



**Modernization Program
Peninsula Corridor Electrification Project (PCEP)**



March 2017 Monthly Progress Report

March 31, 2017

Funding Partners



FTA Core Capacity

FTA Section 5307 (Environmental / Pre Development only)

FTA Section 5307 (EMU only)



Prop 1B (Public Transportation Modernization & Improvement Account)

Caltrain Low Carbon Transit Operations Cap and Trade



Prop 1A

High Speed Rail Cap and Trade



Carl Moyer Fund



Bridge Tolls (Funds (RM1/RM2))



SFCTA/SFMTA



San Mateo (SMCTA) Contribution

SMCTA Measure A



VTA Measure A

Santa Clara (VTA) Contribution



San Francisco Contribution

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1.0 BACKGROUND

Over the last decade, Caltrain has experienced a substantial increase in ridership and anticipates further increases in ridership demand as the San Francisco Bay Area's population grows. The Caltrain Modernization (CalMod) Program, scheduled to be implemented by 2020, will electrify and upgrade the performance, operating efficiency, capacity, safety, and reliability of Caltrain's commuter rail service.

The PCEP is a key component of the CalMod Program and consists of converting Caltrain from diesel-hauled to Electric Multiple Unit (EMU) trains for service between the San Francisco Station (at the intersection of Fourth and King streets in San Francisco) and the Tamien Station in San Jose. Caltrain will continue Gilroy service and support existing tenants.

An electrified Caltrain will better address Peninsula commuters' vision of environmentally friendly, fast and reliable service. Electrification will modernize Caltrain and make it possible to increase service while offering several advantages in comparison with existing diesel power use, including:

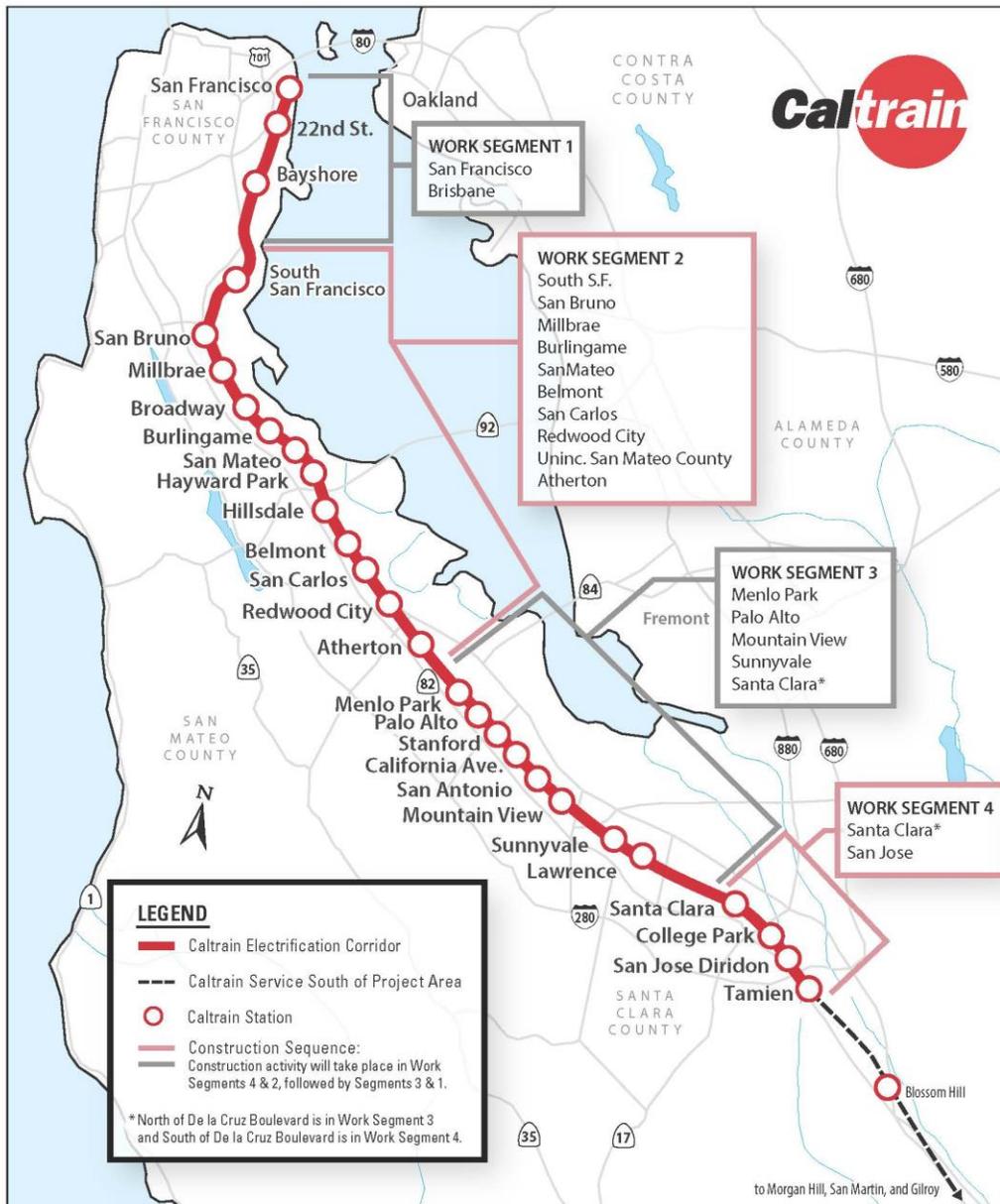
- **Improved Train Performance, Increased Ridership Capacity and Increased Service:** Electrified trains can accelerate and decelerate more quickly than diesel-powered trains, allowing Caltrain to run more efficiently. In addition, because of their performance advantages, electrified trains will enable more frequent and/or faster train service to more riders.
- **Increased Revenue and Reduced Fuel Cost:** An electrified Caltrain will increase ridership and fare revenues while decreasing fuel costs.
- **Reduced Engine Noise Emanating from Trains:** Noise from electrified train engines is measurably less than noise from diesel train engines. Train horns will continue to be required at grade crossings, adhering to current safety regulations.
- **Improved Regional Air Quality and Reduced Greenhouse Gas Emissions:** Electrified trains will produce substantially less corridor air pollution compared with diesel trains even when the indirect emissions from electrical power generation are included. Increased ridership will reduce automobile usage, resulting in additional air quality benefits. In addition, the reduction of greenhouse gas emissions will improve our regional air quality, and will also help meet the state's emission reduction goals.

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2.0 EXECUTIVE SUMMARY

The Monthly Progress Report is intended to provide an overview of the PCEP and provide funding partners, stakeholders, and the public an overall update on the progress of the project. This document provides information on the scope, cost, funding, schedule, and project implementation. Work along the Caltrain Electrification Corridor has been divided into four work segments as shown in Figure 2-1. PCEP activities are described and summarized by work segments.

Figure 2-1 PCEP Work Segments



The Federal Transit Administration (FTA) and Peninsula Corridor Joint Powers Board (JPB) completed all administrative and statutory requirements for the Full Funding Grant Agreement (FFGA) of \$647 million in Core Capacity. On February 17, the JPB was informed by the FTA that a decision was made to defer execution of the pending \$647 million FFGA for the PCEP until the Administration developed the President's Fiscal Year (FY) 2018 Budget (anticipated in mid-June). In light of this news, the existing Limited Notice to Proceed (LNTP) with Balfour Beatty Infrastructure, Inc. (BBI) for the Electrification Project and Stadler for the EMU Vehicles was extended to June 30, 2017. Staff continues to work aggressively with lobbyists and the numerous national, state and regional supporters to obtain FFGA approval.

The PCEP team continues work with Balfour Beatty Infrastructure, Inc. (BBI) on 65% design and field investigations. The PCEP team completed review of the 65% overhead contact system (OCS) layout design for Segment 2 Work Areas 5 and 4. The PCEP team continues coordination efforts related to signal systems and also conducting utility survey, pothole location layouts, and geotechnical boring layouts.

The PCEP team continues to work with Stadler on the technical aspects of the project. The PCEP team participated in Stadler design review meetings on conceptual design reviews pertaining to interior design, wheelchair lifts, passenger information, and accessible lavatories. The PCEP team continues to address system-wide interface issues involving the emerging EMU design and the existing wayside infrastructure, the Electrification Project, the Communications-Based Overlay Signal System (CBOSS) Project.

2.1 Schedule

The Revenue Service Date (RSD) in the Master Program Schedule (MPS) remains unchanged. Without adjustment for contingency, the RSD is forecast as August 2021. With the addition of approximately five months of contingency to account for potential risk to the project, the RSD is anticipated as December 2021. Table 2-1 provides a summary of the current schedule and milestones. The overall schedule will be updated upon the execution of FFGA.

2.2 Budget

A summary of the overall budget and expenditure status for the PCEP is provided in Table 2-2 below.

2.3 Board Actions

At the March 2, 2017 Board meeting, there were several items related to the PCEP:

- Informational item on the PCEP Full Funding Grant Agreement update.
- Informational item on the PCEP Monthly Report.
- Authorize the Filing and Execution of Annual Cap and Trade Funding Application with the California State Department of Transportation to Receive \$502,745 in California Low Carbon Transportation Operations Program Funds for the PCEP.

The agenda and meeting minutes for the March meeting can be found at the link below:

http://www.caltrain.com/Assets/_Agendas+and+Minutes/JPB/Board+of+Directors/Agendas/2017/2017-03-02+JPB+BOD+Agenda+Packet.pdf

(Note: For viewers accessing the link above electronically, please cut and paste the link into a browser if it does not direct you immediately to the document.)

Table 2-1 Schedule Status

Milestones ^{1,2}	Program Plan	January	February
Receipt of FFGA	12/15/2016	02/15/2016	mid-June
Full Notice to Proceed (FNTP) to Electrification Contractor	N/A	03/01/2017	TBD
FNTP to EMU Manufacturer	N/A	03/01/2017	TBD
Start of Electrification Major Construction	03/20/2017	07/24/2017	07/24/2017
First Eight Miles of Electrification Complete to Begin Testing	04/08/2019	10/08/2019	10/08/2019
Delivery of First Vehicle	06/25/2019	07/30/2019	07/30/2019
Start Pre-Revenue Operations	09/08/2020	09/22/2020	09/22/2020
Potential Limited Service	12/31/2020	12/31/2020	12/31/2020
RSD (w/ Risk Contingency)	12/30/2021	12/30/2021	12/30/2021

Notes:

- ¹ Milestones reported on this table may differ from the current schedule. As the schedule continues to be refined over the coming months to incorporate approved baseline schedules from the Electrification and EMU contractors, changes to milestones will be thoroughly vetted prior to reflecting those changes in the Monthly Report.
- ² Program Plan only considered a Notice to Proceed (NTP). It did not account for an LNTP and FNTP.

Table 2-2 Budget and Expenditure Status

Description of Work	Budget (A)	Cost This Month (B) ¹	Cost To Date (C) ²	Estimate To Complete (D)	Estimate At Completion (E) = (C) + (D)
Electrification Subtotal	\$ 1,316,125,208	\$ 15,249,467	\$ 162,734,241	\$ 1,153,390,966	\$ 1,316,125,208
EMU Subtotal	\$ 664,127,325	\$ 13,402,793	\$ 32,803,305	\$ 631,324,020	\$ 664,127,325
PCEP TOTAL	\$ 1,980,252,533	\$ 28,652,260	\$ 195,537,546	\$ 1,784,714,986	\$ 1,980,252,533

Notes regarding tables above:

- ¹ Column B "Cost This Month" represents the cost of work performed this month.
- ² Column C "Cost To Date" includes actuals (amount paid) and accruals (amount of work performed) to date.

2.4 Government and Community Affairs

A number of community relations and outreach events took place during the month of March. PCEP team participated in a total of 37 meetings with stakeholders.

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3.0 ELECTRIFICATION – INFRASTRUCTURE

This section reports on the progress of the Electrification, Supervisory Control and Data Acquisition (SCADA), and Tunnel Modification components. A brief description on each of the components is provided below.

3.1 Electrification

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

Activity This Month

- The PCEP team continued working with BBI on the 65% design and field investigations. The PCEP team completed reviews of the 65% OCS Layout Design for Segment 2, Work Areas 5 and 4. Comments for those review packages were submitted back to the contractors. Signal submittals for Segment 4 were received and reviewed as well as Communications designs, which included a walkthrough of the Backup Operational Control Center (Menlo Park) with the BBI design team. Traction Power site and system specifications were received and are being reviewed. The interim load flow analysis was received and is under review.
- The PCEP and BBI teams continued to hold regular workshop meetings to discuss design related to the signal system, including the conversion from direct current (DC) to alternating current (AC) and the Constant Warning Time solution. The teams held discussions with outside stakeholders, such as Union Pacific Railroad (UPRR) and local jurisdictions, regarding design and solution of the signal system. The PCEP team continues to work with Caltrain Engineering and Construction to provide updated signal drawings to BBI for advancement of 65% design.
- BBI continued conducting utility surveys and pothole location layouts. Physical geotechnical boring and cone penetrometer tests (CPT) on the Caltrain right of way (ROW) were completed in Segments 1 and 3. Test results of geotechnical borings are being compiled by BBI.
- Potholing of utilities at proposed OCS locations continued in Segment 2. Results from potholing are used for design purposes in the 65% design submittals.
- Potholing of signal cables for signal design and construction began in Segment 4.
- Coordination efforts with Pacific Gas and Electric (PG&E) continued for infrastructure improvements and traction power substation interconnects. PCEP team continues to work with PG&E for the finalization of Power Quality and Protection Scheme Studies. The contractor is interviewing PG&E preferred teams for the interconnection with PG&E at both Traction Power Substations.

Activity Next Month

- The PCEP team will continue to work with BBI on design and field investigation activities. The designs will include the continued progression of the OCS and Signal systems along with advancement of design for Traction Power and other civil infrastructures.
- Continue potholing activities at proposed OCS locations. Potholing will move into Segment 4 in support of BBI's design schedule.
- Continue potholing of signal cables in Segment 4 in support of signal system design.
- Begin testing and inspection of signal cables in support of signal system design.
- Coordination efforts will continue with PG&E on interconnection design and final design for PG&E infrastructure. The PCEP and BBI teams will continue design and coordination of the 115 kV interconnections between PG&E and Caltrain's future substations. Review meetings are held every two weeks.

3.2 Supervisory Control and Data Acquisition (SCADA)

SCADA is a system that monitors and controls field devices for electrification, including substations, paralleling stations and sectionalization. SCADA will be integrated with the base operating system for Caltrain Operations and Control, which is the Rail Operations Center System (ROCS).

Activity This Month

- Activity continues to be limited to providing technical support on an as needed basis to the Caltrain Contract and Procurement (C&P) Department for the procurement of the SCADA system.
- Contract documents have been issued to SCADA contractor for preparation of proposal. The proposal is expected to be received in May.

Activity Next Month

- PCEP staff will continue to support Caltrain Contracts and Procurement Department on providing technical support during the procurement process.

3.3 Tunnel Modification

Tunnel modifications will be required on the four tunnels located in San Francisco. This effort is needed to accommodate the required clearance for the OCS to support electrification of the corridor. Outside of the PCEP scope, Caltrain Engineering and Construction has requested the PCEP team to manage completion of design and construction management for the Tunnel 1 and Tunnel 4 Drainage Rehab Project. The Drainage Rehab Project is funded separately from PCEP and will be a Design-Bid-Build (DBB) construction package. Construction will occur concurrently with the Electrification contractor's efforts in Segment 1.

Activity This Month

- The PCEP team continued coordination efforts with the design team on drawings and specifications on Tunnel 1 and Tunnel 4 Drainage Rehab Project.
- PCEP team continued coordination efforts with UPRR and other stakeholders.
- The PCEP team completed 95% design drawings and specifications. The design package was submitted to Caltrain Engineering and Construction for review and comment.

Activity Next Month

- UPRR will be provided 95% drawings for review and comment.
- PCEP staff will review and resolve comments on 95% design drawings and specifications.
- PCEP staff will continue work on constructability report for Caltrain Engineering and Construction review.
- PCEP staff will begin to advance design for 100% Plans and Specifications.

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4.0 ELECTRIC MULTIPLE UNITS

The EMU procurement component of the PCEP consists of the purchase of 96 Stadler EMUs. The EMUs will consist of both cab and non-cab units configured as 16 six-car fixed trainsets. Power will be obtained from the OCS via roof-mounted pantographs, which will power the electric traction motors. The EMUs will replace a portion of the existing diesel locomotives and passenger cars currently in use by Caltrain.

Activity This Month

- Stadler visited the PCEP team in San Mateo for numerous purposes during the period of March 27th through April 5th, 2017. Design reviews and meetings were conducted with Stadler and PCEP representatives, including:
 - Conceptual Design Reviews pertaining to: Car Interior Design, Train Control, Wheelchair Lifts, Monitoring and Diagnostics, Communications, Passenger Information, and Lighting, and Accessible Lavatories
 - An Electromagnetic Compatibility (EMC) coordination meeting on March 30th with Stadler, LTK and DB team
 - Review of Interior Mockup and Lavatory Mockup
 - Stadler visit to CEMOF, including the Drill Track and College Park's possible delivery site
- Stadler continued to progress numerous management submittals, including a MPS, an updated Contract Deliverables Requirement List (CDRL), and updated System Safety and Quality Assurance Plans. The PCEP team is currently reviewing these submittals and working with Stadler to finalize these deliverables.
- The PCEP team continues to address system-wide interface issues involving the emerging EMU design and the existing wayside infrastructure, the Electrification Project, the CBOSS Project.

Activity Next Month

- PCEP team will review for approval several documents including the Quality Assurance Plan, the MPS, the System Safety Plan and CDRL. PCEP team's approval of the MPS and Quality Plan are prerequisites for upcoming milestone payments to Stadler.
- The mockup of the engineer's cab and console controls will be review by members of Caltrain Operations, Maintenance and PCEP representatives.

4.1 Centralized Equipment Maintenance and Operations Facility (CEMOF) Modifications

The CEMOF Modifications project will provide safe work areas for performing maintenance on the new EMUs.

Activity This Month

- The PCEP team advanced the conceptual design to consider alternatives for the modification of CEMOF. The alternatives continue to be reviewed with Caltrain Operations.

Activity Next Month

- Caltrain to decide on which alternative shall be pursued for 35% design development purposes.

5.0 SAFETY

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

Activity This Month

- Safety staff continued to review BBI and Stadler's safety and security contract documentation deliverables to ensure they meet PCEP requirements. Safety staff has been facilitating meetings with BBI and Stadler to advance project safety and security program implementation.
- Field visits were conducted to work sites to ensure that the Site Specific Work Plan (SSWP) was being followed by BBI and their subcontractors.
- A Fire/Life Safety Committee meeting was held on March 10, 2017 for the PCEP project. Representatives from the California Public Utilities Commission (CPUC), transit police and local fire departments all participated
- Revisions to the Safety and Security Management Plan are underway to address the Project Management Oversight Contractor's comments. Document expected to be revised by April 12, 2017.
- The PCEP team met with the San Francisco Municipal Transportation Agency (SFMTA) to discuss the 16th Street crossing in compliance with environmental mitigation measures, which call for technical coordination with the PCEP and SFMTA regarding re-routing of the 22 Electric Trolley Bus. Internal meetings were held to finalize the projects comments on the analysis.

Activity Next Month

- Monthly meeting for the Safety and Security Certification Review Committee (SSCRC) will be held.
- Monthly meeting for the Fire/Life Safety & Security Committee (FLSSC) will be held.
- All staff safety meetings will be held with PCEP, BBI employees and subcontractors to reinforce the importance of safety in the field.
- Site visits to BBI subcontractor work areas for potholing operations are planned.

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6.0 QUALITY ASSURANCE

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

Activity This Month

- The audit of BBI's design quality control and the OCS 65% design package remains open until the Design Quality Plan has been revised to include changes prompted by the audit findings.
- An audit of Signet Testing Labs has been closed.
- QA review of Stadler's BBI's Quality Management Plan (QMP), which includes a Design Quality Plan, was previously conducted with comments outstanding.
- Staff meetings with BBI QA/Quality Control (QC) management representatives continue bi-weekly.
- QA staff submitted to PCEP Management a QA Resource Plan for 2017 and beyond for a QA Engineer and a QA Independent Testing Lab - and both requests have been approved.
- A pre-award audit was conducted at Construction Testing Services Laboratories and the lab had one finding.
- An audit of BBII/PGH Wong's Traction Power Design submittal at 65% was performed and there were no findings.

Peninsula Corridor Electrification Project
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Table 6-1 below provides details on the status of audits performed through the reporting period.

Table 6-1 Quality Assurance Audit Summary

Quality Assurance Activity	This Reporting Period	Total to Date
Audits Conducted	1	20

Audit Findings		
Audit Findings Issued	1	16
Audit Findings Open	4 ¹	3
Audit Findings Closed	1 ¹	13
Non-Conformances		
Non-Conformances Issued	0 ²	4
Non-Conformances Open	0	0
Non-Conformances Closed	0	4

Notes regarding tables above:

¹. One audit finding was opened and closed within the same period.

². One non-conformance was mistakenly reported open in February's report.

Activity Next Month

- Three audits are planned and scheduled: Alstom Signals Design Package at 65%, Kleinfelder Testing Services, and PGH Wong Design Package for Communications at 65%.
- QA review of Stadler's QMP Design Quality Plan (DQP) revision for EMU procurement.
- Regularly scheduled design reviews and surveillances will begin on project design packages and will continue through the late summer.
- Finalization of the BBII Incentive Plan reporting and formatting will be calculated for 4Q 2016.

7.0 SCHEDULE

The schedule provided in this Monthly Progress Report is the approved schedule from February 2017 due to the timeframe necessary to update and approve the schedule. As indicated in Table 7-1, the RSD, which is the date in which the project is deemed completed, remains unchanged in the MPS. Without adjustment for contingency, the RSD is forecast as August 2021. With the addition of approximately five months contingency to account for potential risk to the project, the RSD is anticipated as December 2021. A summary of the overall schedule status for the PCEP is provided in Table 7-1, which provides comparisons between the baseline schedule (Program Plan), the previous update (January 2017) and the current update (February 2017) to capture any potential changes in the schedule. A complete summary schedule can be found in Appendix B.

Items listed in Table 7-2 show the critical path activities/milestones for the PCEP. Table 7-3 lists near-critical activities on the horizon.

Notable Variances

Due to delays to Federal Funding (FFGA), FNTP's will not be issued to the Electrification contractor and EMU manufacturer on the forecasted date of March 1, 2017. It is anticipated that an FFGA will be issued as part of the President's budget by June 2017. As such, the MPS will be frozen until the impact of the delayed FNTPs will have on the overall schedule are better understood.

Table 7-1 Schedule Status

Milestones ^{1,2}	Program Plan	January	February
Receipt of FFGA	12/15/2016	02/15/2016	mid-June
FNTP to Electrification Contractor	N/A	03/01/2017	TBD
FNTP to EMU Manufacturer	N/A	03/01/2017	TBD
Start of Electrification Major Construction	03/20/2017	07/24/2017	07/24/2017
First Eight Miles of Electrification Complete to Begin Testing	04/08/2019	10/08/2019	10/08/2019
Delivery of First Vehicle	06/25/2019	07/30/2019	07/30/2019
Start Pre-Revenue Operations	09/08/2020	09/22/2020	09/22/2020
Potential Limited Service	12/31/2020	12/31/2020	12/31/2020
RSD (w/ Risk Contingency)	12/30/2021	12/30/2021	12/30/2021

Notes:

¹ Milestones reported on this table may differ from the current schedule. As the schedule continues to be refined over the coming months to incorporate approved baseline schedules from the Electrification and EMU contractors, changes to milestones will be thoroughly vetted prior to reflecting those changes in the Monthly Report.

² Program Plan only considered an NTP. It did not account for an LNTP and FNTP.

Table 7-2 Critical Path Summary

Activity	Start	Finish
Full Funding Grant Agreement (FFGA) ¹	mid-June	mid-June
Electrification Design to Begin Major Construction	09/06/2016	07/21/2017
EMU Design to Delivery of First Carbody	09/06/2016	10/13/2017
Electrification OCS Construction	07/24/2017	02/26/2020
Electrification Acceptance & Integrated Testing	02/26/2020	04/25/2020
PG&E Complete Infrastructure Upgrades to Provide Permanent Power ¹	08/31/2020	08/31/2020
Vehicle Manufacturing & Assembly to Provide First Five Trainsets	11/13/2017	09/09/2020
Pre-Revenue Operations	09/22/2020	12/10/2020
Potential Limited Service ¹	12/31/2020	12/31/2020
RSD w/out Risk Contingency ¹	08/16/2021	08/16/2021
RSD w/ Risk Contingency ¹	12/30/2021	12/30/2021

Note:
¹Milestone activity

Table 7-3 Near-Term, Near-Critical with Less Than Three Months of Float

WBS	Activity	Responsibility
Utilities	PG&E Supplemental Agreement #3 for Final Design Approval (on hold until FFGA)	Project Delivery
Utilities	PG&E Final Design (on hold until FFGA)	Project Delivery
Utilities	Overhead Utility Relocation	Project Delivery

8.0 BUDGET AND EXPENDITURES

The summary of overall budget and expenditure status for the PCEP is shown in the following tables. Table 8-1 reflects the Electrification budget, Table 8-2 reflects the EMU budget, and Table 8-3 reflects the overall project budget.

Table 8-1 Electrification Budget & Expenditure Status

Description of Work	Budget (A)	Cost This Month (B) ¹	Cost To Date (C) ²	Estimate To Complete (D)	Estimate At Completion (E) = (C) + (D)
ELECTRIFICATION					
Electrification ³	\$ 696,610,558	\$ 13,217,800	\$ 82,821,150	\$ 613,789,408	\$ 696,610,558
Tunnel Notching	\$ 11,029,649	\$ -	\$ -	\$ 11,029,649	\$ 11,029,649
Real Estate	\$ 28,503,369	\$ 360,238	\$ 6,171,543	\$ 22,331,826	\$ 28,503,369
Private Utilities	\$ 63,515,298	\$ 343,084	\$ 4,595,656	\$ 58,919,642	\$ 63,515,298
Management Oversight ⁴	\$ 141,526,164	\$ 968,419	\$ 65,174,524	\$ 76,351,640	\$ 141,526,164
Executive Management	\$ 7,452,866	\$ 64,064	\$ 2,980,459	\$ 4,472,407	\$ 7,452,866
Planning	\$ 7,281,997	\$ 54,432	\$ 4,380,940	\$ 2,901,057	\$ 7,281,997
Community Relations	\$ 2,789,663	\$ 32,397	\$ 952,194	\$ 1,837,469	\$ 2,789,663
Safety & Security	\$ 2,421,783	\$ 30,322	\$ 559,939	\$ 1,861,844	\$ 2,421,783
Project Management Services	\$ 19,807,994	\$ 187,095	\$ 7,460,381	\$ 12,347,613	\$ 19,807,994
Engineering & Construction	\$ 11,805,793	\$ 24,915	\$ 1,946,473	\$ 9,859,320	\$ 11,805,793
Electrification Engineering & Management	\$ 50,461,707	\$ 393,008	\$ 16,288,130	\$ 34,173,577	\$ 50,461,707
IT Support	\$ 331,987	\$ -	\$ 331,987	\$ 0	\$ 331,987
Operations Support	\$ 1,445,867	\$ -	\$ 393,816	\$ 1,052,051	\$ 1,445,867
General Support	\$ 4,166,577	\$ 70,273	\$ 1,420,943	\$ 2,745,634	\$ 4,166,577
Budget / Grants / Finance	\$ 1,229,345	\$ 4,636	\$ 260,122	\$ 969,222	\$ 1,229,345
Legal	\$ 2,445,646	\$ 50,032	\$ 2,118,584	\$ 327,062	\$ 2,445,646
Other Direct Costs	\$ 5,177,060	\$ 57,244	\$ 1,747,198	\$ 3,429,862	\$ 5,177,060
Prior Costs 2002 - 2013	\$ 24,707,878	\$ -	\$ 24,333,358	\$ 374,520	\$ 24,707,878
TASI Support	\$ 55,275,084	\$ 300,000	\$ 1,753,391	\$ 53,521,693	\$ 55,275,084
Insurance	\$ 4,305,769	\$ -	\$ 1,155,769	\$ 3,150,000	\$ 4,305,769
Environmental Mitigations	\$ 14,972,645	\$ -	\$ 472,000	\$ 14,500,645	\$ 14,972,645
Required Projects	\$ 17,337,378	\$ -	\$ 367,028.00	\$ 16,970,350	\$ 17,337,378
Maintenance Training	\$ 1,021,808	\$ -	\$ -	\$ 1,021,808	\$ 1,021,808
Finance Charges	\$ 5,056,838	\$ 59,927	\$ 223,180	\$ 4,833,658	\$ 5,056,838
Contingency	\$ 276,970,649	\$ -	\$ -	\$ 276,970,649	\$ 276,970,649
Owner's Reserve	\$ -	\$ -	\$ -	\$ -	\$ -
ELECTRIFICATION SUBTOTAL	\$ 1,316,125,208	\$ 15,249,467	\$ 162,734,241	\$ 1,153,390,966	\$ 1,316,125,208

Notes regarding tables above:

1. Column B "Cost This Month" represents the cost of work performed this month.
2. Column C "Cost To Date" includes actuals (amount paid) and accruals (amount of work performed) to date.
3. Cost To Date for "Electrification" include 5% for Contractor's retention until authorization of retention release.
4. The agency labor is actual through January 2017 and accrued from February 2017 to current reporting period.

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Table 8-2 EMU Budget & Expenditure Status

Description of Work	Budget (A)	Cost This Month (B) ¹	Cost To Date (C) ²	Estimate To Complete (D)	Estimate At Completion (E) = (C) + (D)
EMU	\$ 550,899,459	\$ 12,675,840	\$ 13,918,140	\$ 536,981,319	\$ 550,899,459
CEMOF Modifications	\$ 1,344,000	\$ -	\$ -	\$ 1,344,000	\$ 1,344,000
Management Oversight ³	\$ 64,139,103	\$ 660,952	\$ 18,748,377	\$ 45,390,726	\$ 64,139,103
Executive Management	\$ 5,022,302	\$ 47,968	\$ 1,682,551	\$ 3,339,751	\$ 5,022,302
Community Relations	\$ 1,685,614	\$ 14,767	\$ 323,019	\$ 1,362,595	\$ 1,685,614
Safety & Security	\$ 556,067	\$ 7,648	\$ 170,595	\$ 385,473	\$ 556,067
Project Management Services	\$ 13,275,280	\$ 114,540	\$ 5,001,902	\$ 8,273,379	\$ 13,275,280
Engineering & Construction	\$ 89,113	\$ -	\$ 23,817	\$ 65,296	\$ 89,113
EMU Engineering & Management	\$ 32,082,556	\$ 385,154	\$ 8,385,445	\$ 23,697,111	\$ 32,082,556
IT Support	\$ 1,027,272	\$ 11,341	\$ 252,005	\$ 775,267	\$ 1,027,272
Operations Support	\$ 1,878,589	\$ -	\$ 298,097	\$ 1,580,491	\$ 1,878,589
General Support	\$ 2,599,547	\$ 17,412	\$ 666,229	\$ 1,933,318	\$ 2,599,547
Budget / Grants / Finance	\$ 712,123	\$ 916	\$ 137,395	\$ 574,728	\$ 712,123
Legal	\$ 1,207,500	\$ 25,713	\$ 731,308	\$ 476,192	\$ 1,207,500
Other Direct Costs	\$ 4,003,139	\$ 35,493	\$ 1,076,014	\$ 2,927,125	\$ 4,003,139
TASI Support	\$ 2,740,000	\$ -	\$ -	\$ 2,740,000	\$ 2,740,000
Required Projects	\$ 4,500,000	\$ -	\$ -	\$ 4,500,000	\$ 4,500,000
Finance Charges	\$ 1,941,800	\$ 66,001	\$ 136,788	\$ 1,805,012	\$ 1,941,800
Contingency	\$ 38,562,962	\$ -	\$ -	\$ 38,562,962	\$ 38,562,962
Owner's Reserve	\$ -	\$ -	\$ -	\$ -	\$ -
EMU SUBTOTAL³	\$ 664,127,325	\$ 13,402,793	\$ 32,803,305	\$ 631,324,020	\$ 664,127,325

Notes regarding tables above:

1. Column B "Cost This Month" represents the cost of work performed this month.
2. Column C "Cost To Date" includes actuals (amount paid) and accruals (amount of work performed) to date.
3. The agency labor is actual through January 2017 and accrued for February 2017 to current reporting period.

Table 8-3 PCEP Budget & Expenditure Status

Description of Work	Budget (A)	Cost This Month (B) ¹	Cost To Date (C) ²	Estimate To Complete (D)	Estimate At Completion (E) = (C) + (D)
Electrification Subtotal	\$ 1,316,125,208	\$ 15,249,467	\$ 162,734,241	\$ 1,153,390,966	\$ 1,316,125,208
EMU Subtotal	\$ 664,127,325	\$ 13,402,793	\$ 32,803,305	\$ 631,324,020	\$ 664,127,325
PCEP TOTAL	\$ 1,980,252,533	\$ 28,652,260	\$ 195,537,546	\$ 1,784,714,986	\$ 1,980,252,533

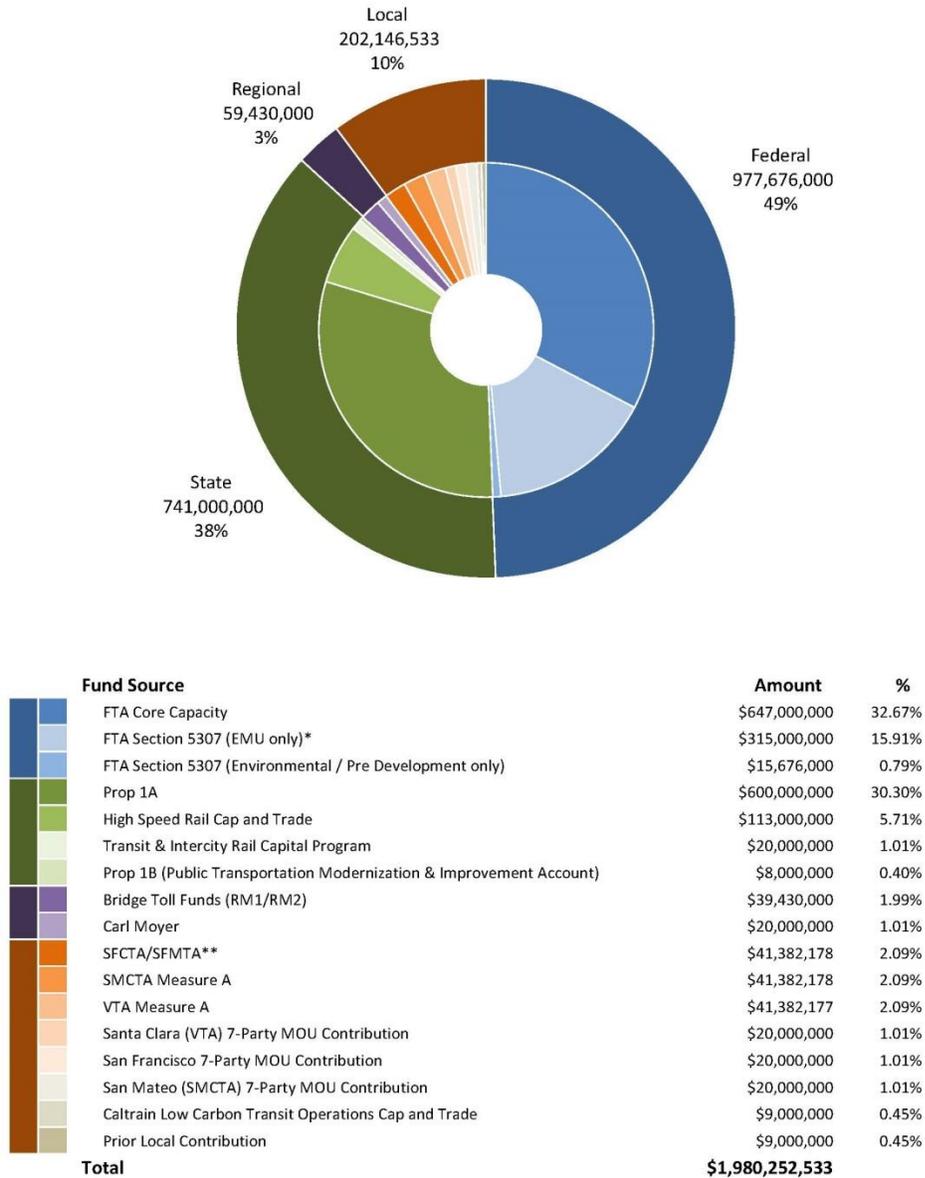
Notes regarding tables above:

1. Column B "Cost This Month" represents the cost of work performed this month.
2. Column C "Cost To Date" includes actuals (amount paid) and accruals (amount of work performed) to date.

9.0 FUNDING

Figure 9-1 depicts a summary of the funding plan for the PCEP. It provides a breakdown of the funding partners as well as the allocated funds. As previously reported, the Federal Transit Administration (FTA) informed the JPB it would be deferring execution of the FFGA until the Administration developed the President’s FY2018 Budget. Caltrain staff continue to work with the FTA, legislators and other project stakeholders to secure the FFGA for the project.

Figure 9-1 Funding Plan



Notes:

*Includes necessary fund transfer with SMCTA

**Includes \$4M CMAQ Transfer considered part of SF local contribution

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10.0 RISK MANAGEMENT

The risk management process is conducted in an iterative fashion throughout the life of the project. During this process, new risks are identified, other risks are resolved or managed, and potential impacts and severity modified based on the current situation. The Risk Management team's progress report includes a summary on the effectiveness of the Risk Management Plan, any unanticipated effects, and any correction needed to handle the risk appropriately.

The Risk Management team meets monthly to identify risks and corresponding mitigation measures. The team has identified the following items as top risks for the project:

- Delay in execution of FFGA would cause a delay in issuing FNTF.
- Upgrades to the PG&E power stations for permanent power may not be designed and constructed in time for initiation of limited revenue service.
- 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 the DB contractor's construction schedule.
- As-built drawings furnished to DB contractor could be incomplete thus affecting final design.
- Delays to the CBOSS Project could affect testing activities.
- TASI's ability to deliver sufficient resources to support construction and testing for the electrification contract may cause delays to construction schedule.
- Relocation of underground utilities must precede construction of catenary pole foundations and may not be completed on time to meet the DB Contractor's construction schedule.
- Inconsistencies within internal processes, such as the Site Specific Work Plan, could delay decision making and approvals.
- Grade crossing design modifications could result in delays.
- The absence of key personnel to lead the system integration effort could result in a lack of coordination.

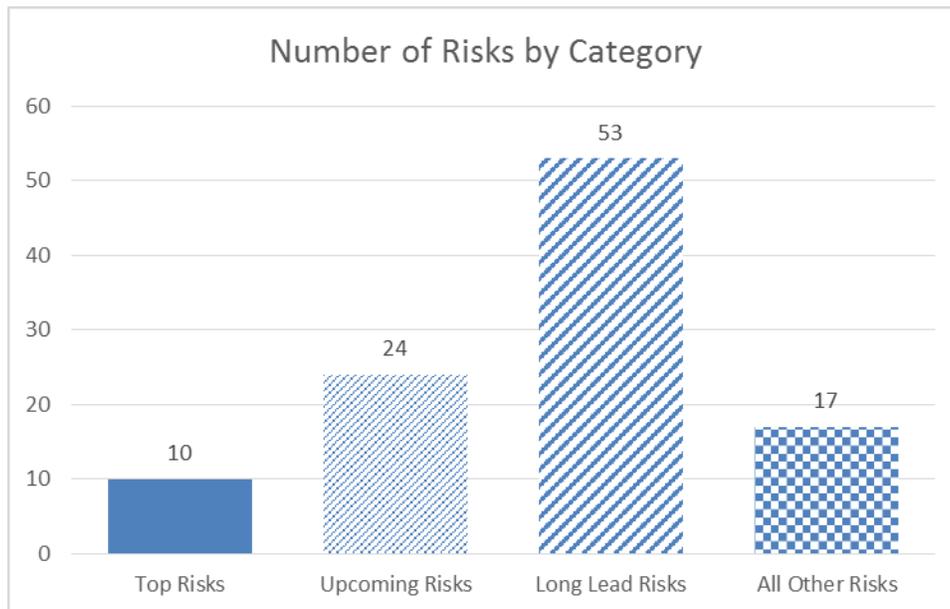
Activity This Month

- Updates were made to risk descriptions, effects, and mitigations based upon weekly input from risk owners. Monthly cycle of risk updating was completed based on schedules established in the Risk Identification and Mitigation Plan.
- Risk retirement dates were updated based upon revisions to the project schedule and input from risk owners.

- Continued weekly monitoring of risk mitigation actions and publishing of the risk register.
- The PCEP Risk Management Team attended Electrification, Project Delivery, and Systems Integration meetings to monitor developments associated with risks and to identify new risks.
- The Risk Assessment Committee convened to review risks proposed for retirement and major changes to grading of risks. Grading of two risks were revised. One risk was submitted for escalation. One risk was reviewed in detail by the committee. A decision was made to initiate risk management coordination with the DB contractor in June.

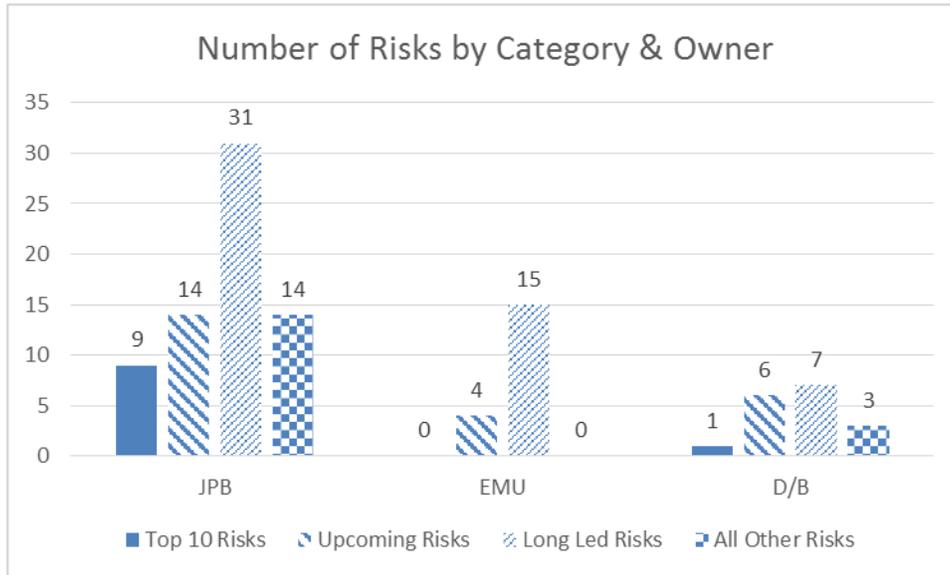
Tables 10-1 and 10-2 show the risks identified for the program. Risks are categorized as: top risk, upcoming risk, long lead, and all other risks. The categories are based on a rating scale composed of schedule and cost factors. Simply put, top risks are considered to have a significantly higher than average risk grade. Upcoming risks are risks for which mitigating action must be taken within 60 days. Long-lead risks are risks for which mitigating action must be taken as much as a year or more into the future. All other risks are risks not falling into other categories.

Table 10-1 Monthly Status of Risks



Total Number of Active Risks = 104

Table 10-2 Risk Classification



Total Number of Active Risks = 104

Activity Next Month

- Update risk descriptions, effects, mitigations and retirement dates.
- Conduct weekly monitoring of risk mitigation actions and continue publishing risk register.

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11.0 ENVIRONMENTAL

11.1 Permits

The PCEP requires environmental permits from the following agencies/federal regulations: Section 106 of the National Historic Preservation Act of 1966 (NHPA), Section 7 of the Endangered Species Act (ESA), United States Army Corps of Engineers (USACE), San Francisco Bay Regional Water Quality Control Board (SFBRWQCB), the California Department of Fish and Wildlife (CDFW), and the San Francisco Bay Conservation Development Commission (SFBCDC).

Section 106 of the NHPA process as well as Section 7 of the ESA process have concluded.

Activity This Month

- All environmental permits have been obtained.

Activity Next Month

- There are no planned permit activities in the next month.

11.2 Mitigation Monitoring and Reporting Program

The California Environmental Quality Act (CEQA) requires that a Lead Agency establish a program to monitor and report on mitigation measures that it has adopted as part of the environmental review process. The PCEP team has prepared a MMRP to ensure that mitigation measures identified in the PCEP Environmental Impact Report (EIR) are fully implemented during project implementation. PCEP will implement the mitigation measures through its own actions, those of the DB contractor and actions taken in cooperation with other agencies and entities. The MMRP is available on the Caltrain website:

<http://www.caltrain.com/Assets/Caltrain+Modernization+Program/Electrification+Documents/MMRP.pdf>

(Note: For viewers accessing the link above electronically, please cut and paste the link into a browser if it does not direct you immediately to the document.)

Activity This Month

- Biological, archaeological, and Native American monitors continued to be present during design phase investigation activities (geotechnical and potholing activities) occurring in areas that require environmental compliance monitoring. The monitoring was conducted in accordance with measures in the MMRP in an effort to minimize potential impact on sensitive environmental resources.

- Protocol-level surveys for sensitive avian species continued at previously identified potential habitat locations.
- Surveys for nesting birds ahead of design phase activities continued (nesting bird season is February 1st through August 31st).

Activity Next Month

- Biological, archaeological, and Native American monitors will continue to monitor design phase investigation activities (geotechnical and potholing activities) occurring in areas that require environmental compliance monitoring. Biological surveyors will continue surveys for nesting birds ahead of design phase investigation activities occurring during the nesting bird season (February 1st through August 31st) and will continue to conduct protocol level surveys for sensitive avian species.

12.0 UTILITY RELOCATION

Implementation of the PCEP requires relocation or rerouting of both public and private utility lines and/or facilities. Utility relocation will require coordination with many entities, including regulatory agencies, public safety agencies, federal, state, and local government agencies, private and public utilities, and other transportation agencies and companies. This section describes the progress specific to the utility relocation process.

Activity This Month

- PCEP team continued monthly coordination meetings with telecommunication and power utilities. These meetings focused on overall project and relocation schedules, designation of responsibilities, applicable design standards, and reconciliation of agreements and records.
- Work continued with all utilities on review of overhead utility line relocations based on the current preliminary design. This effort is expected to continue for the next several months to support identification and confirmation, agreements, and design of all relocations.
- PCEP team sent draft relocation notices to other utility owners on the Caltrain ROW.
- PCEP team continued to work with Verizon on the relocation of fiber optics cable within the Caltrain ROW.

Activity Next Month

- Monthly meetings will continue with telecom and power carriers.
- PCEP team will continue to coordinate with utility owners on the next steps of relocations, including support of any required design information.
- PCEP team will continue to work with utility owners to update the relocation schedule.

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13.0 REAL ESTATE

The PCEP requires the acquisition of a limited amount of real estate. In general, Caltrain uses existing ROWs for the PCEP, but in certain locations, will need to acquire small portions of additional real estate to expand the ROW to accommodate installation of OCS supports (fee acquisitions or railroad easements) and associated Electrical Safety Zones (easements). There are two larger full acquisition areas required for wayside facilities (i.e., traction power stations, switching stations and paralleling stations). The PCEP Real Estate team (RE team) manages the acquisition of all property rights. Caltrain does not need to acquire real estate to complete the EMU procurement portion of the PCEP.

Activity This Month

Table 13-1 below provides a brief summary of the Real Estate acquisition overview for the project.

- The RE team continues negotiations on offers pending, including working through relocation of two commercial businesses.
- The agency continues to negotiate the cooperative agreement for eminent domain authority with the City and County of San Francisco. The target for completion is May 2017.
- In Segment 2, three appraisals were updated and one new appraisal was completed and offers will be made in this month.

Activity Next Month

- Negotiations for all outstanding offers will continue.
- The PCEP team issued work directives to appraise and acquire parcels in Segments 1 and 3 and appraisals commenced, with all expected to be completed in May.

Table 13-1 Real Estate Acquisition Overview

Segment	No. of Parcels Needed*	No. of Appraisals Completed	Offers Presented	Offers Accepted	Acquisition Status		
					Escrow Closed	Value Litigation	Parcel Possession
Segment 1	8	0	0	0	0	0	0
Segment 2	27	26	21	13	11	0	11
Segment 3	11	2	0	0	0	0	0
Segment 4	9	9	8	0	0	0	0
Total	55	37	29	13	11	0	11

Note:
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.

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14.0 THIRD PARTY AGREEMENTS

Third-party coordination is necessary for work impacting public infrastructure, utilities, ROW acquisitions, and others. The table below outlines the status of necessary agreements for the PCEP.

Table 14-1 Third-Party Agreement Status

Type	Agreement	Third-Party	Status
Governmental Jurisdictions	Construction & Maintenance ¹	City & County of San Francisco	In Process
		City of Brisbane	Executed
		City of South San Francisco	Executed
		City of San Bruno	Executed
		City of Millbrae	Executed
		City of Burlingame	Executed
		City of San Mateo	Executed
		City of Belmont	Executed
		City of San Carlos	Executed
		City of Redwood City	Executed
		City of Atherton	In Process
		County of San Mateo	Executed
		City of Menlo Park	Executed
		City of Palo Alto	In Process
		City of Mountain View	Executed
		City of Sunnyvale	Executed
		City of Santa Clara	Executed
		County of Santa Clara	Executed
	City of San Jose	Executed	
	Condemnation Authority		San Francisco
San Mateo			Executed
Santa Clara			Executed
Utilities	Infrastructure	PG&E	Executed ²
	Operating Rules	California Public Utilities Commission (CPUC)	Executed
Transportation & Railroad	Construction & Maintenance	Bay Area Rapid Transit (BART)	Executed ³
	Construction & Maintenance	California Dept. of Transportation (Caltrans)	Not needed ⁴
	Trackage Rights	Union Pacific Railroad (UPRR)	Executed ³

Notes regarding table above:

- ¹. Agreements memorialize the parties' consultation and cooperation, designate respective rights and obligations and ensure cooperation between the JPB and the 17 cities and three counties along the Caltrain ROW and within the PCEP limits in connection with the design and construction of the PCEP.
- ². The Master agreement and supplemental agreements 1, 2 and 5 have been executed. Supplemental agreements 3 and 4 are to be negotiated and executed.
- ³. Utilizing existing agreements.
- ⁴. Caltrans Peer Process utilized. Formal agreement not needed.

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15.0 GOVERNMENT AND COMMUNITY AFFAIRS

The Community Relations and Outreach team coordinates all issues with all jurisdictions, partner agencies, government organizations, businesses, labor organizations, local agencies, residents, community members, other interested parties, and the media. In addition, the team oversees the DB contractor's effectiveness in implementing its Public Involvement Program. The following PCEP related external affairs meetings took place in March:

- **Presentations/Meetings**

- Caltrain / 101 Corridor Vision
- New LPMG Member Briefing w/ Councilmember Watanabe
- City/County Staff Coordinating Group
- JPB Bicycle Advisory Committee
- Local Policy Maker Group
- Silicon Valley and San Francisco Bicycle Coalition
- Caltrain Commuter Coalition (2)
- SAMCEDA (2)
- Peninsula Corridor Working Group (2)
- CalSTA
- Menlo Park Chamber
- Assemblymember Scott Wiener
- Sunnyvale Study Committee
- Washington DC Advocacy Trip (met with Federal Transit Administration Officials; Federal Railroad Administration Officials; individual members of the CA Republican and Democratic Delegation; House and Senate Appropriations Committee Members; House and Senate Authorizing Committee Members; individual Members where jobs would be created as a result of the PCEP such as in Utah; and advocacy partners)

- **Third Party/Stakeholder Actions**

- None to report.

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16.0 DISADVANTAGED BUSINESS ENTERPRISE (DBE) PARTICIPATION AND LABOR STATISTICS

DBE and labor statistics will be reported after construction has commenced.

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17.0 PROCUREMENT

Contract Activity

- No contract activities for March.

Invitation for Bid (IFB)/Request for Qualifications (RFQ)/ Request for Proposals (RFP) Issued this Month:

- RFP #17-J-U-77 - Issued for On-Call Consulting Support Services for PG&E Infrastructure Improvements for PCEP.
- RFP #17-J-U-076 - Issued for On-Call Technical Consulting Support Services for PG&E's Substations for PCEP.
- RFP #17-J-S-061- Issued for Advanced Information Management (AIM) Traction Power Supervisory and Data Acquisition (SCADA) System for PCEP.

IFB/RFQ/RFP Received this Month:

- RFQ #17-J-Q-072 – Received quote from JBR Partners, Inc., for Ambassador Services (Short-term Purchase Order).

Contract Awards this Month:

- No contract awards were made for March.

Work Directive (WD)/Purchase Order (PO) Awards & Amendments this Month:

- Multiple WDs & POs were issued to support the program needs for March.

Upcoming IFB/RFQ/RFP:

- RFP - On-Call Ambassador Support Services. (Issue in Late April).
- RFP - On-Call Quality Assurance Independent Testing Laboratory (Issue in Late April).

Upcoming Contract Awards:

- Contract #17-J-Q-072 - Ambassador Services (Short-term Purchase Order).

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18.0 TIMELINE OF MAJOR PROJECT ACCOMPLISHMENTS

Below is a timeline showing major project accomplishments from 2001 to 2017:

Date	Milestone
2001	Began Federal NEPA Environmental Assessment (EA) / State Environmental Impact Report (EIR) Clearance Process
2002	Conceptual Design Completed
2004	Draft NEPA EA/EIR
2008	35% design complete
2009	Final NEPA EA/EIR and Finding of No Significant Impact (FONSI)
2014	Request for Qualifications (RFQ) for Electrification Request for Information for EMU
2015	JPB Approves Final CEQA Environmental Impact Report (EIR) JPB Approves Issuance of RFP for Electrification JPB Approves Issuance of RFP for EMU Receipt of Electrification of Proposal for Electrification FTA approval of Core Capacity Project Development
2016	JPB Approves EIR Addendum #1: PS-7 FTA Re-Evaluation of 2009 FONSI Receipt of Electrification BAFOs Receipt of EMU Proposal Application for Entry to Engineering to FTA Completed the EMU Buy America Pre-Award Audit and Certification Negotiations completed with Stadler for EMU Vehicles Negotiations completed with BBI, the apparent best-value Electrification firm JPB Approves Contract Award (LNTP) BBI JPB Approves Contract Award (LNTP) Stadler FTA approval of Entry into Engineering for the Core Capacity Program Application for Full Funding Grant Agreement (FFGA)
2017	FTA finalized the FFGA for \$647 million in Core Capacity funding, met all regulatory requirements including end of Congressional Review Period (Feb 2017)

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APPENDICES

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Appendix A – Acronyms

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**Peninsula Corridor Electrification Project
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AIM	Advanced Information Management	EIR	Environmental Impact Report
ARINC	Aeronautical Radio, Inc.	EMU	Electric Multiple Unit
BAAQMD	Bay Area Air Quality Management District	ESA	Endangered Species Act
BBI	Balfour Beatty Infrastructure, Inc.	ESA	Environmental Site Assessments
CAISO	California Independent System Operator	FEIR	Final Environmental Impact Report
CalMod	Caltrain Modernization Program	FNTF	Full Notice to Proceed
Caltrans	California Department of Transportation	FFGA	Full Funding Grant Agreement
Caltrans	California Department of Transportation	FONSI	Finding of No Significant Impact
CDFW	California Department of Fish and Wildlife	FRA	Federal Railway Administration
CEMOF	Centralized Equipment Maintenance and Operations Facility	FTA	Federal Transit Administration
CEQA	California Environmental Quality Act (State)	GO	General Order
CHSRA	California High-Speed Rail Authority	HSR	High Speed Rail
CIP	Capital Improvement Plan	ICD	Interface Control Document
CPUC	California Public Utilities Commission	ITS	Intelligent Transportation System
DB	Design-Build	JPB	Peninsula Corridor Joint Powers Board
DBB	Design-Bid-Build	LNTF	Limited Notice to Proceed
DBE	Disadvantaged Business Enterprise	MMRP	Mitigation, Monitoring, and Reporting Program
DEMP	Design, Engineering, and Management Planning	MOU	Memorandum of Understanding
EA	Environmental Assessment	MPS	Master Program Schedule
EAC	Estimate at Completion	NCR	Non Conformance Report
		NEPA	National Environmental Policy Act (Federal)

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NHPA	National Historic Preservation Act	RRP	Railroad Protective Liability
NMFS	National Marine Fisheries Service	RSD	Revenue Service Date
NTP	Notice to Proceed	RWP	Roadway Worker Protection
OCS	Overhead Contact System	SamTrans	San Mateo County Transit District
PCEP	Peninsula Corridor Electrification Project	SCADA	Supervisory Control and Data Acquisition
PCJPB	Peninsula Corridor Joint Powers Board	SCC	Standard Cost Code
PG&E	Pacific Gas and Electric	SPUR	San Francisco Bay Area Planning and Urban Research Association
PHA	Preliminary Hazard Analysis	SFBCDC	San Francisco Bay Conservation Development Commission
PMOC	Project Management Oversight Contractor	SFCTA	San Francisco County Transportation Authority
PS	Paralleling Station	SFMTA	San Francisco Municipal Transportation Authority
PTC	Positive Train Control	SFRWQCB	San Francisco Regional Water Quality Control Board
QA	Quality Assurance	SOGR	State of Good Repair
QC	Quality Control	SS	Switching Station
QMP	Quality Management Plan	SSCP	Safety and Security Certification Plan
QMS	Quality Management System	SSMP	Safety and Security Management Plan
RAMP	Real Estate Acquisition Management Plan	SSWP	Site Specific Work Plan
RE	Real Estate	TASI	Transit America Services Inc.
RFI	Request for Information	TBD	To Be Determined
RFP	Request for Proposals	TPS	Traction Power Substation
RFQ	Request for Qualifications		
ROCS	Rail Operations Center System		
ROW	Right-of-Way		

TVA	Threat and Vulnerability Assessment
UPRR	Union Pacific Railroad
USACE	United States Army Corp of Engineers
USFWS	U.S. Fish and Wildlife Service
VTA	Santa Clara Valley Transportation Authority

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Appendix B – Schedule

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