 (P)	*11/30/20*	*11/30/20*
Design/Build Completion	02/16/19 (P)	*8/10/20*	*8/10/20*
Pre-Revenue Operation Completed:	05/07/20 (P)	*12/9/21 (P)*	*12/9/21*
Revenue Service – Soft Opening		4/22/22	*4/22/22*
Revenue Operations Date:	05/07/20 (P)	8/22/2022	8/22/2022
(P) Planned Date (A) Actual Date			

Appendix E presents the PCEP's summary schedule C16.04 with a Data Date of February 5, 2018, as contained in its January 2018 Monthly Report.

- **PMOC Recommendation:** The JPB should maintain sufficient schedule contingency in future schedules to satisfy the OP-40 recommendation that sufficient contingency is available to absorb a project delay equivalent to 25% of the remaining duration through the proposed RSD for the project, calculated by adding the schedule contingency to the Adjusted Schedule.

F. Quality Assurance / Quality Control (QA/QC)

The JPB provided a preliminary draft update to its Quality Management Plan, Rev. 2, to the PMOC for its review in August 2017, and the PMOC provided comments to the JPB. *The JPB recently issued the updated QMP Rev. 2, dated November 2017.*

The PCEP's Monthly Report for January 2018 reports the following quality activities:

- Staff meetings with BBII QA/Quality Control (QC) management representatives continue bi-weekly.
- Regularly scheduled design reviews and surveillances began on project design packages and will continue through the spring of 2018.

- Began review and approval of Design Variance Requests for BBII and PGH Wong for QA/QC and inspectability issues/concerns.
- Continued review of BBII QC Inspectors' Daily Reports for work scope, performance of required duties, adequacy, non-conformances, test/inspection results, follow-up to unresolved issues, and preciseness.
- Two design package audits were conducted; PGH Wong/AMC on the Issued for Construction (IFC) package for OCS Bridge Attachments, and PGH Wong/F.W. Associates on the IFC package for Signal Systems Ductbanks. There was one finding.
- A supplier audit of Southwire in Douglas, GA., the manufacturer of messenger and contact wire, was conducted and yielded five findings. The findings remain open.

The QA staff previously submitted to PCEP Management a QA Resource Plan for 2017 and beyond. This plan included a recommendation and request for an Independent QA Testing and Inspection Lab and a QA Engineer.

- **PMOC Observations and Recommendations:** The PMOC's opinion is that the additional quality resources mentioned above are necessary, and may be inadequate to address the full range of quality activities on a project of the scale of the PCEP.

  The JPB is progressing with the implementation of an agency-wide quality program.

The PMOC plans to conduct a focused review of the PCEP Quality Management program in the coming months.

G. Safety and Security

The JPB reported that the safety performance of the Electrification drilling sub-contractor has improved since the prior report; however, two new safety related issues have appeared. The first issue involved electrical arcing between an overhead power line and the mast of a rail mounted drill rig. Two factors contributed to the incident: the overhead power line had not been previously identified by the contractor; and the contractor failed to follow established procedure and lower the mast of the drill rig before moving it. The JPB and the contractor are carefully inspecting work and travel areas to identify any lines that could present problems, and the JPB is working with PG&E to raise those power lines with insufficient clearance.

The second issue, noted above in Section 4.A under Construction Activities, involves the JPB's recent change in its position regarding providing TASI signal maintainer support during the movement of rail mounted equipment through grade crossings. This Electrification contractor and its drilling sub-contractor notified the JPB that they disagree with this change. As a result, the JPB performed a Hazard Analysis of the situation which determined that the revised procedure would adequately address the hazard. This issue had not been finally resolved at the time of the PMOC's visit and discussions between the parties continues.

The JPB submitted its Draft SSMP, Rev. 4, on April 11, 2017 for PMOC review. The PMOC completed its review of the Rev. 4 Draft and provided comments and recommendations to the PCEP's safety team in August 2017. The SSMP Update Review report is currently being finalized.

The PCEP's safety management team reports that it has issued a Statement of No Objection (SONO) to BBII and to Stadler on their respective Safety Management Plans. The PCEP safety team continues to monitor the safety performance of BBII's field activities including compliance with Site Specific Work Plans.

The PCEP's safety management team continues to hold regular monthly meetings of the Fire and Life Safety Committee and the Safety and Security Certification Review Committee. *The next meetings are set for March 28, 2018 and March 21, 2018, respectively.*

H. Americans with Disabilities Act (ADA)

The new EMU vehicles will be equipped with powered on-board lifts to provide assistance to passengers using mobility devices. The JPB requested the FTA's concurrence to reduce the number of on-board 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 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 considered the JPB's proposal and initiated a conference call with the JPB on November 3, 2017, which included representatives of the FTA's Civil Rights Office, to discuss the proposal. The FTA, following its review of the JPB's proposal and further clarification provided by the conference call, concurred with the JPB's proposed reduction in the total number of vehicle lifts per train set. The phased installation of the lifts was also discussed and associated grant timing considerations.

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

I. Buy America

- The FTA concurred in November 2016 with the JPB's determination that the EMU contract is governed by a 60% domestic content requirement based on the General Public Interest Waiver provisions in the FTA's current Buy America regulations.
- The JPB reports that it has received guidance from the FTA confirming the acceptability of a protocol for certifying compliance of PG&E substation modifications with Buy America requirements. The JPB also reported that PG&E has determined that it will not need to install Gas Insulated Switchgear when it modifies its FMC substation to supply power to the JPB's TPSS #2. This determination by PG&E eliminates a major concern related to Buy America compliance because Gas Insulated Switchgear is not manufactured in the U.S.
- *The EMU vehicle consultant visited Stadler's Salt Lake City facility during late January 2018 to verify its Buy America compliance and its progress in arranging for American equipment suppliers.*

J. Vehicles

The PCEP has placed an order for ninety-six (96) new bi-level EMU vehicles to be produced by Stadler US, Inc. and delivered in six-car train sets. The EMU contract contains an option for JPB to purchase up to ninety-six (96) additional EMUs at prices based on the date when the option is exercised. The EMU contract also contains an option for Stadler to maintain the vehicles; the JPB has decided not to 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 will be delivered with two (2) sets of doors, one set at approximately 22" above top of rail, and one at approximately 50.5" above top of 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. Later, 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.

The JPB has negotiated a change order to reduce the number of interior lifts from twelve (12) to six (6) in each trainset. This topic is discussed in more detail in Section H, Americans with Disabilities Act, above. *A second change order has been issued to increase the capacity of lifts that provide ADA access to restrooms in those cars so equipped; this change order is in response to recent change in the standards for such lifts.*

The JPB reported that work on Stadler's new assembly facility and test track in Salt Lake City, Utah, is progressing and the pre-engineered building that will house the operation has been purchased. This facility will be used for production of most of the EMUs for the PCEP Project.

As noted above, the FRA granted the JPB's request for a waiver of compliance from a portion of 49 CFR §238.113(a)(2), Emergency window exits for the restroom car of their new 6-car EMU trainsets, on February 9, 2018.

The JPB did not report progress on another issue currently before the FRA. The JPB sent a request for interpretation, dated September 19, 2017, related to use of the high-level doors in lieu of emergency egress windows in passenger intermediate seating levels.

The JPB previously reported that it has finalized the on-board bicycle parking arrangement, and will continue to stack bikes as is currently done.

5) <u>Project Risk and Contingency</u>

The PCEP has been implementing its R IMP since its development in 2014. The PCEP's Risk Management Specialist conducts weekly updates of a sub-set of the Risk Register and the project's Risk Management Committee meets monthly to review those risks proposed for retirement, risks with a major change in severity, and proposed additions to the Risk Register.

The JPB conducted a Risk Refresh Workshop on September 18-19, 2017; this was the first comprehensive risk update since the award of the FFGA and issuance of full NTP to both major contractors. The JPB's workshop was preceded by a half-day risk management meeting with the Electrification contractor to discuss the contractually required risk management plan. The Electrification contractor's risk management plan includes periodic risk meetings with the JPB and regular reviews of contractor-owned risks. One outcome of the Risk Refresh Workshop was the incorporation of the contractor's risks into the PCEP risk register. The JPB also re-ran its Monte Carlo risk model and updated the cost and schedule contingency requirements.

The PCEP team held the second quarterly risk management meeting with the Electrification contractor in January 2018.

The top risks, with risk number, shown on the current PCEP risk register are:

(279) BBII may be unable to develop grade crossing modifications that meet operational requirements prior to scheduled testing and commissioning of the system.

(223) A complex and diverse collection of major program elements and current Caltrain capital works projects may not be successfully integrated with existing operations and infrastructure.

(101) *PG&E may be unable to deliver permanent power for the project within the present budget and in accordance with the required schedule. (Restated)*

(281) Additional work in the form of signal/pole adjustments may be required to remedy sight distance impediments arising from modifications to original design.

(100) Working PTC signal system may not be in place in advance of integrated testing and commissioning.

(287) Design changes may necessitate additional implementation of environmental mitigations not previously budgeted.

(67) Relocation of overhead utilities must precede installation of catenary wire and connections to TPSs. Relocation work will be performed by others and may not be completed to meet BBII's construction schedule.

(263) Collaboration across multiple disciplines to develop a customized rail activation program may fail to comprehensively address the full scope of issues required to operate and maintain an electrified railroad and decommission the current diesel fleet.

(276) BBII may be unable to get permits required by jurisdictions for construction in a timely manner.

(209) TASI may be unable to deliver sufficient resources to support construction and testing for the electrification contract.

Appendix F is a listing of the top project risks from the most recent PCEP Risk Register.

- **PMOC Recommendation:** The PMOC recommends that the JPB consider ways to mitigate operational impacts to committed Electrification contractor work windows that may result from unexpected problems with initial operational testing of the CBOSS-PTC system. Mitigation strategies should also address continuing impacts from the same cause.

6) Discussion of Monitoring Plan Items

The PMOC will monitor the JPB's progress in complying with those conditions imposed in the FFGA. The PMOC will continue to monitor the Project's progress in acquiring real estate and completing the remaining third-party agreements, including the PG&E supplements, and any required utility relocation agreements. The PMOC will also continue to monitor design progress, procurement activities, and identified concurrent non-project activities (CNPA).

Caltrain's CBOSS-PTC project is an independent part of the CalMod Program and not part of the PCEP. The completion of the CBOSS-PTC project has been substantially delayed; the JPB terminated its prime contractor; and the JPB and the contractor are involved in opposing litigation. *The JPB's recent approval of a contract with Wabtec to complete implementation of Caltrain's PTC system is a positive step. This decision will allow Stadler to proceed with finalizing the on-board PTC equipment for the EMUs, an activity that had been on-hold. The*

PMOC will continue to track the project's progress in start-up and integration through its review of the PCEP's system integration activities, which include PTC items, and will also be alert for any impacts resulting from PTC on-track activities.

7) Action Items

Table 6 – Action Items

No.	Action Item	Discussion	Agreed Due Date	Responsibility Agency/Name	Status
04.02	*JPB to provide a separate schedule for CBOSS-PTC in the next quarterly report.*		*QPRM #5*	*JPB - Bouchard*	*Completed 11/30/2017*
04.03	JPB to provide "white papers" on issues requiring an FTA response. FTA to provide feedback to the JPB on the issues presented.	White papers were requested on an ADA question related to the EMUs and on the purchase of a used locomotive for electrification testing.	ASAP	JPB - Couch FTA - Abaray	EMU Lift WP Completed 10/16/2017 Electric Loco WP Completed 11/17/2017 HQ ADA Call Completed 11/3/2017
05.01	*JPB to provide a slide showing a detailed schedule for PG&E substation activities.*	*The schedule obtained from PG&E should have sufficient detail that it can be monitored by the PMOC.*	*NLT QPRM #6*	*Couch/Larano*	
5.02	*JPB to prepare a brief White Paper explaining why the delay in award of the FFGA resulted in change orders to the awarded contracts.*	*FTA noted that the JPB had pre-award authority for the EMU contract.*	*ASAP*	*Couch/Larano*	

No.	Action Item	Discussion	Agreed Due Date	Responsibility Agency/Name	Status
5.03	*JPB to prepare a simple handout for future meetings with additional detail on Change Orders and resultant changes in contingency.*		*NLT QPRM #6*	*Larano*	
5.04	*JPB to prepare and update an exhibit showing project progress over time.*	*JPB noted that this exists as the Percent Complete exhibit.*	*NLT QPRM #6*	*Larano*	
5.05	*JPB to have a follow-up conversation with the FTA to discuss how the federal interest in the PG&E-JPB interconnection will be preserved if this becomes the property of PG&E.*	*This issue is unresolved and part of the negotiation of Supplement #4.*	*When the issue becomes ripe for discussion.*	*JPB: Legal Counsel* *FTA: Wu*	
5.06	*JPB to prepare and distribute an 11"x17" map of the corridor showing Stations, Segments, Work Areas, Traction Power facilities, Tunnels, and the CEMOF.*		*NLT QPRM #6*	*Larano*	

Legend: Each Action Item indicates the number of the Quarterly Progress Review Meeting where the Action Item was identified. Colored italics indicate a new entry from the previous version. Shaded cells indicate a completed item. Items are removed from the Action Item list for the second report following the report in which they are reported complete.

Appendix A: List of Acronyms

Acronyms	List of Terms
ADA	Americans with Disabilities Act
APTA	American Public Transportation Association
ATP	Alternate Technical Proposal
BAAQMD	Bay Area Air Quality Management District
BAFO	Best and Final Offer
BART	Bay Area Rapid Transit District
BBII	Balfour-Beatty Infrastructure, Inc.
Caltrans	California Department of Transportation
CBOSS	Communications Based Overlay Signal System
CC	FTA's Core Capacity Improvement Program
CCB	Change Control Board
CCIP	Contractor Controlled Insurance Program
CCSF	City and County of San Francisco
CEL	Certified Elements List
CEMOF	Central Equipment Maintenance and Operations Facility
CEQA	California Environmental Quality Act
CGA	Construction Grant Agreement
CHSRA	California High-Speed Rail Authority
CIG	FTA's Capital Investment Grant Process
CIL	Certifiable Items List
CM/GC	Construction Manager/General Contractor
CNPA	Concurrent Non-Project Activity
CPUC	California Public Utilities Commission
CSCG	City/County Staff Coordinating Group
CWT	*Constant Warning Time*
D-B	Design-Build
DBB	Design-Bid-Build
DBE	Disadvantaged Business Enterprise
DBFOM	Design-Build-Finance-Operate and Maintain
DEIR	Draft Environmental Impact Report
DQP	Design Quality Plan
DRB	Disputes Review Board
EA	Environmental Assessment
EAC	Estimate at Completion
EE	Entry into Engineering
EIR	Environmental Impact Report
EMU	Electric Multiple Unit Rail Vehicle
ETB	Electrified Trolley Buses
FCD	Final Completion Date
FEIR	Final Environmental Impact Report
FFGA	Full Funding Grant Agreement

Acronyms	List of Terms
FMOC	Financial Management Oversight Consultant
FMP	Fleet Management Plan
FONSI	Finding of No Significant Impact
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
FY	Fiscal Year
GO	General Order (issued by the CPUC)
HSR	High-Speed Rail
IFC	*Issued for Construction*
IFB	*Invitation for Bids*
IGA	Inter-Governmental Agreement
Cal ISO	California Independent System Operator
JPB or PCJPB	Peninsula Corridor Joint Powers Board
KKCS	Kal Krishnan Consulting Services, Inc.
LNTP	Limited Notice to Proceed
LONP	Letter of No Prejudice
LPMG	Local Policy Makers Group
MCC	Management Capacity and Capability
MOU	Memorandum of Understanding
MPS	Master Project Schedule
MTC	Metropolitan Transportation Commission
NCR	Non-conformance Report
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NTO	Notice to Owner (for Utility Relocation)
NTP	Notice to Proceed
OCS	Overhead Contact System/Overhead Catenary System
PCEP	Peninsula Corridor Electrification Program
PCWG	Peninsula Corridor Working Group
PD	Project Development Phase
PG&E	Pacific Gas and Electric
PHA	Preliminary Hazard Assessment
PMOC	Project Management Oversight Contractor
PMP	Project Management Plan
PS	Paralleling Station for Traction Power Supply
PTC	Positive Train Control
PTG	Parsons Transportation Group
QA	Quality Assurance
QAP	Quality Assurance Plan
QC	Quality Control
QMP	Quality Management Plan
QPRM	Quarterly Progress Review Meeting
RAMP	Real Estate Acquisition Management Plan

Acronyms	List of Terms
RFP	Request for Proposal
RFMP	Rail Fleet Management Plan
RIMP	Risk Identification and Mitigation Plan
RON	Resolution of Necessity (for Eminent Domain purposes)
ROW	Right of Way
RSD	Revenue Service Date
RWQCB	Regional Water Quality Control Board
SamTrans	San Mateo County Transit District
SCADA	Supervisory Control and Data Acquisition
SCC	Standard Cost Category
SCVTA/VTA	Santa Clara Valley Transportation Authority
SF	City of San Francisco
SFCTA	San Francisco County Transportation Authority
SFMTA	San Francisco Municipal Transportation Agency
SHPO	State Historic Preservation Office
SJ	City of San Jose
SMCTA	San Mateo County Transportation Authority
SME	Subject Matter Expert
SOGR	State of Good Repair
SONO	Statement of No Objection
SP	Southern Pacific Transportation Company
SSI	Sensitive Security Information
SSMP	Safety and Security Management Plan
SSOA	State Safety Oversight Agency
TASI	Transit America Services, Inc.
TEAM	Transportation Electronic Award Management System
TIA	Time Impact Analysis
TJPA	Transbay Joint Powers Authority
TPS	Traction Power System
TPSS	Traction Power Substation
TrAMS	Transportation Award Management System
TVA	Threat and Vulnerability Analysis
TVM	Transit Vehicle Manufacturer
UPRR	Union Pacific Railroad
USFWS	United States Fish and Wildlife Service
VE	Value Engineering
VECP	Value Engineering Change Proposal
VTA	Santa Clara Valley Transportation Authority
YOE	Year of Expenditure

Appendix B: Safety and Security Checklist

Project Overview			
Project Mode	Commuter Rail		
Project Phase	FFGA - Construction		
Project Delivery Method	Design-Build, Design-Bid-Build		
Project Plans	**Version**	**Review by FTA**	**Status**
Safety and Security Management Plan (SSMP)	Rev 4	Y	Under Review
Safety and Security Certification Plan (SSCP)	Rev 0		Under Review
System Safety Program Plan (SSPP)	Rev 7		Under Review
System Security Plan or Security and Emergency Preparedness Plan (SEPP)	Rev 0		SSP being revised
Construction Safety and Security Plan (CSSP)	V3 Part C of SPs		In Contract Documents

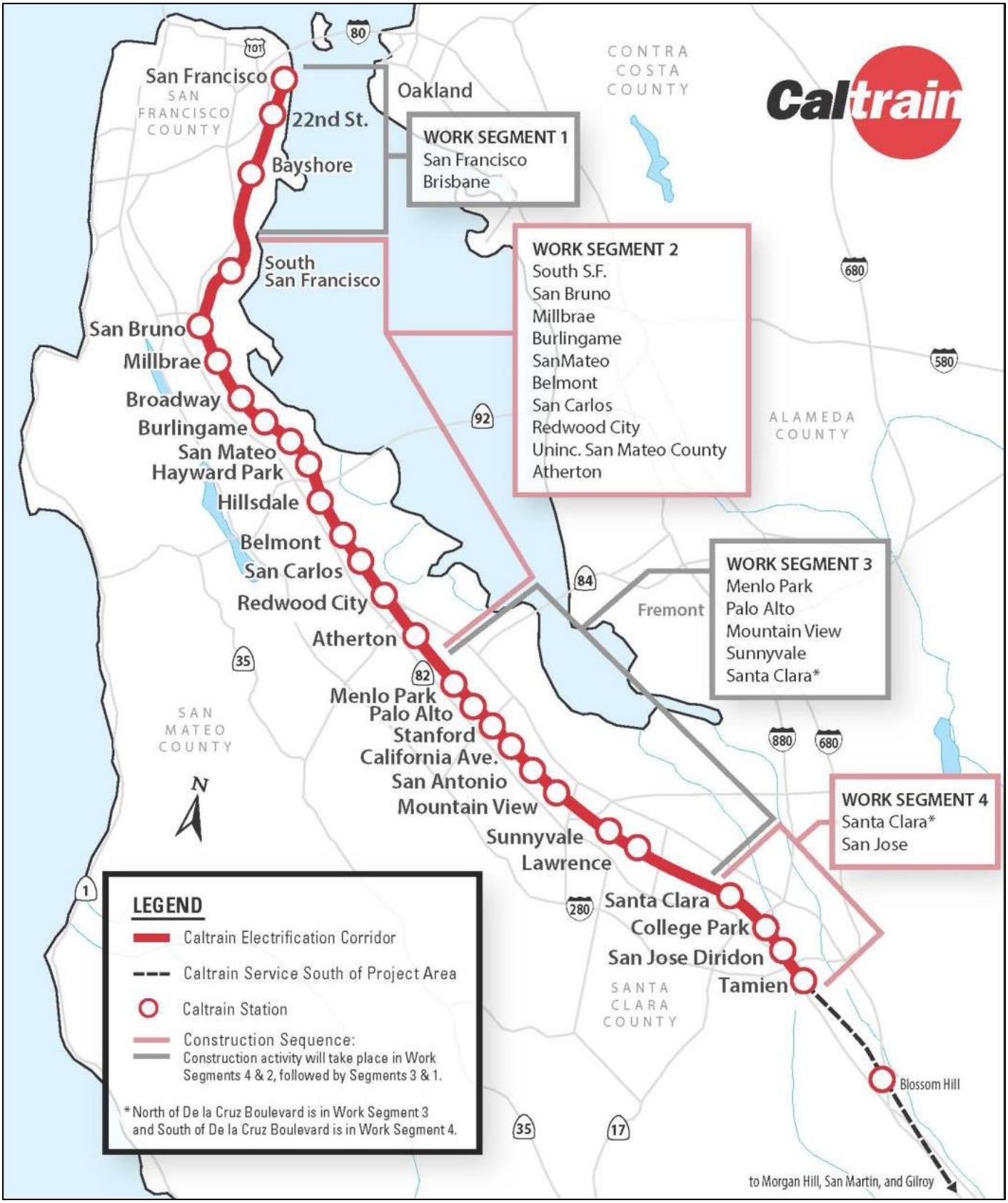
Area of Focus	**Y/N**	**Notes/Status**
Safety and Security Authority		
Is the Project Sponsor subject to 49 CFR Part 659 state safety oversight requirements?	Y	
Has the state designated an oversight agency as per 49 CFR Part 659.9?	Y	California Public Utilities Commission is SSOA
Has the oversight agency reviewed and approved the Project Sponsor's Security Plan or SSPP as per 49 CFR Part 659.17?	TBD	Not known at this time
Did the oversight agency participate in the last Quarterly Program Review Meeting?	*N*	*QPRM No. 5 held November 30, 2017*
Has the Project Sponsor submitted its safety certification plan to the oversight agency?	TBD	SSCP submitted Rev. 0 which is currently under review.
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; Transit Police is the liaison between DHS and Caltrain.
SSMP Monitoring		
Is the SSMP project-specific, clearly demonstrating the scope of safety and security activities for this project?	Y	
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

Area of Focus	Y/N	Notes/Status
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	PHA Rev. 1, APR 16, 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 monthly. 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.
Does the Project Sponsor ensure the conduct of preliminary hazard and vulnerability analyses? Please specify the analyses conducted.	Y	PHA Rev. 1 APR 16, Under review. TVA Rev. 1 APR 16, Under review. OHA is currently being developed.
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 are currently being developed and reviewed by the Safety & Security Certification Review Committee.
Has the Project Sponsor verified conformance with safety and security requirements in equipment and materials procurement?	Y	Through the Safety & Security Certification Process.
Has the Project Sponsor verified construction specifications conformance?	Y	Currently only for foundation construction which is under way.
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 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 work-arounds?	Y	This is included in the Rail Activation Committee scope during testing/startup activities. BBII's Safety & Security Certification flow chart identifies the process.

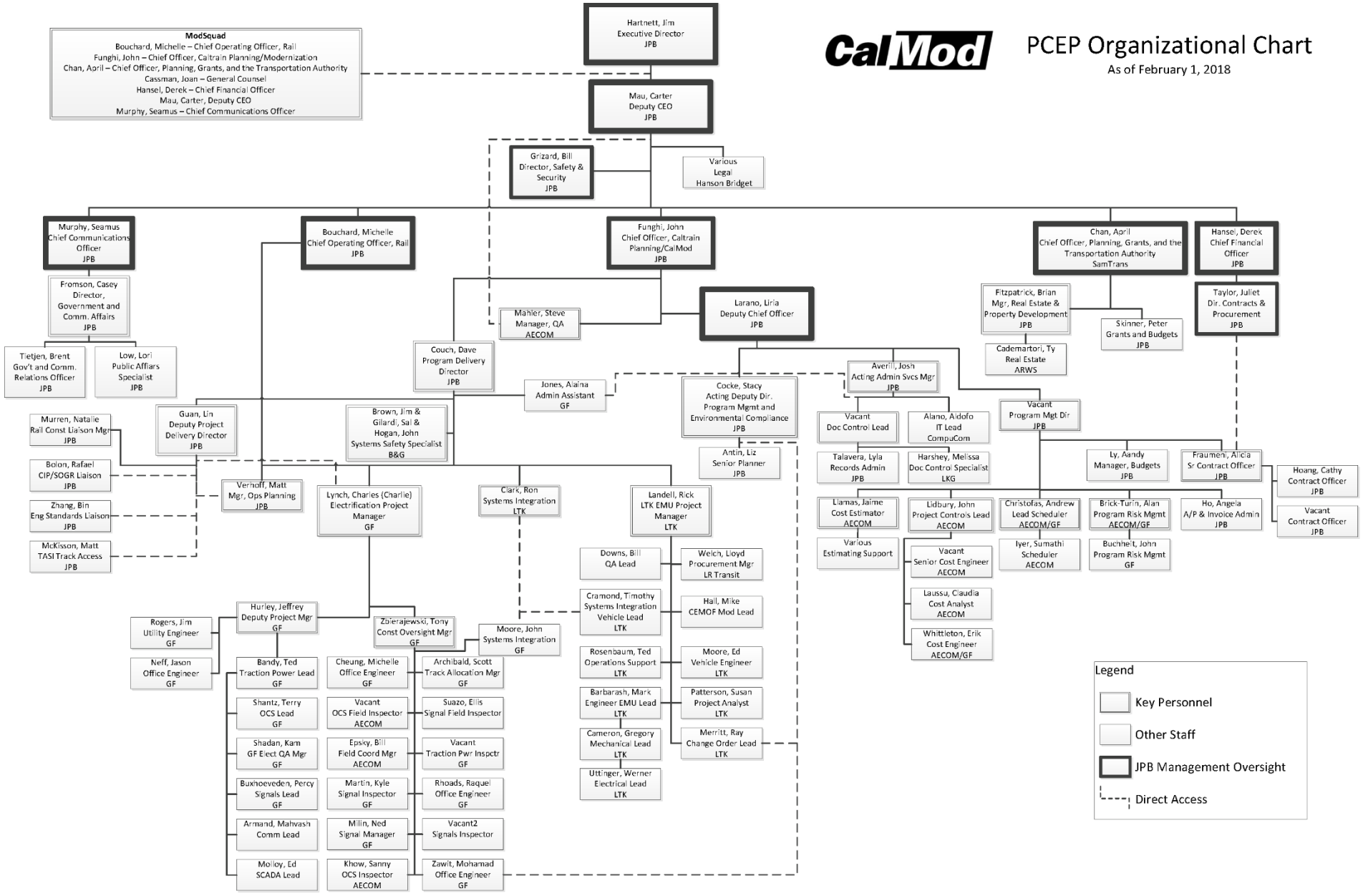
Area of Focus	Y/N	Notes/Status
Has the Project Sponsor demonstrated through meetings or other methods the integration of safety and security in the following: • Activation Plan and Procedures • Integrated Test Plan and Procedures • Operations and Maintenance Plan • Emergency Operations Plan	 Y Y N N	 Activation plan currently being developed. Integrated Test Plan & Procedures developed.
Has the Project Sponsor issued final safety and security certification?	N	Project is in construction. Final Completion Date is 8-22-2022.
Has the Project Sponsor issued the final safety and security verification report?	N	Project is in construction. Final Completion Date is 8-22-2022.
Construction Safety		
Does the Project Sponsor have a documented/implemented Contractor Safety Program with which it expects to comply?	Y	The Design/Build contractors "Construction Safety Program" and "Health and Safety Plan" have been accepted.
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
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?		Design Build contractor's OSHA statistics were reviewed during the evaluation phase of all proposals and were below the RFP requirements.
If the comparison is not favorable, what actions are being taken by the Project Sponsor to improve its safety record?		NA
Federal Railroad Administration		
If shared track: has the Project Sponsor submitted its waiver request application to FRA? (Please identify specific regulations for which waivers are being requested.)	Y	Waivers approved 1/13/2016 for 49 CFR: 49 CFR 238.203, Static end strength; 238.205, Anti- climbing mechanism; and 238.207, link between coupling mechanism and car body.
If shared corridor: has the Project Sponsor specified specific measures to address safety concerns?	Y	In Caltrain/TA Services/UP Passenger Train Emergency Preparedness Plan and Caltrain System Safety Program Plan
Is the Collision Hazard Analysis underway?	*N*	Has not been started by the EMU contractor.
Other FRA required Hazard Analysis – Fencing, etc.?	TBD	This is an operating ROW and no service change is expected.
Does the project have Quiet Zones?	TBD	This is an operating ROW and no service change is expected.
Does FRA attend the Quarterly Review Meetings?	*N*	*FRA did not attend QPRM No. 5 on Novembe30, 2017.*

Appendix C: Project Map

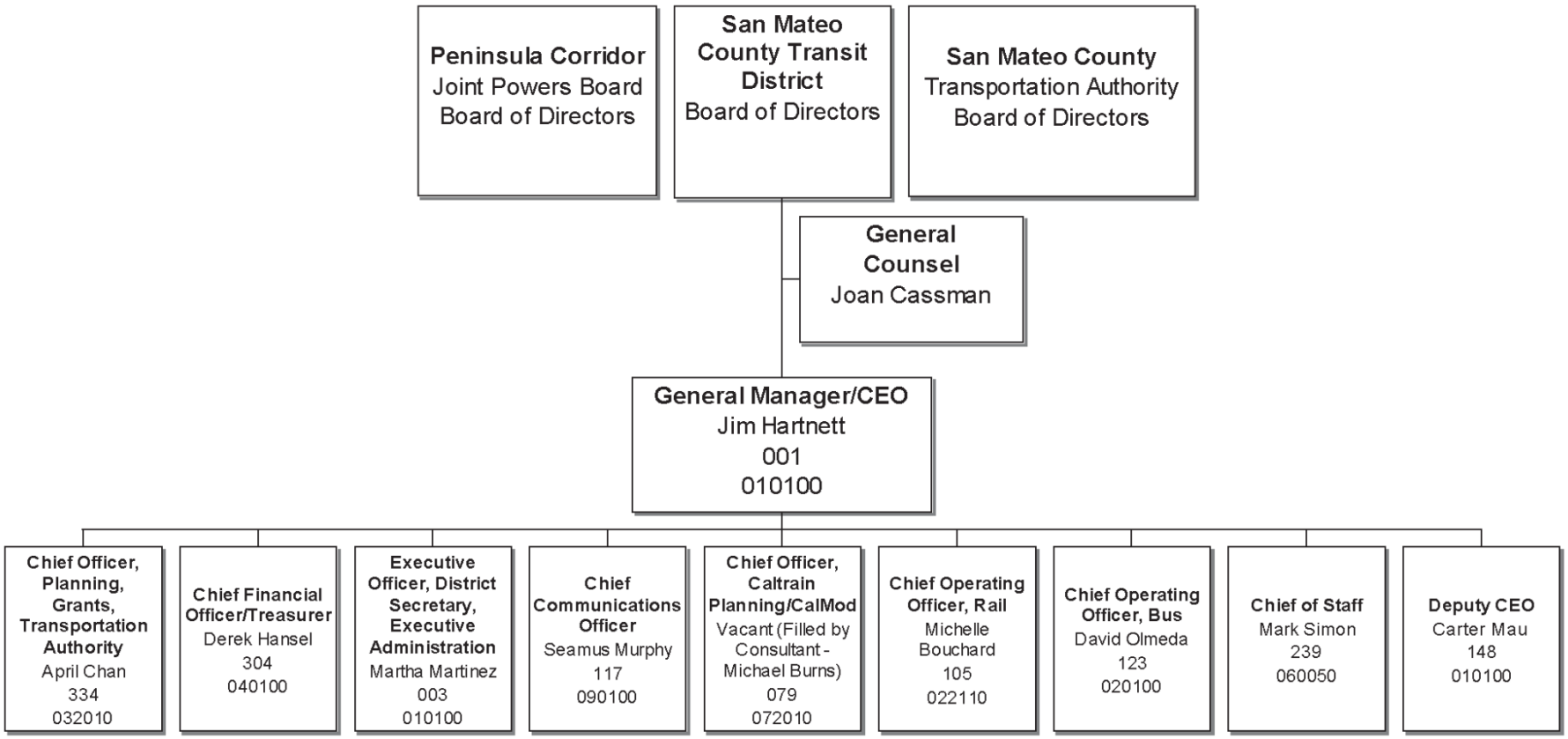
Figure 1
Peninsula Corridor Electrification Project Map



Appendix D: PCEP Organization Chart

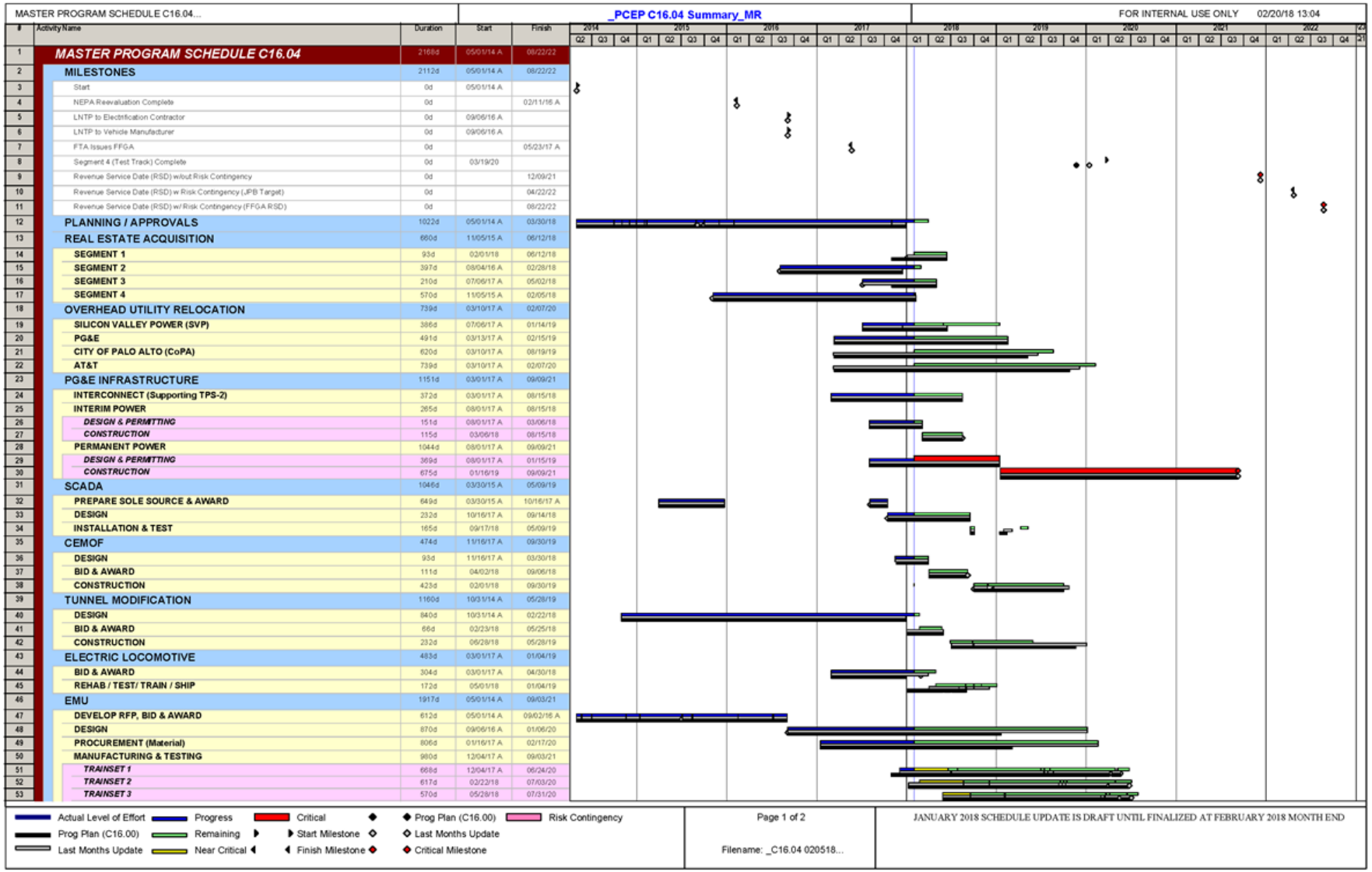


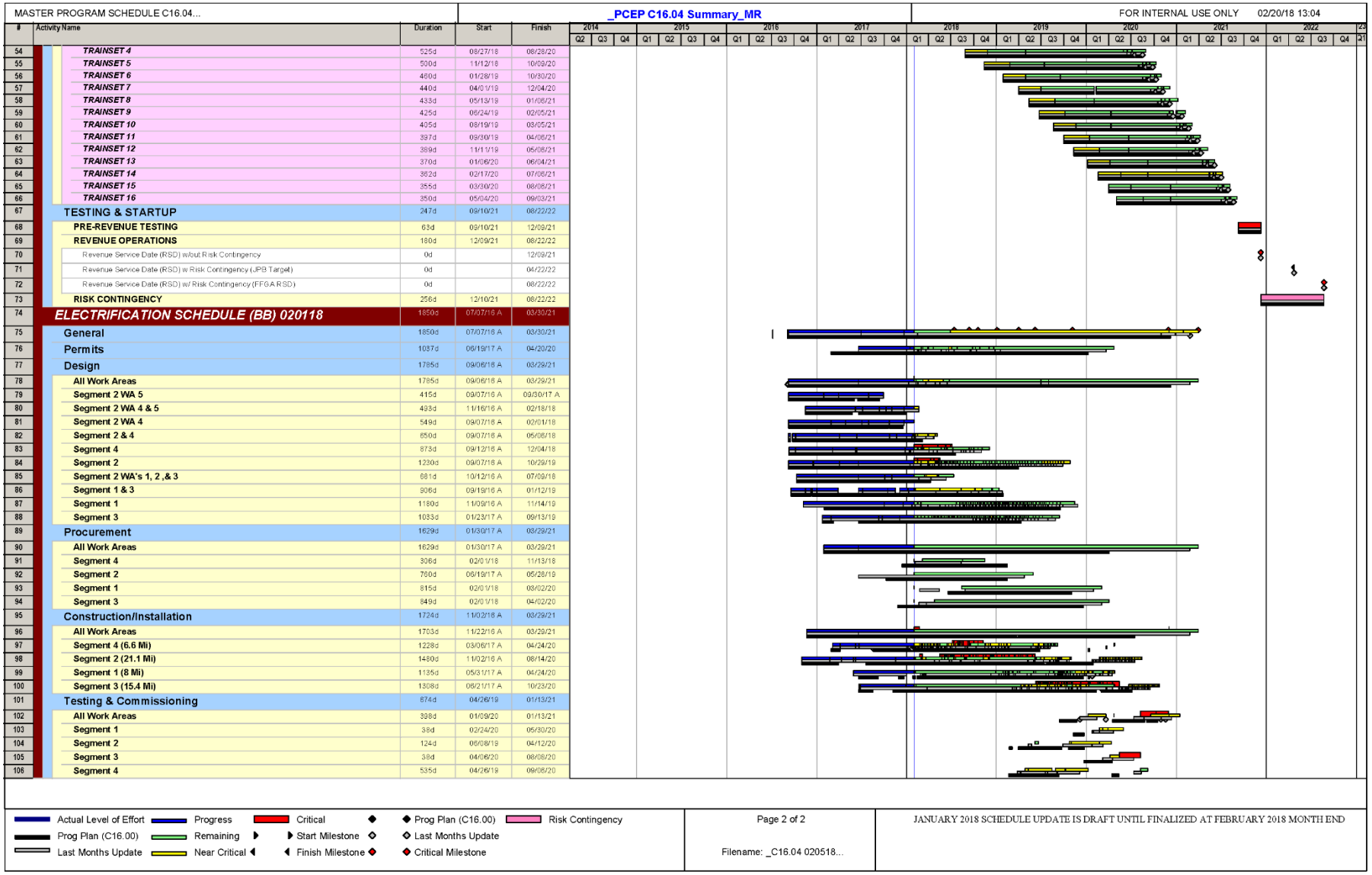
SAN MATEO COUNTY TRANSIT DISTRICT



Effective 11/1/17

Appendix E: Summary Project Schedule




MASTER PROGRAM SCHEDULE C16.04...
_PCEP C16.04 Summary_MR
FOR INTERNAL USE ONLY 02/20/18 13:04
Activity Name Duration Start Finish
54 TRAINSET 4 525d 08/27/18 08/28/20
55 TRAINSET 5 500d 11/12/18 10/09/20
56 TRAINSET 6 460d 01/28/19 10/30/20
57 TRAINSET 7 440d 04/01/19 12/04/20
58 TRAINSET 8 433d 05/13/19 01/08/21
59 TRAINSET 9 425d 06/24/19 02/05/21
60 TRAINSET 10 405d 08/19/19 03/05/21
61 TRAINSET 11 397d 09/30/19 04/06/21
62 TRAINSET 12 389d 11/11/19 05/06/21
63 TRAINSET 13 370d 01/06/20 06/04/21
64 TRAINSET 14 362d 02/17/20 07/06/21
65 TRAINSET 15 355d 03/30/20 08/06/21
66 TRAINSET 16 350d 05/04/20 09/03/21
67 TESTING & STARTUP 247d 09/10/21 08/22/22
68 PRE-REVENUE TESTING 63d 09/10/21 12/09/21
69 REVENUE OPERATIONS 180d 12/09/21 08/22/22
70 Revenue Service Date (RSD) w/out Risk Contingency 0d 12/09/21
71 Revenue Service Date (RSD) w Risk Contingency (JPB Target) 0d 04/22/22
72 Revenue Service Date (RSD) w/ Risk Contingency (FFGA RSD) 0d 08/22/22
73 RISK CONTINGENCY 256d 12/10/21 08/22/22
74 ELECTRIFICATION SCHEDULE (BB) 020118 1850d 07/07/16 A 03/30/21
75 General 1850d 07/07/16 A 03/30/21
76 Permits 1037d 06/19/17 A 04/20/20
77 Design 1785d 09/06/16 A 03/29/21
78 All Work Areas 1785d 09/06/16 A 03/29/21
79 Segment 2 WA 5 415d 09/07/16 A 09/30/17 A
80 Segment 2 WA 4 & 5 493d 11/16/16 A 02/18/18
81 Segment 2 WA 4 549d 09/07/16 A 02/01/18
82 Segment 2 & 4 650d 09/07/16 A 05/08/18
83 Segment 4 873d 09/12/16 A 12/04/18
84 Segment 2 1230d 09/07/16 A 10/29/19
85 Segment 2 WA's 1, 2 ,& 3 681d 10/12/16 A 07/09/18
86 Segment 1 & 3 906d 09/19/16 A 01/12/19
87 Segment 1 1180d 11/09/16 A 11/14/19
88 Segment 3 1033d 01/23/17 A 09/13/19
89 Procurement 1629d 01/30/17 A 03/29/21
90 All Work Areas 1629d 01/30/17 A 03/29/21
91 Segment 4 306d 02/01/18 11/13/18
92 Segment 2 760d 06/19/17 A 05/28/19
93 Segment 1 815d 02/01/18 03/02/20
94 Segment 3 849d 02/01/18 04/02/20
95 Construction/Installation 1724d 11/02/16 A 03/29/21
96 All Work Areas 1703d 11/22/16 A 03/29/21
97 Segment 4 (6.6 Mi) 1228d 03/06/17 A 04/24/20
98 Segment 2 (21.1 Mi) 1480d 11/02/16 A 08/14/20
99 Segment 1 (8 Mi) 1135d 05/31/17 A 04/24/20
100 Segment 3 (15.4 Mi) 1308d 08/21/17 A 10/23/20
101 Testing & Commissioning 874d 04/26/19 01/13/21
102 All Work Areas 398d 01/09/20 01/13/21
103 Segment 1 38d 02/24/20 05/30/20
104 Segment 2 124d 06/08/19 04/12/20
105 Segment 3 38d 04/06/20 06/08/20
106 Segment 4 535d 04/26/19 09/06/20
2014 2015 2016 2017 2018 2019 2020 2021 2022
Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1
Actual Level of Effort
Progress
Critical
Prog Plan (C16.00)
Risk Contingency
Prog Plan (C16.00)
Remaining
Start Milestone
Last Months Update
Last Months Update
Near Critical
Finish Milestone
Critical Milestone
Page 2 of 2
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JANUARY 2018 SCHEDULE UPDATE IS DRAFT UNTIL FINALIZED AT FEBRUARY 2018 MONTH END

Appendix F: Top Project Risks

Program Risk Register

Version Date: Janury 5, 2018 - Top Risks

	1	2	3	4	5
	LOW	MEDIUM	HIGH	VERY HIGH	SIGNIFICANT
Probability	< 10%	10% - 50%	50% - 75%	75% - 90%	> 90%
Cost	< $500 K	$500 K - $2 M	$2 M - $10 M	$10 M - $20 M	$20 M - $50 M
Schedule	< 1 Month	1 - 3 Months	3 - 6 Months	6 - 12 Months	> 12 Months

ID	RBS FUNC. (P)	RBS FUNC. (S)	RISK DESCRIPTION	EFFECT(S)	TYPE	IMPACT: PROBABILITY	IMPACT: COST	IMPACT: SCHEDULE	PRIORITY: GRADING	OWNER	MITIGATION ACTIONS	RETIREMENT DATE(S)	NOTES	A-C	STATUS & REMARK(S)
279	Elect.	Construction	BBII may be unable to develop grade crossing modifications that meet regulatory requirements prior to scheduled testing and commissioning of the system.	Crossing operations will not be acceptable to CPUC and FRA and therefore delay commissioning.	T	5	4	5	48	DB/Signals	Perform R&D under Allowance Item 1.d.1 Item # 10. UPRR equip short line operator. Put in grade separation. Design multiple crossing solutions; phase in unproven crossing solutions	0-Jan-00			Risk #186 retired and combined into Risk #279 per Risk Assessment Committee - 10/10/2017
223	Elect.	Contracting	A complex and diverse collection of major program elements and current Caltrain capital works projects may not be successfully integrated with existing operations and infrastructure.	Proposed changes resulting from electrification may not be fully and properly integrated into existing system.	T	4	5	4	36	Clark	1. A consolidated configuration control system for the entire agency needs to be developed which is being coordinated within PCEP. 2. That position is to be hired by the agency and matrix into the PCEP project. 3. R. Clark will work with M. Bouchard to manage these items until the agency hires the individual who will manage this section. 4. Hire permanent staff person responsible for systems integration.	Revenue Service Date			Ongoing Systems Integration meetings. Meetings with contractor systems integration meetings. Ongoing meetings with Rail Activation group. Identified the interfaces between the CBOSS project and the electrification project. Looked at impacts of delay to CBOSS on PCEP. Addressing potential delay risk from CBOSS (see # CEMOF and SCADA will begin and will require new integration activities Action items at last Systems Integration meeting include: • CBOSS/PTC Integration • Wireless Infrastructure • Asset Management System • Bump stop • Test Locomotive harmonics • Test track - R. Clark 1/5/2018
101	Elect.	Stakeholder-Ext	PG&E may not be able to deliver permanent power for the project within the existing budget and in accordance with the project schedule	Additional project costs; potential delay to revenue service date	T	4	5	3	32	Guan	1. CalMod team has developed initial scope of work for a PG&E power study to determine if existing infra-structure can support a load and if infra-structure upgrades will be needed. - Done 2. Infra-structure requires an upgrade to meet demand: Caltrain will build the connection, which will then be owned by PG&E. 3. Infra-structure upgrade is needed PG&E recommendations need to conform to Caltrain approval. 4. PG&E will require sub-station improvements. The extent is yet to be determined. 5. The scope has been confirmed through final design. Costs will be shared by PG&E and Caltrain. 6. PG&E and Caltrain are collaborating on design and cost-sharing. A third party has been engaged to assist with negotiations for cost-sharing.	Start of Integrated testing	Project budget for PG&E improvements is approximately $60 million). PG&E currently estimates $100 to $200 million in costs (which includes a high contingency and does not include the new cost sharing component). Risk description and grading revised per consultation with Z. Guan and A. Christofes 12/22/2017.	A	Supplement No. 3 will be brought to the July Board Meeting for approval. The scope of Supplemental No. 3 for final design and long lead material procurement by PG&E. PG&E is progressing on Final Design and have received internal approvals for the air insulated switchgear. The potential savings in cost and schedule with this change will be provided by PG&E once design is progressed. Supplement No.4, the next agreement for construction, will also be negotiated to include details of cost sharing, which is still to be negotiated with PG&E. The final cost sharing agreement will ultimately determine the amount Caltrain will be responsible for in PG&E's buildouts. Supplement No.4 is scheduled to be approved at the February 2018 Board Meeting. - L. Guan 12/13/2017
281	Elect.	Construction	Additional work in the form of signal/pole adjustments may be required to remedy sight distance impediments arising from modifications to original design.	Add repeater signals, design duct bank would result in increased design and construction costs.	T	5	3	3	30	DB/Signals	Continue line of sight studies, move poles where possible	Completion of Segment 4			Added per Risk Refresh - 9/19/2017
100	Elect.	Technical	Working PTC signal system may not be in place in advance of integrated testing and commissioning	Integrated testing cannot be conducted without PTC in place to permit operation of vehicles on tracks Delays to completion of signal system could result in conflicts with PTC testing and PCEP construction and integrated testing. Potential for claims for D/B contractor.	T	3	4	4	24	Scanlon	• Monitor progress of CBOSS completion and testing schedule (Currently under the control of CBOSS team not PCEP.) • Continue frequent, ongoing coordination with CBOSS project. • Schedule PTC testing to avoid conflicts with D/B construction	Completion of Integrated testing	PTC scheduling needs to done to avoid conflicts with D/B construction Notes from Risk Assessment Committee 3/15/2017- - $10,000 per conflict, 400 likely conflicts = $4 million relocation costs. - Need by September 2018 for testing. EMU is equipped with PTC equipment and can't run without, contractors are only under contract for 90 days, major contracts now appear to be in October, November time frame. Monitor closely to October/November time frame. Can these contractors meet 2018 time frame. Need PTC until September 2019 when first EMU arrives/January 2020 testing begins. - Risk Assessment Committee - 8/15/2017	A	Proceeding with mitigation plan through ongoing coordination between CBOSS and PCEP. - M. Scanlon 11/10/2017 No change. - M. Scanlon 12/13/2017
287	Elect.	Construction	Design changes may necessitate additional implementation of environmental mitigations not previously budgeted.	Increased cost for environmental measures and delays to construct and overall delay in construction schedule	T	5	2	2	20	DB/ENV	Reevaluate ESZ limits	Completion of Design			Added per Risk Refresh - 9/19/2017

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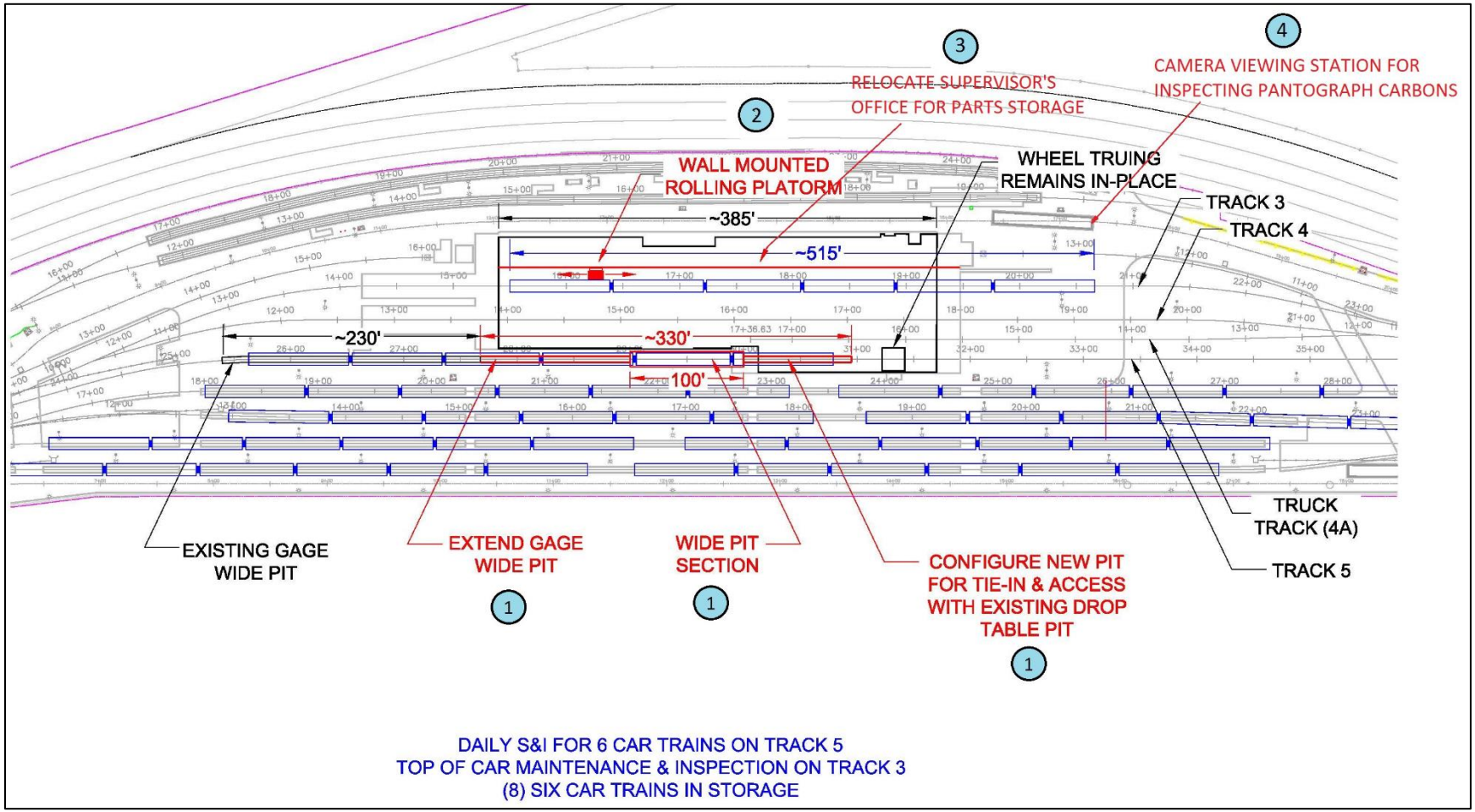
Program Risk Register

Version Date: Janury 5, 2018 - Top Risks

Probability	1	2	3	4	5
	LOW	MEDIUM	HIGH	VERY HIGH	SIGNIFICANT
Cost	< 10%	10% - 50%	50% - 75%	75% - 90%	> 90%
Schedule	< $500 K	$500 K - $2 M	$2 M - $10 M	$10 M - $20 M	$20 M - $50 M
	< 1 Month	1 - 3 Months	3 - 6 Months	6 - 12 Months	> 12 Months

ID	RBS FUNC. (P)	RBS FUNC. (S)	RISK DESCRIPTION	EFFECT(S)	TYPE	IMPACT PROBABILITY	IMPACT COST	IMPACT SCHEDULE	PRIORITY GRADING	OWNER	MITIGATION ACTIONS	RETIREMENT DATE(S)	NOTES	A-C	STATUS & REMARK(S)
67	Elect.	Stakeholder-Ext	Relocation of overhead utilities must precede installation of catenary wire and connections to TPSs. Relocation work will be performed by others and may not be completed to meet BBII's construction schedule.	Delay in progress of catenary installation resulting in claims and schedule delay	T	3	3	3	18	Hurley	1. Complete comprehensive survey of potential conflicts and develop standard mitigation agreement with utility owners; Completed 2. Incorporate results as an Appendix in the RFP. - Completed 3. Encase utilities in overhead bridges - will not encase any new utilities into bridges. 4. Exercise franchise rights 5. Engage a utility coordinator - Completed 6. Conduct utility coordination meetings. - ongoing 7. Perform Light Detection and Ranging (LIDAR) surveys to locate heights of overhead utilities. Completed.	Upon completion of relocation all overhead utilities per CPUC's approved Caltrain Electrification Rules.	There is no program utility schedule yet. So the date shows the start of the last stringing of wire. Current Utility Relocation schedules provided by PG&E, Palo Alto and Silicon Valley Power will delay the contractor. Based on the current utility schedules (Assumed NTP of 08/01) utilities will not be out of the way to facilitate the contractor's current schedule to install the feeder wire and OCS poles in certain locations. To mitigate delay and potential claims from the contractor, mitigation actions have been advanced.	A	PG&E is progressing on relocation/raising designs. JPB and PG&E have been jointly meeting with cities in Segment 2 for purposes of requesting construction permits. J. Hurley – 11/2/17 PG&E started moving lines in Segment 2 Work Segment 5. PG&E is pulling permits. Several locations where LIDAR did not detect wires. Will survey to determine precise locations. - J. Hurley 12/4/2017
263	R	Interface	Construction	Collaboration across multiple disciplines to develop a customized rail activation program may fail to comprehensively address the full scope of issues required to operate and maintain an electrified railroad and decommission the current diesel fleet.	Delay in testing of EMUs. Delay in Revenue Service Date. Additional costs for Stadler and BBII due to overall schedule delays.	T	3	3	3	18	Burns	1. Develop a schedule of activities associated with rail activation. 2. Assign a rail activation committee. 3. Conduct/delegate activities on rail activation plan/schedule 4. Maintain progress tracking on all activities. 5. Rail activation committee to meet every 2 weeks initially; more frequently in the future. 6. Develop rail activation document (R. Clark). Using Houston plan as a model.	Prior to arrival of first EMU.			There have been no updates from the last meeting. Public Outreach was not able to attend the last meeting. Wednesday meeting has been cancelled due to vacations and the holidays. We will have our first RAC meeting on 1/3/18. - B. Burns - 12/18/2017
276	R	Elect.	Construction	BBII may be unable to get permits required by jurisdictions for construction in a timely manner.	Additional cost and time resulting from delays to construction	T	3	3	3	18	DB/OMI		Completion of Construction			Added per Risk Refresh - 9/19/2017
209		Elect.	Construction	TASI may be unable to deliver sufficient resources to support construction and testing for the electrification contract.	• Testing delayed. Additional construction costs. • Change order for extended vehicle acceptance.	T	2	4	4	16	Vernoff	1. Communicate staffing requirements for track protection with TASI. - Complete 2. Revise language in TASI contract to clearly describe required support for EMUs and electrification. - Complete 3. Discuss TASI resource requirements associated with bids by leading contractor or contractors with TASI management. - Complete 4. Maintain ongoing dialogue with TASI regarding requirements of contractors. - In progress 5. Issue advance notice to TASI to enable them to adjust to changes in the construction schedule. 7. Build into TASI budget for signal maintainers and flagging for next contract year. - Complete	Completion of Integrated Testing	PCEP Hiring Needs - Flagman/Foreman - none (Will train current watchman to be flagman/ foreman via PCEP budget) - Watchman - 17 - Signal Maintainers - 0 SOGR/Capital Hiring Needs - Flagman/Foreman – 0 - Watchman – 8 - Signal Maintainers – 7 Revsit after October 30, 2017 per Risk Refresh.		TASI still needs to hire and train the following: • Signal Maintainers – 2 • Trackmen – 15 *Note – The reason for the Trackman hiring number going up is due to (4) Trackmen employees quitting on 11/25/17 - M. Vernoff 12/4/2017

Appendix G: CEMOF Yard Modifications



Appendix H: 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 26 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 14 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.

The administrative Quality Control review of this report was done 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.