



Modernization Program Peninsula Corridor Electrification Project (PCEP)



July 2017 Monthly Progress Report

July 31, 2017

Funding Partners



Federal Transit Administration (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



Proposition 1A
California High Speed Rail Authority (CHSRA) Cap and Trade



Carl Moyer Fund



Bridge Tolls (Funds Regional Measure (RM) 1/RM2)



San Francisco County Transportation Authority (SFCTA)/San Francisco Municipal Transportation Agency (SFMTA)



San Mateo County Transportation Authority (SMCTA) Contribution
SMCTA Measure A



Santa Clara Valley Transportation Authority (VTA) Measure A
VTA Contribution



City and County of San Francisco (CCSF) Contribution

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Table of Contents

	Page
1.0 BACKGROUND	1-1
2.0 EXECUTIVE SUMMARY	2-1
2.1 Funding Partners Participation in PCEP	2-2
2.2 Schedule	2-5
2.3 Budget	2-6
2.4 Board Actions	2-6
2.5 Government and Community Affairs	2-6
3.0 ELECTRIFICATION – INFRASTRUCTURE	3-1
3.1 Electrification	3-1
3.2 Supervisory Control and Data Acquisition (SCADA)	3-2
3.3 Tunnel Modification	3-3
4.0 ELECTRIC MULTIPLE UNITS	4-1
4.1 Centralized Equipment Maintenance and Operations Facility (CEMOF) Modifications	4-1
5.0 SAFETY	5-1
6.0 QUALITY ASSURANCE	6-1
7.0 SCHEDULE	7-1
8.0 BUDGET AND EXPENDITURES	8-1
9.0 CHANGE MANAGEMENT	9-1
10.0 FUNDING	10-1
11.0 RISK MANAGEMENT	11-1
12.0 ENVIRONMENTAL	12-1
12.1 Permits	12-1
12.2 Mitigation Monitoring and Reporting Program (MMRP)	12-1
13.0 UTILITY RELOCATION	13-1
14.0 REAL ESTATE	14-1
15.0 THIRD PARTY AGREEMENTS	15-1
16.0 GOVERNMENT AND COMMUNITY AFFAIRS	16-1

17.0	DISADVANTAGED BUSINESS ENTERPRISE (DBE) PARTICIPATION AND LABOR STATISTICS	17-1
18.0	PROCUREMENT	18-1
19.0	TIMELINE OF MAJOR PROJECT ACCOMPLISHMENTS	19-1

List of Tables

	Page
Table 2-1 Schedule Status	2-5
Table 2-2 Budget and Expenditure Status.....	2-6
Table 6-1 Quality Assurance Audit Summary	6-1
Table 7-1 Schedule Status	7-1
Table 7-2 Critical Path Summary	7-2
Table 7-3 Near-Term, Near-Critical with Less Than Three Months of Float.....	7-2
Table 8-1 Electrification Budget & Expenditure Status	8-1
Table 8-2 EMU Budget & Expenditure Status	8-2
Table 8-3 PCEP Budget & Expenditure Status.....	8-2
Table 11-1 Monthly Status of Risks.....	11-2
Table 11-2 Risk Classification	11-3
Table 14-1 Real Estate Acquisition Overview.....	14-2
Table 15-1 Third-Party Agreement Status	15-1

List of Figures

	Page
Figure 2-1 PCEP Work Segments.....	2-1
Figure 10-1 Funding Plan.....	10-1

List of Appendices

	Page
Appendix A – Acronyms.....	A-1
Appendix B – Funding Partner Meetings.....	B-1
Appendix C – Schedule.....	C-1
Appendix D – Standard Cost Codes.....	D-1

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



Peninsula Corridor Electrification Project

Monthly Progress Report

On July 21, Governor Jerry Brown joined Congresswoman Nancy Pelosi, Congresswoman Anna Eshoo, Congresswoman Jackie Speier and a number of state and local elected officials, business leaders, transportation advocates and environmentalists at the Millbrae Caltrain Station to celebrate the official groundbreaking ceremony for the Electrification Project.



As a result of the issuance of the full Notices to Proceed (NTP) to both contracts, design and construction are now being advanced in an unrestricted fashion.

The Overhead Contact System (OCS) layout design for Segment 2 Work Area 5 was advanced to “Issued for Construction” for review and comments. Inspection of existing signal cables for compatibility with a future electrified railroad was completed. The subcontractor who will perform a feasibility study and design of the Traction Power Substation (TPS) interconnections was approved by the project team and the NTP has been issued.

The EMU design, manufacturing and delivery baseline schedule was approved. The Contract Deliverables Requirement List (CDRL) and updated System Safety and Quality Assurance Plan are now expected to be finalized in August. EMU Conceptual Design Reviews (CDR) have been completed and approved, and Preliminary Design Reviews (PDR) are on schedule to commence in September. The PCEP team continues to address system-wide interface issues involving the emerging EMU design and the existing wayside infrastructure, the Electrification Project, and the Communications-Based Overlay Signal System (CBOSS)/Positive Train Control (PTC) Project. Stadler has completed the car body design, which will be reviewed by the JPB in August.

2.1 Funding Partners Participation in PCEP

The PCEP has a series of weekly, biweekly, monthly and quarterly meetings to coordinate all aspects of the program. The meetings are attended by project staff with participation by our funding partners in accordance with the Funding Partners Oversight Protocol. A summary of funding partner meetings and invitees can be found in Appendix B.

This section of the report provides a summary of the discussions and decisions made at the meetings and a list of funding partners who attended the meetings.

Electrification – Engineering Meeting – Weekly

Purpose: To discuss status, resolution and tracking of Balfour Beatty Infrastructure, Inc. (BBII) and Electrification design-related issues, to discuss and monitor the progress of utility relocation compared to schedule, and to discuss third-party coordination activities with Pacific Gas and Electric (PG&E), CHSRA, Union Pacific Railroad (UPRR), Bay Area Rapid Transit, California State Department of Transportation (Caltrans), CBOSS and others.

Activity this Month

Funding Partners: CHSRA: Ian Ferrier

Major topics included: Discussions regarding coordination with PG&E including power studies and interconnection options, efforts to resolve CBOSS fiber conflicts and proposed alternatives to address conflicts, updates on the utility relocation process and design progression updates from utility companies, discussion of progress on tunnel design, update of progress on Design Build (DB) Contract, upcoming changes to the contract in preparation for the Change Management Board (CMB), and coordination with third parties on design review and permitting for the project.

PCEP Delivery Coordination Meeting – Bi-Weekly

Purpose: To facilitate high-level coordination and information sharing between cross-functional groups regarding the status of the work for which they are responsible.

Activity this Month

Funding Partners: SFCTA: Luis Zurinaga; CHSRA: Ian Ferrier and Wai-On Siu

Major topics included: Continued preparation for the July 21 groundbreaking ceremony, drafting safety report on subcontractor incident investigation, completion of upload of all FTA-related documents to a new data management tool, outreach initiatives involving design of the EMUs, Caltrain Board approval of the award of contract for the 25th Avenue Grade Separation Project to Shimmick/Disney Joint Venture, and completion on EMU CDRs and approval of Baseline Master Program Schedule (MPS).

Systems Integration Meeting – Bi-Weekly

Purpose: To discuss and resolve issues with inter-system interfaces and to identify and address interface points which have yet to be addressed.

Activity this Month

Funding Partners: CHSRA: Ian Ferrier and Wai-on Siu

The terminating location and configuration for the OCS relative to the shop at Caltrain's Centralized Equipment Maintenance and Operations Facility (CEMOF) to allow an eight-

car train set to be serviced and also enable safe inspection of vehicle pantographs without de-energizing the yard is being considered.

A schedule for Segment 4 testing activities is being developed based on the dates for PG&E power to energize the TPS, the Los Gatos Bridge project drill track construction and testing and design/build activities completion. Safety certification, delivery of the electric locomotives, operator training for systems integration testing, and community outreach will also be incorporated.

Master Program Schedule (MPS) Meeting – Monthly

Purpose: To review the status of the MPS and discuss the status of major milestones, critical and near critical paths, upcoming Board review items, and progress with the contracts, among others.

Activity this Month

Funding Partners: CHSRA: Ian Ferrier; MTC: Trish Stoops; SMCTA: Joe Hurley

Due to delays in federal funding the MPS was frozen in February. The Full Funding Grant Agreement (FFGA) was received in May and now the overall schedule is being re-evaluated. In July a revised high-level Program Plan was established, which reflected a delay to the Revenue Service Date (RSD), the date on which the project is deemed completed. The delay to RSD was caused primarily due to delay to FFGA and the resulting effect on availability of permanent power from PG&E.

Risk Assessment Meeting – Monthly

Purpose: To identify risks and corresponding mitigation measures. For each risk on the risk register, mitigation measures have been identified and are being implemented. Progress in mitigating these risks is confirmed at the ongoing risk monitoring and monthly risk assessment meetings.

Activity this Month

Funding Partners: SFCTA: Luis Zurinaga; CHSRA: Ian Ferrier

One risk was retired. Two risks were added to the risk register. See the Risk Management section (Section 11) in this report for more details.

Change Management Board (CMB) – Monthly

Purpose: To review, evaluate, and authorize proposed changes to PCEP.

Activity this Month

Funding Partners: SFCTA: Luis Zurinaga; CHSRA: Boris Lipkin and Bruce Armistead; VTA: Krishna Davey and Carol Lawson; MTC: Trish Stoops.

Major topics included: Refinement of the functionality of the CMB regarding how review and voting on potential changes would occur. Potential changes to the Balfour and the Stadler contracts were discussed.

BBI Contract

Four changes were approved by CMB. Three of these changes were deductive changes.

Stadler Contract

One change was approved by CMB.

These potential contract changes will follow the PCEP Change Order Procedure. Once these changes are executed, they will be reported in the Change Management section (Section 9) of this report.

2.2 Schedule

The RSD, which is the date the project is deemed completed, is delayed due to the FFGA delay and resulting effect on availability of permanent power from PG&E. Without adjustment for contingency, the RSD is forecast as December 2021. With the addition of approximately five months of contingency to account for potential risk to the project, the RSD is anticipated as April 2022.

Table 2-1 indicates new milestone dates for the MPS. At this time, not all milestones have been established as the revised Program Plan continues to be refined. The FFGA RSD of August 22, 2022, which was the result of an independent risk assessment conducted by the FTA Project Management Oversight Contractor (PMOC) in August 2016, was added to the table.

Table 2-1 Schedule Status¹

Milestones	Program Plan (April 2016)	Revised Program Plan (July 2017)
Start of Electrification Construction	03/20/2017	08/17/2017
First Eight Miles of Electrification Complete to Begin Testing	04/08/2019	3Q 2019
Delivery of First Vehicle	06/25/2019	07/30/2019
PG&E Provides Permanent Power	09/01/2020	09/09/2021
Start Pre-Revenue Testing	09/08/2020	09/10/2021
RSD (w/ Risk Contingency)	12/30/2021	04/22/2022
FFGA RSD ²	N/A	08/22/2022

Notes:

¹ Schedule status is an approximation as the details of the revised MPS remain under review.

² FFGA RSD did not exist at the time of the April 2016 Program Plan.

Peninsula Corridor Electrification Project
Monthly Progress Report

2.3 Budget

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

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	\$ 15,918,122	\$ 234,958,504	\$ 1,081,166,704	\$ 1,316,125,208
EMU Subtotal	\$ 664,127,325	\$ 16,712,577	\$ 51,430,228	\$ 612,697,097	\$ 664,127,325
PCEP TOTAL	\$ 1,980,252,533	\$ 32,630,698	\$ 286,388,731	\$ 1,693,863,801	\$ 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 Board Actions

- Approved offers for three parcels in Segment 3
- Approved the execution of PG&E Supplemental Agreement #3: Final design for infrastructure build outs

Future anticipated board actions include:

- August
 - Award of SCADA sole source [Project Delivery]
 - Quarterly Update presentation to board (in support of Executive Director's report) [Program Management]
 - Resolution of Necessity (RON) – Segment 4 parcels by VTA
- To Be Scheduled
 - Approval to execute PG&E Supplemental Agreement #4: Construction [Engineering]
 - Authority to procure used electric locomotives [Project Delivery]
 - Ambassador Request for Proposal (RFP) award [External Affairs]

2.5 Government and Community Affairs

A number of community relations and outreach events took place during the month. PCEP team participated in a total of 11 meetings with stakeholders.

3.0 ELECTRIFICATION – INFRASTRUCTURE

This section reports on the progress of the Electrification, 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, single phase, alternating current supply system consisting of two traction power substations (TPS), one switching station, and seven paralleling stations (PS). Electrification will be performed using a DB delivery method.

Activity This Month

- The PCEP team continued discussions with BBII on the Time Impact Analysis (TIA) to update the schedule and determine the impacts of FFGA delays. The project team reviewed and discussed the initial submissions from BBII. The TIA is expected to carry into the month of August.
- The PCEP team continued to work with the BBII on the OCS design. OCS layouts for Segment 2 Work Area 5 were advanced to “Issued for Construction” for review and comments. 95% layouts for Segment 2 Work Area 4 are still under review. BBII also continues to advance the OCS layout designs for Segment 4.
- The PCEP team continued to review and coordinate signal and communication design submittals with BBII. BBII submitted 65% location specific Signal Design Typical Location for JPB review. The project team and BBII continue to coordinate with UPRR on design review and will plan to meet with UPRR in August.
- The PCEP team continued design review coordination with local jurisdictions for the OCS design in Segment 2 work areas 5 and 4 and Segment 4. The team met with Millbrae to collect comments.
- BBII continued pothole location layouts in Segment 2.
- Potholing of utilities at proposed OCS locations continued in segments 4 and 2. BBII also continue to remove obstructions found during the potholing process, such as loose concrete, asphalt, and other debris.
- Potholing of existing signal cables for signal design and construction continued in all segments.
- Inspection of existing signal cables for compatibility with a future electrified railroad were completed.
- Coordination efforts with PG&E continued for infrastructure improvements and TPS interconnects. The PCEP team continues to work with PG&E for the finalization of Protection Scheme Studies.

- BBII recommended a PG&E-approved subcontractor to perform the feasibility study and design of the TPS interconnections. The recommendation has been approved by the project team and the NTP for the allowance has been issued. The design of the interconnection is currently an allowance within the BBII DB contract, with construction being a change order.

Activity Next Month

- Continue to work with BBII on design and field investigation activities. The designs will include the continued progression of the OCS, traction power, bonding and grounding, signal systems, and other civil infrastructures such as overhead bridge protections.
- Continue potholing and clearing of obstructions at proposed OCS locations. Potholing will continue in Segment 2 as BBII advances the OCS design at specific locations.
- Continue potholing of signal cables in all segments in support of signal system design.
- Hold signal discussion with UPRR.
- Continue review BBII work plans for upcoming construction activities.
- Continue coordination efforts with PG&E on interconnection design and final design for PG&E infrastructure. The PCEP and BBII teams will continue design and coordination of the 115 kV interconnections between PG&E and Caltrain's future substations. Coordination meetings continue to be held every two weeks.
- Continue design reviews and coordination with local jurisdictions for OCS design in Segment 2 work areas 5 and 4 and Segment 4.
- Perform test pile installations.
- Begin tree pruning and removals in preparation of OCS foundation installations.

3.2 Supervisory Control and Data Acquisition (SCADA)

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

Activity This Month

- The PCEP team completed negotiations for the SCADA contract and prepared for the award of the contract at the August board Meeting.

Activity Next Month

- Award of SCADA contract at the August board meeting.

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 has requested the PCEP team 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 DB 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.
- Comment resolution and constructability meeting was held to review and resolve comments on 95% design drawings and specifications.
- 95% plans were submitted to UPRR for review and comment.
- Began work on 100% submissions.

Activity Next Month

- Continue coordination efforts with UPRR and other stakeholders.
- Submit 100% plans and specifications for review and comment.

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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

- EMU design coordination discussions continue with representatives from Caltrain Operations and Maintenance, Caltrain Outreach, the Federal Railroad Administration (FRA), PMOC, Safety and Quality Assurance personnel, Electrification, and Program Scheduling.
- Stadler's design, manufacturing and delivery baseline schedule was approved.
- CDRs have been completed and approved by the PCEP.
- The PCEP team continues to address system-wide interface issues involving the emerging EMU design and the existing wayside infrastructure, the Electrification Project, and the CBOSS/PTC Project.

Activity Next Month

- Finalize the CDRL and updated System Safety and Quality Assurance Plan.
- PCEP team members will meet with Stadler to review the car body structural design analysis.
- Progress resolution to design and interface issues.
- Commence monthly conference calls with the FRA regarding EMU regulatory compliance.
- PDR on schedule to commence in September.

4.1 Centralized Equipment Maintenance and Operations Facility (CEMOF) Modifications

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

Activity This Month

- Upgrade design activities have been restarted and various buildout concepts are being evaluated.

Activity Next Month

- Evaluation and selection of buildout options.

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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

- Project safety staff participated in the Executive Management Safety and Security meeting and provided an update to senior staff on the status of ongoing project safety related activities and initiatives.
- Project safety staff continues to provide comments on the contractor Site Specific Work Plan safety provisions and has increased its safety construction oversight presence by performing night inspections of potholing and utility location work being performed by BBII.
- The monthly project Safety and Security Certification meeting was held on July 12, Fire/Life Safety meeting was held on July 26, and the Capital Safety Committee met on July 27 with affected internal and external safety stakeholders to review project safety requirements and implementation status.
- There were two project safety related incidents that occurred in July. Project safety staff worked closely with PCEP, BBII and Transit America Services, Inc. (TASI) staff as part of a collaborative investigation to identify the incident root cause and contributory factors related to each incident and develop corrective mitigation measures to prevent potential reoccurrences. The project team continues to work closely on the implementation of approved safety recommendations.

Activity Next Month

- Monthly Safety Communication meetings are scheduled for the Project Safety and Security Certification Committee, Fire/Life Safety Committee, and other project-related contractor and JPB safety meetings designed to discuss project safety challenges and initiatives.
- Increased site safety inspections will continue to be conducted to assess work practice, identify opportunities for improvements, and ensure appropriate mitigation measures have been implemented.
- BBII and EMU safety deliverables will continue to be reviewed and discussed with the contractors to ensure they address project safety requirements.
- Project safety will continue to work closely with contractor staff to implement approved safety improvement plans developed from incident lessons learned.

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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

- Staff meetings with BBII QA/Quality Control management representatives continue bi-weekly.
- Revision of the PCEP Quality Management Plan (QMP) has begun.
- A Request for Proposal (RFP) has been finalized for the procurement of a Quality Assurance Lab and will be advertised in mid-August.
- Regularly scheduled design reviews and surveillance began on project design packages and will continue through spring of 2018.

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	0	28
Audit Findings		
Audit Findings Issued	0	24
Audit Findings Open	0	0
Audit Findings Closed	0	24
Non-Conformances		
Non-Conformances Issued	0	4
Non-Conformances Open	0	0
Non-Conformances Closed	0	4

Activity Next Month

- Four audits are planned and scheduled: BBII/PGH Wong 95% wayside power cabinets, BBII/PGH Wong switch machines at 65%, bridge segments 2 and 4 at 65%, and Drill Tech concrete batching.

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7.0 SCHEDULE

Due to delays in federal funding the MPS was frozen in February. The FFGA was received in May and now the overall schedule is being re-evaluated. In July a revised high-level Program Plan was established which reflected a delay to the RSD. The RSD is the date on which the project is deemed completed. The delay to RSD was caused primarily due to delay to FFGA and the resulting effect on availability of permanent power from PG&E.

Without adjustment for contingency, the RSD is forecast as December 2021. With the addition of approximately five months of contingency to account for potential risk to the project, the RSD is anticipated as April 2022.

Table 7-1 indicates new milestone dates for the MPS. At this time, not all milestones have been established as the revised Program Plan continues to be refined. The FFGA RSD of August 22, 2022, which was the result of an independent risk assessment conducted by the FTA PMOC in August 2016, was added to the table. A summary schedule reflective of the revised high-level Program Plan can be found in Appendix C.

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

As the FFGA has now been approved the MPS is under review for evaluation of variances. Once this review is complete and a revised Program Plan is established, variances will be reported against the revised plan.

Table 7-1 Schedule Status¹

Milestones	Program Plan (April 2016)	Revised Program Plan (July 2017)
Start of Electrification Construction	03/20/2017	08/17/2017
First Eight Miles of Electrification Complete to Begin Testing	04/08/2019	3Q 2019
Delivery of First Vehicle	06/25/2019	07/30/2019
PG&E Provides Permanent Power	09/01/2020	09/09/2021
Start Pre-Revenue Testing	09/08/2020	09/10/2021
RSD (w/ Risk Contingency)	12/30/2021	04/22/2022
FFGA RSD ²	N/A	08/22/2022

Notes:

¹ Schedule status is an approximation as the details of the revised MPS remain under review.

² FFGA RSD did not exist at the time of the April 2016 Program Plan.

Table 7-2 Critical Path Summary¹

Activity	Start	Finish
PG&E Final Design and Construction to provide Permanent Power	April 2016	09/09/2021
Pre-Revenue Testing	09/10/2021	12/09/2021
RSD w/out Risk Contingency ²	12/09/2021	12/09/2021
RSD w/ Risk Contingency ²	04/24/2022	04/24/2022

Note:

^{1.} Critical Path is an approximation as the details of the revised MPS remain under review

^{2.} Milestone activity

Table 7-3 Near-Term, Near-Critical with Less Than Three Months of Float¹

Work Breakdown Structure	Activity	Responsibility
Vehicles	EMU Design	Project Delivery

Note:

^{1.} Near-Term, Near-Critical Path is an approximation as the details of the revised MPS remain under review

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	\$ 12,692,578	\$ 145,065,587	\$ 563,594,751	\$ 708,660,338
Tunnel Notching	\$ 11,029,649	\$ -	\$ -	\$ 11,029,649	\$ 11,029,649
Real Estate	\$ 28,503,369	\$ 766,702	\$ 7,448,569	\$ 21,054,800	\$ 28,503,369
Private Utilities	\$ 63,515,298	\$ 374,567	\$ 5,632,083	\$ 57,883,215	\$ 63,515,298
Management Oversight ⁴	\$ 141,526,164	\$ 1,532,614	\$ 71,237,698	\$ 70,288,465	\$ 141,526,164
Executive Management	\$ 7,452,866	\$ 79,164	\$ 3,306,367	\$ 4,146,500	\$ 7,452,866
Planning	\$ 7,281,997	\$ 46,065	\$ 4,703,676	\$ 2,578,321	\$ 7,281,997
Community Relations	\$ 2,789,663	\$ 31,256	\$ 1,059,104	\$ 1,730,559	\$ 2,789,663
Safety & Security	\$ 2,421,783	\$ 61,606	\$ 712,865	\$ 1,708,918	\$ 2,421,783
Project Management Services	\$ 19,807,994	\$ 158,921	\$ 8,007,299	\$ 11,800,695	\$ 19,807,994
Engineering & Construction	\$ 11,805,793	\$ 37,461	\$ 2,279,003	\$ 9,526,790	\$ 11,805,793
Electrification Engineering & Management	\$ 50,461,707	\$ 1,044,790	\$ 19,664,634	\$ 30,797,074	\$ 50,461,707
IT Support	\$ 331,987	\$ -	\$ 331,987	\$ 0	\$ 331,987
Operations Support	\$ 1,445,867	\$ 7,125	\$ 417,378	\$ 1,028,489	\$ 1,445,867
General Support	\$ 4,166,577	\$ 41,619	\$ 1,709,330	\$ 2,457,247	\$ 4,166,577
Budget / Grants / Finance	\$ 1,229,345	\$ 10,284	\$ 406,774	\$ 822,571	\$ 1,229,345
Legal	\$ 2,445,646	\$ -	\$ 2,351,097	\$ 94,549	\$ 2,445,646
Other Direct Costs	\$ 5,177,060	\$ 14,324	\$ 1,954,827	\$ 3,222,233	\$ 5,177,060
Prior Costs 2002 - 2013	\$ 24,707,878	\$ -	\$ 24,333,358	\$ 374,520	\$ 24,707,878
TASI Support	\$ 55,275,084	\$ 474,106	\$ 3,138,705	\$ 52,136,379	\$ 55,275,084
Insurance	\$ 4,305,769	\$ -	\$ 1,155,769	\$ 3,150,000	\$ 4,305,769
Environmental Mitigations	\$ 14,972,645	\$ 25,000	\$ 497,000	\$ 14,475,645	\$ 14,972,645
Required Projects	\$ 17,337,378	\$ -	\$ 367,028.00	\$ 16,220,350	\$ 16,587,378
Maintenance Training	\$ 1,021,808	\$ -	\$ -	\$ 1,021,808	\$ 1,021,808
Finance Charges	\$ 5,056,838	\$ 52,555	\$ 416,066	\$ 4,640,772	\$ 5,056,838
Contingency	\$ 276,970,649	\$ -	\$ -	\$ 265,670,870	\$ 265,670,870
Owner's Reserve	\$ -	\$ -	\$ -	\$ -	\$ -
ELECTRIFICATION SUBTOTAL	\$ 1,316,125,208	\$ 15,918,122	\$ 234,958,504	\$ 1,081,166,704	\$ 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 June 2017 and accrued for July 2017.

Peninsula Corridor Electrification Project
Monthly Progress Report

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	\$ 16,298,340	\$ 30,216,480	\$ 521,738,479	\$ 551,954,959
CEMOF Modifications	\$ 1,344,000	\$ -	\$ -	\$ 1,344,000	\$ 1,344,000
Management Oversight ³	\$ 64,139,103	\$ 382,026	\$ 20,970,534	\$ 43,168,569	\$ 64,139,103
Executive Management	\$ 5,022,302	\$ 38,321	\$ 1,997,806	\$ 3,024,496	\$ 5,022,302
Community Relations	\$ 1,685,614	\$ 15,622	\$ 376,796	\$ 1,308,818	\$ 1,685,614
Safety & Security	\$ 556,067	\$ 12,677	\$ 227,527	\$ 328,540	\$ 556,067
Project Management Services	\$ 13,275,280	\$ 97,344	\$ 5,333,384	\$ 7,941,896	\$ 13,275,280
Engineering & Construction	\$ 89,113	\$ -	\$ 23,817	\$ 65,296	\$ 89,113
EMU Engineering & Management	\$ 32,082,556	\$ 188,853	\$ 9,368,477	\$ 22,714,080	\$ 32,082,556
IT Support	\$ 1,027,272	\$ 9,962	\$ 295,422	\$ 731,850	\$ 1,027,272
Operations Support ⁴	\$ 1,878,589	\$ -	\$ 279,059	\$ 1,599,530	\$ 1,878,589
General Support	\$ 2,599,547	\$ 15,302	\$ 764,355	\$ 1,835,193	\$ 2,599,547
Budget / Grants / Finance	\$ 712,123	\$ 3,810	\$ 233,094	\$ 479,029	\$ 712,123
Legal	\$ 1,207,500	\$ -	\$ 867,662	\$ 339,838	\$ 1,207,500
Other Direct Costs	\$ 4,003,139	\$ 135	\$ 1,203,135	\$ 2,800,004	\$ 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	\$ 32,211	\$ 243,214	\$ 1,698,586	\$ 1,941,800
Contingency	\$ 38,562,962	\$ -	\$ -	\$ 37,507,462	\$ 37,507,462
Owner's Reserve	\$ -	\$ -	\$ -	\$ -	\$ -
EMU SUBTOTAL³	\$ 664,127,325	\$ 16,712,577	\$ 51,430,228	\$ 612,697,097	\$ 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 June 2017 and accrued for July 2017.

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	\$ 15,918,122	\$ 234,958,504	\$ 1,081,166,704	\$ 1,316,125,208
EMU Subtotal	\$ 664,127,325	\$ 16,712,577	\$ 51,430,228	\$ 612,697,097	\$ 664,127,325
PCEP TOTAL	\$ 1,980,252,533	\$ 32,630,698	\$ 286,388,731	\$ 1,693,863,801	\$ 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.

Appendix D includes costs broken down by Standard Cost Code (SCC) format. This format is required for reporting of costs to the FTA. The overall project total in the SCC format is lower than the project costs in table 8-3. This is due to the exclusion of costs incurred prior to the project entering the Project Development phase.

9.0 CHANGE MANAGEMENT

The change management process establishes a formal administrative work process associated with the initiation, documentation, coordination, review, approval and implementation of changes that occur during the design, construction or manufacturing of the PCEP. The change management process ensures the prudent use of contingency and that the impact of the change is accounted for.

Currently the two PCEP contracts are Balfour Beatty Inc. and Stadler. Future PCEP contracts such as CEMOF Modifications, SCADA and the Tunnel Notching will also follow the change management process.

Executed Changes This Month

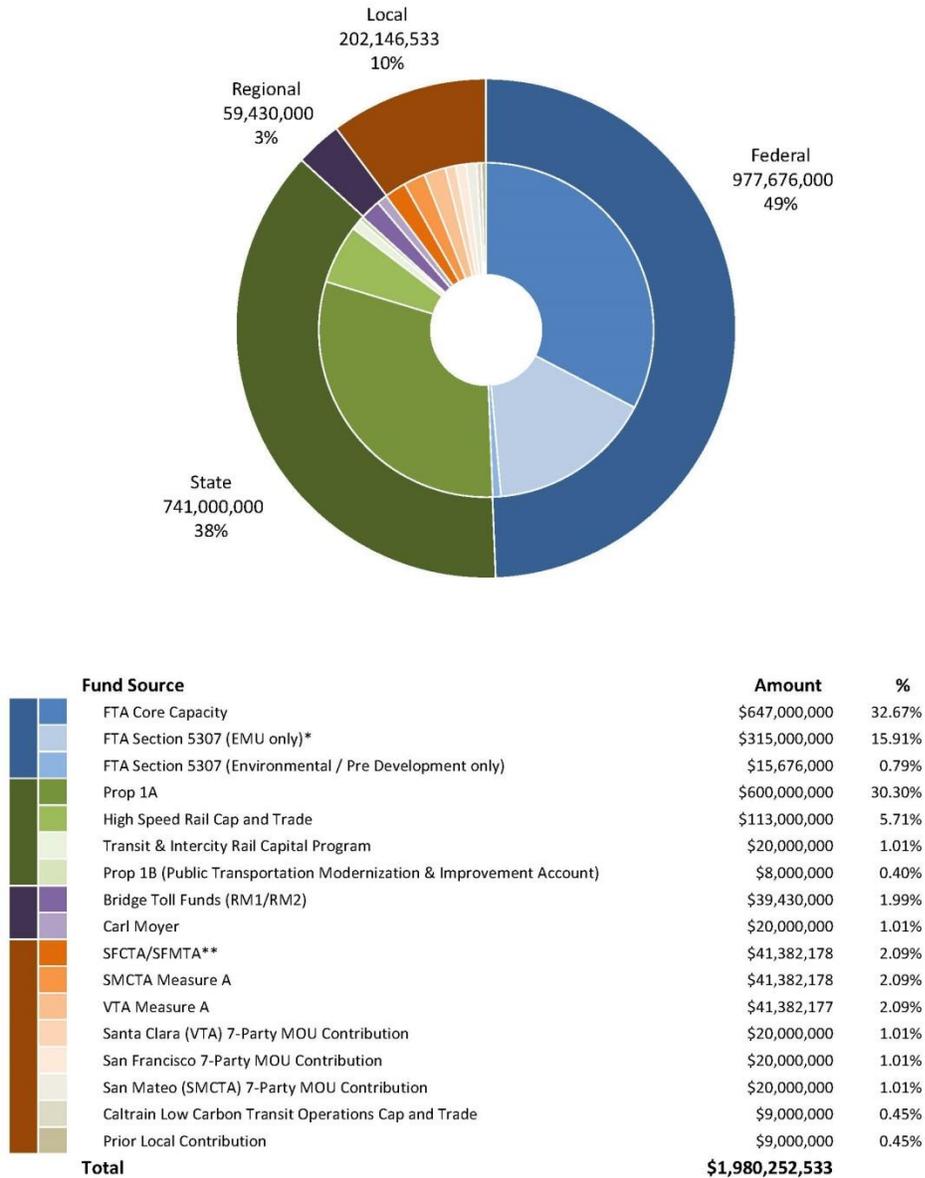
- None

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10.0 FUNDING

Figure 10-1 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 noted, the JPB received approval of the FFGA from the FTA in May 2017. The Agreement provides the project with a commitment of \$647 million in federal funding, with \$72.9 million available immediately. An additional \$100 million in Fiscal Year 2017 funding was made available by FTA through the annual apportionment process.

Figure 10-1 Funding Plan



Notes:

*Includes necessary fund transfer with SMCTA

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

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11.0 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. Each risk is graded based on the potential cost and schedule impacts they could have on the project. This collection of risks has the greatest potential to affect the outcome of the project and consequently is monitored most closely. For each of the noted risks, as well as for all risks on the risk register, mitigation measures have been identified and are being implemented. Progress in mitigating these risks is confirmed at monthly risk assessment meetings attended by project team management and through continuous monitoring of the Risk Management Lead.

The team has identified the following items as top risks for the project:

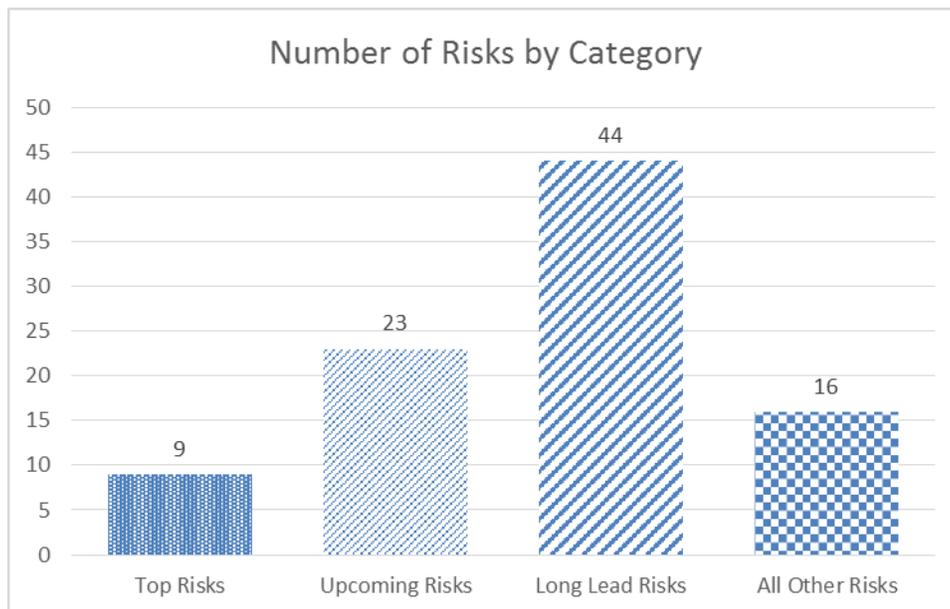
- Costs for upgrades to PG&E power stations may exceed the current budget.
- Relocation of overhead utilities must precede installation of catenary wire and connections to TPSs. Relocation work will be performed by others and may not be completed to meet BBII's construction schedule.
- As-built drawings that will be furnished to DB contractors could be incomplete.
- Staffing and organization of TASI will require appreciable effort including hiring of specialized staff that must be in place to support construction and testing for the electrification contract.
- Modifications to the Centralized Traffic Control system hardware and software and Back Office Server database and systems to support DB must be completed in time for cutover and testing.
- Working PTC signal system may not be in place in advance of integrated testing and commissioning. Federally-mandated PTC system required by December 31, 2018.
- Grade crossing modifications needed as constant warning devices won't work for UPRR trains.
- JPB is responsible for system integration/configuration activities (interaction between existing and new systems) and needs staff and systems in place at completion of PCEP construction and testing.
- Third party design review comments must be received and resolved to achieve timely approvals.

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 Risk Management team attended Electrification, Project Delivery, and Systems Integration meetings to monitor developments associated with risks and to identify new risks.
- Continued review of all long-lead risks.
- Initiated review of systems integration database to identify additional risks and update existing risks.

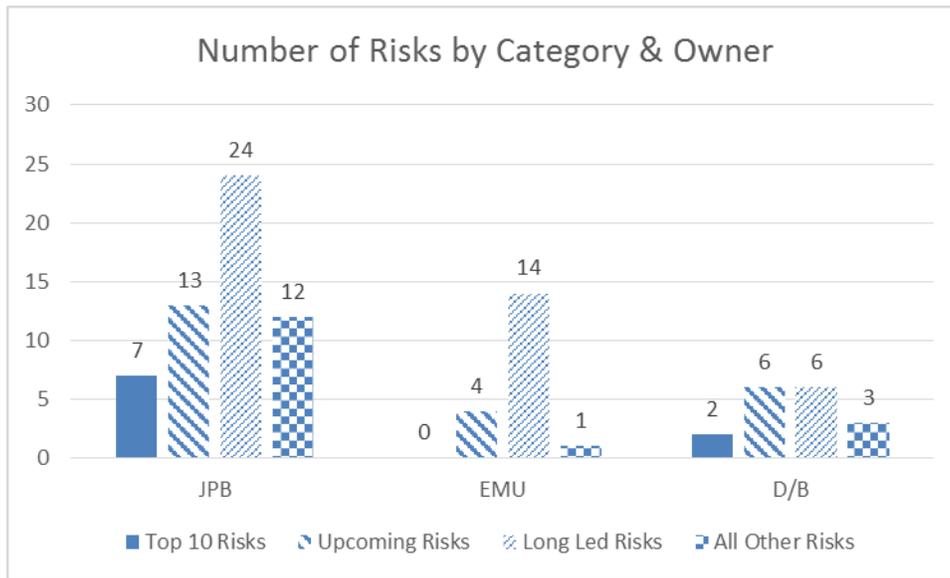
Tables 11-1 and 11-2 show the risks identified for the program. Risks are categorized as top risk, upcoming risk, long-lead, and all other risks. The categories are based on a rating scale composed of schedule and cost factors. Simply put, top risks are considered to have a significantly higher than 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 11-1 Monthly Status of Risks



Total Number of Active Risks = 92

Table 11-2 Risk Classification



Total Number of Active Risks = 92

Activity Next Month

- Update risk descriptions, effects, mitigations and retirement dates.
- Conduct weekly monitoring of risk mitigation actions and continue publishing risk register.
- Formalize review of risks on project risk register with Systems Integration database.

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12.0 ENVIRONMENTAL

12.1 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, San Francisco Bay Regional Water Quality Control Board (SFWQCB), the California Department of Fish and Wildlife, and the San Francisco Bay Conservation Development Commission.

Section 106 of the NHPA process and Section 7 of the ESA process have concluded.

Activity This Month

- Coordinated with the SFWQCB to understand if any additional information was needed to obtain the minor permit amendment. The minor permit amendment is to cover minimal increases to impacts on wetlands and other waters resulting from OCS pole foundation installation.

Activity Next Month

- Continue to follow up with SFWQCB in order to receive permit amendment.

12.2 Mitigation Monitoring and Reporting Program (MMRP)

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

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

Peninsula Corridor Electrification Project
Monthly Progress Report

- Noise and vibration monitoring also occurred during the design phase investigation activities, and non-hazardous soil was removed from the Right of Way (ROW) in segments 1 and 3.

Activity Next Month

- Environmental compliance 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 and biological survey teams will continue to conduct protocol level surveys for sensitive avian species.
- Noise and vibration monitoring of design phase investigation activities will continue to occur and non-hazardous soil will be removed from construction segments 1 and 3.
- Tree trimming and removal is anticipated to begin in Segment 2, and a test pile program will begin at Mile Post (MP) 8.0 and MP 14.6. Biological surveyors will conduct pre-construction surveys for sensitive wildlife species ahead of tree trimming/removal and test pile work, and environmental compliance monitors will be present in an effort to minimize potential impacts on sensitive environmental resources in accordance with the MMRP.

13.0 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 provided relocation notices to Silicon Valley Power and Palo Alto Power.
- PCEP team continued individual coordination with utility companies on relocation plans and schedule. PG&E and Silicon Valley Power have both indicated they will meet the schedule as requested by the PCEP.
- PCEP team continued to work with Verizon to resolve the relocation of fiber optic cable within the Caltrain ROW.

Activity Next Month

- Monthly meetings will continue with telecom and power carriers.
- Continue to coordinate with utility owners on the next steps of relocations, including support of any required design information.
- Continue to work with utility owners to update the relocation schedule.
- Work with Verizon to relocate their parallel aerial fiber optic cable.
- Review relocation design from PG&E and coordinate with PG&E on permitting and work planning for relocations.

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14.0 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. 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 14-1 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.
- After receipt of the FFGA, Project staff coordinated with SamTrans and VTA to have RON hearings at the first possible meeting after receipt of the FFGA.
- RON hearings were held for 10 Segment 2 parcels at SamTrans on July 5. All 10 RONs were adopted. SamTrans will hold a hearing on August 2 for the 11th parcel.
- On August 3 for VTA will hear RONs for 3 parcels in Segment 4, including the two aforementioned business relocations.
- The RE team contacted all property owners to inform them of the schedule moving forward in an attempt to finalize negotiated settlement with as many owners as possible. To date, four owners have verbally agreed to terms. The agency will delay filing on these two properties in an attempt to achieve negotiated settlements.
- Appraisal continued in segments 1 and 3 and technical staff responded to a number of Requests for Information (RFI) to support the appraisal process.
- The JPB Board approved two offers in Segment 3 at its July meeting and offer will be made shortly.

Activity Next Month

- Negotiations for all outstanding offers will continue.
- Appraisals for segments 1 and 3 will be completed.
- SamTrans will hear the final RONs for Segment 2 on August 2, 2017 and the eminent domain actions will be filed and served immediate thereafter.

Table 14-1 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	25	15	13	0	13
Segment 3	11	4	0	0	0	0	0
Segment 4	9	9	8	0	0	0	0
Total	55	39	33	15	13	0	13

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.

Status of Segments 2 and Segment 4 ROW Acquisition

- Segment 2
 - SamTrans Board adopted 10 RONS in July and 1 in August.
 - Eight owners have either signed or are in the process of signing.
 - Three eminent domain actions filed with possession expected in January 2018.
 - Exception: UPRR requested JPB follow their utility approval process.

- Segment 4
 - VTA adopted three RONS in August, including the Loop Bus Site.
 - Three eminent domain actions will be filed by September, providing access by February 2018.
 - Exception: PG&E property: JPB working with BBII to redesign the poles that impact PG&E operations.

15.0 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 15-1 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	In Process
San Mateo		Executed	
Santa Clara		Executed	
Utilities	Infrastructure	PG&E	Executed ²
	Operating Rules	CPUC	Executed
Transportation & Railroad	Construction & Maintenance	Bay Area Rapid Transit	Executed ³
	Construction & Maintenance	California Dept. of Transportation (Caltrans)	Not needed ⁴
	Trackage Rights	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, 3 and 5 have been executed. Supplemental Agreement 4 is the remaining agreement to be negotiated and executed.
3. Utilizing existing agreements.
4. Caltrans Peer Process utilized. Formal agreement not needed.

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16.0 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 this month:

Presentations/Meetings

- Burlingame City Council
- Reddit Live Social Media Event
- Pre-Construction Community Meeting: South San Francisco and San Bruno
- Caltrain Citizens Advisory Committee
- Caltrain Bicycle Advisory Committee
- Caltrain Centralized Equipment Maintenance & Operations Facility Monitoring Committee
- Groundbreaking Event
- 4th & King Station Outreach: EMU Seats
- San Mateo Station Outreach: EMU Seats
- Menlo Park Chamber of Commerce
- Diridon Station Outreach: EMU Seats

Third Party/Stakeholder Actions

65% OCS Pole Design Review occurred with staff at the following cities:

- Millbrae

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17.0 DISADVANTAGED BUSINESS ENTERPRISE (DBE) PARTICIPATION AND LABOR STATISTICS

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

The electrification contract has a DBE goal of 5.2%.

The DBE goals of the SCADA and Tunnel Modification contracts are to be determined.

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18.0 PROCUREMENT

Contract Activity

- No contract activities for July

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

- Issued Letter of Intent to Mitsui regarding purchase of Electric Locomotive for testing of electrification system
- Issued Letter of Intent to Amtrak regarding refurbishment of Electric Locomotive

IFB/RFQ/RFP Received this Month:

- No IFB/RFQ/RFP's received in July

Contract Awards this Month:

- No contract awards for July

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

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

In Process IFB/RFQ/RFP/Contract Amendments:

- RFP – 17-J-S-062 – On-Call Ambassador Support Services
- RFP – 17-J-S-070 – On-Call Quality Assurance Independent Testing Laboratory
- Contract Amendment – URS – On-Call Program Management – Authorize contingency and option
- Contract Amendment – Gannett Fleming – On-Call Electrification Management – Authorize contingency and options

Upcoming Contract Awards:

- Contract #17-J-S-061 – Advanced Information Management Traction Power SCADA System for PCEP

Upcoming IFB/RFQ/RFP:

- RFP – Purchase of Electric Locomotive for testing of electrification system
- RFP – Refurbishment of Electric Locomotive for PCEP

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19.0 TIMELINE OF MAJOR PROJECT ACCOMPLISHMENTS

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

Date	Milestone
2001	Began federal National Environmental Policy Act (NEPA) Environmental Assessment (EA) / state 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	RFQ for electrification RFI for EMU
2015	JPB approves final CEQA EIR JPB approves issuance of RFP for electrification JPB approves issuance of RFP for EMU Receipt 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 best and final offers 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 BBII, the apparent best-value electrification firm JPB approves contract award (LNTP) BBII JPB approves contract award (LNTP) Stadler FTA approval of entry into engineering for the Core Capacity Program Application for FFGA
2017	FTA finalized the FFGA for \$647 million in Core Capacity funding, met all regulatory requirements including end of Congressional Review Period (February) FTA FFGA executed, committing \$647 million to the project (May) JPB approves \$1.98 billion budget for PCEP (June)

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APPENDICES

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Appendix A – Acronyms

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**Peninsula Corridor Electrification Project
Monthly Progress Report**

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
BBII	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
CDFW	California Department of Fish and Wildlife	FONSI	Finding of No Significant Impact
CEMOF	Centralized Equipment Maintenance and Operations Facility	FRA	Federal Railroad Administration
CEQA	California Environmental Quality Act (State)	FTA	Federal Transit Administration
CHSRA	California High-Speed Rail Authority	GO	General Order
CIP	Capital Improvement Plan	HSR	High Speed Rail
CPUC	California Public Utilities Commission	ICD	Interface Control Document
DB	Design-Build	ITS	Intelligent Transportation System
DBB	Design-Bid-Build	JPB	Peninsula Corridor Joint Powers Board
DBE	Disadvantaged Business Enterprise	LNTF	Limited Notice to Proceed
DEMP	Design, Engineering, and Management Planning	MMRP	Mitigation, Monitoring, and Reporting Program
EA	Environmental Assessment	MOU	Memorandum of Understanding
EAC	Estimate at Completion	MPS	Master Program Schedule
		NCR	Non Conformance Report
		NEPA	National Environmental Policy Act (Federal)

Peninsula Corridor Electrification Project
Monthly Progress Report

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 – Funding Partner Meetings

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Funding Partner Meeting Representatives
Updated July 25, 2017

Agency	CHSRA	MTC	SFCTA/SFMTA/CCSF	SMCTA	VTA
FTA Quarterly Meeting	<ul style="list-style-type: none"> • Bruce Armistead • Boris Lipkin • Ben Tripousis (info only) • Ian Ferrier (info only) • Wai Siu (info only) 	<ul style="list-style-type: none"> • Anne Richman • Glen Tepke 	<ul style="list-style-type: none"> • Luis Zurinaga 	<ul style="list-style-type: none"> • April Chan • Peter Skinner 	<ul style="list-style-type: none"> • Jim Lawson
CHSRA Quarterly Meeting	<ul style="list-style-type: none"> • Bruce Armistead • Boris Lipkin • Ben Tripousis • John Popoff 	None	None	<ul style="list-style-type: none"> • April Chan • Peter Skinner 	None
Funding Oversight (monthly)	<ul style="list-style-type: none"> • Ben Tripousis • Kelly Doyle 	<ul style="list-style-type: none"> • Anne Richman • Glen Tepke • Kenneth Folan 	<ul style="list-style-type: none"> • Anna LaForte • Maria Lombardo • Luis Zurinaga • Monique Webster • Ariel Espiritu Santo 	<ul style="list-style-type: none"> • April Chan • Peter Skinner 	<ul style="list-style-type: none"> • Jim Lawson • Marcella Rensi • Michael Smith
Change Management Board (monthly)	<ul style="list-style-type: none"> • Bruce Armistead • Boris Lipkin 	<ul style="list-style-type: none"> • Trish Stoops 	<ul style="list-style-type: none"> • Luis Zurinaga • Tilly Chang (info only) 	<ul style="list-style-type: none"> • Joe Hurley 	<ul style="list-style-type: none"> • Krishna Davey • Jim Lawson • Carol Lawson • Nuria Fernandez (info only)
Master Program Schedule Update (monthly)	<ul style="list-style-type: none"> • Ian Ferrier • Wai Siu 	<ul style="list-style-type: none"> • Trish Stoops 	<ul style="list-style-type: none"> • Luis Zurinaga 	<ul style="list-style-type: none"> • Joe Hurley 	<ul style="list-style-type: none"> • Jim Lawson
Risk Assessment Committee (monthly)	<ul style="list-style-type: none"> • Ian Ferrier • Wai Siu 	<ul style="list-style-type: none"> • Trish Stoops 	<ul style="list-style-type: none"> • Luis Zurinaga 	<ul style="list-style-type: none"> • Joe Hurley 	<ul style="list-style-type: none"> • Krishna Davey
PCEP Delivery Coordination Meeting (bi-weekly)	<ul style="list-style-type: none"> • Ian Ferrier 	<ul style="list-style-type: none"> • Trish Stoops 	<ul style="list-style-type: none"> • Luis Zurinaga 	<ul style="list-style-type: none"> • Joe Hurley 	<ul style="list-style-type: none"> • Krishna Davey
Systems Integration Meeting (bi-weekly)	<ul style="list-style-type: none"> • Ian Ferrier • Wai Siu 	<ul style="list-style-type: none"> • Trish Stoops 	<ul style="list-style-type: none"> • Luis Zurinaga (when available) 	<ul style="list-style-type: none"> • Joe Hurley 	<ul style="list-style-type: none"> • Krishna Davey

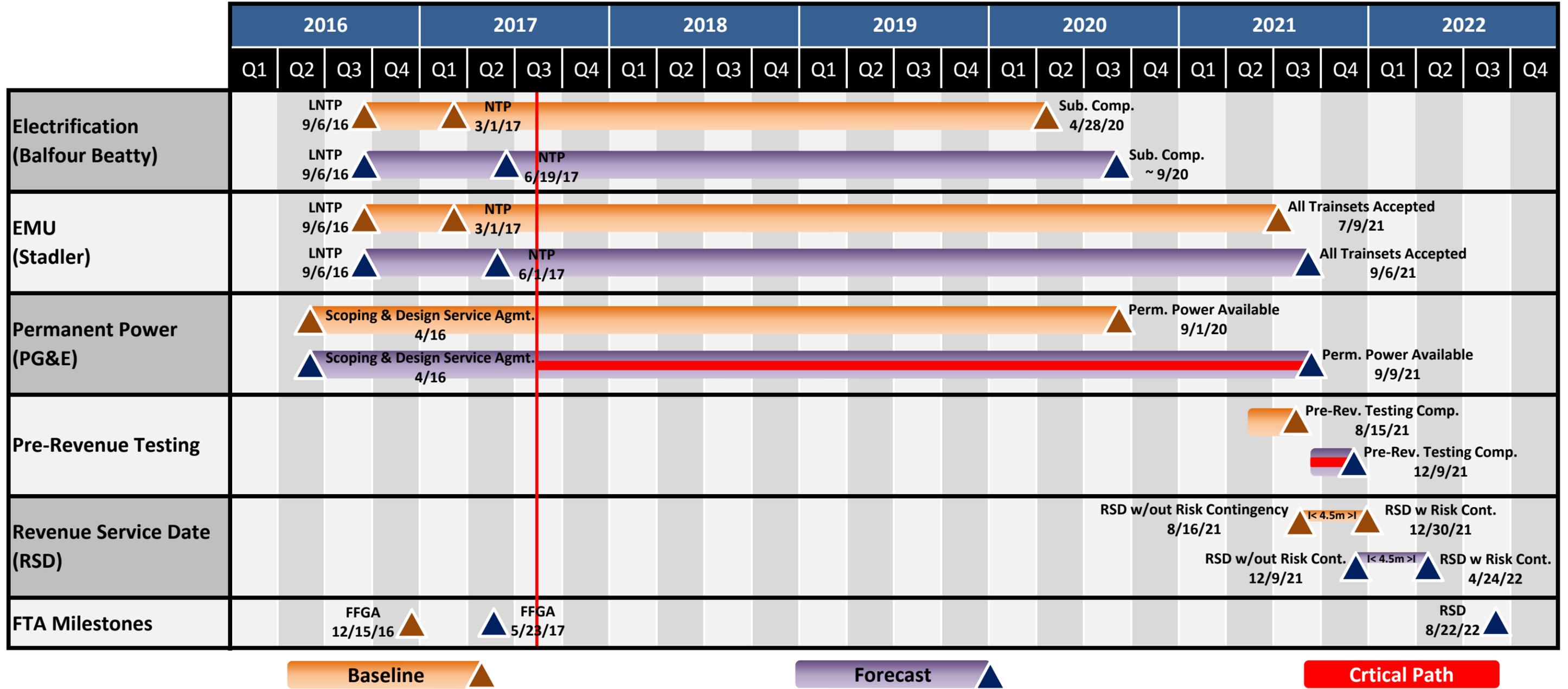
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Appendix C – Schedule

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Master Program Schedule

Baseline (Apr. 2016) vs. Forecast



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Appendix D – Standard Cost Codes

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Description of Work	Approved Budget (A)	Cost This Month (B)	Cost To Date (D)	Estimate To Complete (E)	Estimate At Completion (F) = (D) + (E)
10 - GUIDEWAY & TRACK ELEMENTS	\$14,256,739	\$0	\$0	\$14,256,739	\$14,256,739
10.02 Guideway: At-grade semi-exclusive (allows cross-traffic)	\$2,500,000	\$0	\$0	\$2,500,000	\$2,500,000
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	\$674,424	\$44,175,252	\$210,897,150	\$255,072,402
40.01 Demolition, Clearing, Earthwork	\$3,077,685	\$0	\$0	\$3,077,685	\$3,077,685
40.02 Site Utilities, Utility Relocation	\$62,192,517	\$200,318	\$3,644,247	\$58,548,270	\$62,192,517
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	\$0	\$0	\$32,579,208	\$32,579,208
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	\$474,106	\$40,531,004	\$78,092,772	\$118,623,777
40.08 Allocated Contingency	\$20,160,000	\$0	\$0	\$8,880,000	\$8,880,000
50 - SYSTEMS	\$504,445,419	\$334,528	\$5,925,836	\$498,519,583	\$504,445,419
50.01 Train control and signals	\$97,589,149	\$211,328	\$571,328	\$95,617,821	\$96,189,149
50.01 Allocated Contingency	\$1,651,000	\$0	\$0	\$3,051,000	\$3,051,000
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	\$69,120,009	\$0	\$3,373,793	\$65,746,216	\$69,120,009
50.03 Allocated Contingency	\$31,755,013	\$0	\$0	\$31,755,013	\$31,755,013
50.04 Traction power distribution: catenary and third rail(1,2)	\$253,683,045	\$123,200	\$1,980,715	\$254,032,110	\$256,012,825
50.04 Allocated Contingency	\$18,064,000	\$0	\$0	\$15,734,220	\$15,734,220
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	\$704,795	\$5,473,809	\$30,201,275	\$35,675,084
60.01 Purchase or lease of real estate	\$25,927,074	\$703,853	\$5,449,612	\$20,477,463	\$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	\$943	\$24,198	\$975,803	\$1,000,000
70 - VEHICLES (96)	\$625,544,147	\$16,680,366	\$45,578,052	\$579,966,095	\$625,544,147
70.03 Commuter Rail	\$589,167,291	\$16,680,366	\$45,578,052	\$544,644,740	\$590,222,791
70.03 Allocated Contingency	\$9,472,924	\$0	\$0	\$8,417,424	\$8,417,424
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)	\$323,793,010	\$14,151,819	\$134,994,904	\$188,798,106	\$323,793,010
80.01 Project Development	\$130,350	\$0	\$280,180	-\$149,830	\$130,350
80.02 Engineering (not applicable to Small Starts)	\$180,227,311	\$12,542,805	\$103,801,165	\$75,516,146	\$179,317,311
80.02 Allocated Contingency	\$1,866,000	\$0	\$0	\$2,776,000	\$2,776,000
80.03 Project Management for Design and Construction	\$72,029,265	\$1,149,633	\$25,809,277	\$46,219,988	\$72,029,265
80.03 Allocated Contingency	\$9,388,080	\$0	\$0	\$9,388,080	\$9,388,080
80.04 Construction Administration & Management	\$23,677,949	\$372,475	\$1,454,059	\$22,223,889	\$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	\$3,500,000	\$0	\$1,155,769	\$2,344,231	\$3,500,000
80.06 Legal; Permits; Review Fees by other agencies, cities, etc.	\$7,167,275	\$86,906	\$2,494,453	\$4,672,821	\$7,167,275
80.06 Allocated Contingency	\$556,000	\$0	\$0	\$556,000	\$556,000
80.07 Surveys, Testing, Investigation, Inspection	\$3,287,824	\$0	\$0	\$3,287,824	\$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)	\$1,761,052,001	\$32,545,932	\$236,147,853	\$1,524,904,148	\$1,761,052,001
90 UNALLOCATED CONTINGENCY	\$162,620,295	\$0	\$0	\$162,620,295	\$162,620,295
Subtotal (10 - 90)	\$1,923,672,296	\$32,545,932	\$236,147,853	\$1,687,524,443	\$1,923,672,296
100 FINANCE CHARGES	\$6,998,638	\$84,767	\$659,280	\$6,339,358	\$6,998,638
Total Project Cost (10 - 100)	\$1,930,670,934	\$32,630,698	\$236,807,132	\$1,693,863,801	\$1,930,670,934