

PENINSULA CORRIDOR JOINT POWERS BOARD
STAFF REPORT

TO: Joint Powers Board

THROUGH: Jim Hartnett
Executive Director

FROM: Michelle Bouchard
Chief Operating Officer, Rail

SUBJECT: **CALTRAIN POSITIVE TRAIN CONTROL PROJECT UPDATE – SEPTEMBER 2018**

ACTION

Staff Coordinating Council recommends that the Board receive the Positive Train Control (PTC) report for September 2018.

SIGNIFICANCE

Staff will provide monthly updates covering PTC related activities during the previous month and provide a preview of activities anticipated to take place during the current month.

BUDGET IMPACT

There is no budget impact.

MONTHLY UPDATE

1. Status on Major Milestones to Successfully Enter RSD December 2018

<u>Key Project Activity</u>	<u>Expected Completion</u>	<u>Progress As Of 9/30/18</u>	<u>Progress On Track?</u>	<u>Mitigation Required or Approvals Needed</u>
Approval of Designated RSD Test Request	May 31 st	Completed	Yes	Formal conditional approval received on September 10. Team incorporating FRA conditions in test plan to insure compliance to approval.
Approval of revised project PTC Implementation Plan (PTCIP) and Request for Amendment (RFA)	May 31 st	In FRA review	No	Revised PTCIP and RFA submitted on June 22 based on initial FRA comments. Verbal approval received, waiting written approval.
Pilot Installations (4) Completed	June 20 th	Completed	Completed	All pilots completed
Submit Designated RSD Application	Oct 15	Formal in process	Yes	Draft submitted and reviewed by FRA, formal application to be submitted in October
Complete Critical Feature V&V	Oct 30	In Process	Yes	Designated RSD area V&V informal survey completed and submitted to FRA
Designated RSD Training Complete	Nov 14	In Process	No	Training material in review, training to start in October, – now on critical path for RSD success
Designated RSD – Required Vehicle Install Completion*	Nov 27	In Process	Yes	(44) Total installs required – (4) pilots plus (40) other vehicles - 55% completed thru September 18 th
Complete All Designated RSD Testing (Lab, Functional and FQT)	Dec 18	In Process	No	Lab in development, lab testing began in Aug, field testing to start Sept, PTC functional testing Nov
Start of Designated RSD*	Dec 18	Not Started	Not Started	Complete (44) installs and receive FRA approval to run in PTC mode in Designated RSD area

*Key project activity that is tied to Wabtec performance incentive payment

Major Wabtec activities started and / or completed in September :

- Production installations of I-ETMS onboard equipment on Caltrain locomotive and Caltrain cab cars ongoing, cars may be used in normal operations with PTC not engaged. (24) completed through September 18th.
- Key Personnel changes: Replacement Wabtec project manager and Test Manager in place. Caltrain management has maintained need for onsite Test manager to provide needed testing focus, new test manager is local to area and will be available at all times to support test needs.
- Senior management review held between Caltrain and Wabtec senior staff to discuss project progress. In September, Caltrain emphasized in strongest manner the lack of Wabtec system integration focus. Meetings will be held monthly through year end to ensure all Caltrain concerns are addressed promptly.
- Field Verification & Validation testing continues, Wabtec began the mandatory FRA brake testing for the two locomotive and two cab car vehicle types required, testing has been successful to date.
- Required lab testing began at the Wabtec Jacksonville facility after initial delays due to material and resource planning issues.
- Significantly large number of contract submittals have been submitted by Wabtec, reviewed and comments returned by Caltrain project team. A sampling of the submittals in September included:
 - o F40 and MP36 locomotive brake test plans
 - o Bombardier and Gallery car brake test plans
 - o Integrated Work plan
 - o RAM Analysis
 - o RSD Application
 - o Commissioning and Cutover plan
 - o DCS Base Station Audit report
 - o Bombardier car and MP36 locomotive installation plans
 - o Field V&V test results
 - o Static Bulliten Delivery report

2. **Change Order Log** – There have been no change orders requested from Wabtec during this reporting period, and there are none in process or review by CALTRAIN. This section will track all change activity on the contract.

3. **Risk Management** - Caltrain and Wabtec have agreed to share the management of an identified list of risk items which were identified during the contract negotiations. The total cost allocated to these risks is \$1.9M to be shared amongst both parties. Unrealized risks will result in cost savings to the Caltrain.

Risk review meetings are now held during the monthly Caltrain / Wabtec executive reviews. To date no risks have been identified requiring use of the risk funds. There are also risks to be monitored outside the Wabtec specific contract that the project team monitors and mitigates as necessary.

The following table captures the top risks both external (outside the Wabtec contract) and internal (specific to the Wabtec contract):

Risk Item	Type	Mitigation Action
Potential EMU delay due to move from I-ITCS to I-ETMS	External	Project team continues to support EMU team effort to bring Wabtec under contract to provide PTC solution required for EMU cars with minimal delay
FRA process changes	External	Maintain close and open relationship with key FRA contacts to ensure all submittals are done correctly and within required time frame to achieve 2018 RSD
FRA review cycle delays	External	Delays were being incurred due to significant volume of submittals from all properties requiring review and approval of RSD documentation prior to year end. Team working with FRA to minimize any delays incurred with Caltrain documentation and speed FRA review process (<i>see #4 FRA document status below</i>).
Interoperability delays	External	Caltrain is working with UPRR and tenants to ensure agreed to interoperability schedule dates are maintained
Onboard installation delays	Internal	Pilot installations are complete, production units in progress. Wabtec must ensure production installation schedule is maintained to achieve required 2018 installs to achieve RSD.
Track access delays	Internal	Ensure field test schedule is maintained by coordinating all field work in combination with other capital projects needs
Back Office Server (BOS) documentation scope creep	Internal	Ensure standard documentation supplied by Wabtec meets requirements of Caltrain specification criteria

4. Caltrain PTC Project FRA Documentation Status - green indicates Final is approved by FRA

Weekly calls with FRA review team instituted in August have continued through September. Continued progress occurred this month to gain FRA approval of key project documents required to enter RSD (see below), in particular receiving the formal written approval of the Test Request.

Document Name	Status – Through September 19th	Projected Submittal Date	Actual Submittal Date	Need FRA Approval By
Updated PTC Implementation Plan and Request for Amendment of the PTCIP	FRA processing formal approval response	Already submitted	6/22/2018 (final)	Informal approval received July 2018
Test Request	Formal approval received 9/10/18	Already submitted	6/22/2018 (final)	Informal approval received July 2018
Subdivision and Critical Asset Configuration Management Plan	Final approved by FRA - 8/13/2018	Already submitted	7/25/2018	Received September 2018
Critical Features Verification and Validation Procedure	Final approved by FRA - 8/16/2018	Already submitted	8/15/18	Received August 2018
Critical Features Verification and Validation Plan - Designated Track Section	Final approved by FRA - 8/16/2018	Already submitted	8/15/18	Received August 2018
Critical Features Verification and Validation Plan - Brake Test Area	Final approved by FRA - 8/16/2018	Already submitted	8/15/18	Received August 2018
Signal and Switch (WIU) Verification and Validation Procedure	Final approved by FRA - 8/16/2018	Already submitted	8/15/18	Received August 2018
Signal and Switch (WIU) Verification and Validation Plan - Designated Track Section	Final approved by FRA - 8/16/2018	Already submitted	8/15/18	Received August 2018
Static Bulletin Delivery Confirmation	Final approved by FRA - 8/16/2018	Already submitted	8/15/18	Received August 2018
Brake Test Plan - F40 locomotive	Final approved by FRA - 8/22/2018	Already submitted	8/21/2018	Received August 2018
Brake Test Plan - Gallery cab car	Final approved by FRA - 8/22/2018	Already submitted	8/21/2018	Received August 2018

Brake Test Plan - MP36 locomotive	Final approved by FRA 9/21/2018	Already submitted	9/20/18	Received September 2018
Brake Test Plan - Bombardier Cab Cars	Final approved by FRA 9/21/2018	Already submitted	9/20/18	Received September 2018
Field Integrated Test (FIT) Plan - Designated Track Section	Draft in internal review.	September 2018		October 2018
Field Qualification Test (FQT) Plan - Designated Track Area	Draft in internal review.	September 2018		October 2018
RSD Application	Draft has been reviewed by FRA	October 2018		December 2018
Test Results: Critical Features Verification and Validation - Designated Track Section	Submitted as information only	Already submitted	8/22/2018	No approval required
Test Results: Critical Features Verification and Validation - Brake Test Area	Submitted as information only	Already submitted	8/22/2018	No approval required
Test Results: Signal and Switch (WIU) Verification and Validation - Designated Track Section	Under development	September 2018		No Approval required
Substitute Criteria Strategy	Draft reviewed by FRA – review was positive	September 2018		November 2018

5. Caltrain Roadmap to RSD

- Caltrain is pursuing the following steps to first achieve FRA-approved Designated Revenue Service Demonstration (RSD), followed by full RSD status:
 1. Complete training of personnel required to support Designated RSD (training to start in October, targeting November completion).
 2. Complete installation of I-ETMS on vehicles required to support Designated RSD (in process, targeting early December completion).
 3. Complete field testing, including brake testing and lab integration testing, for the Designated RSD area (15 miles of track on Caltrain property).
 4. Submission of Designated RSD application for approval by FRA.
 5. Once Designated RSD is achieved, Caltrain will complete remaining vehicle installations, train remaining personnel, and finish testing the remainder of the Caltrain property in 2019 to achieve full RSD. Caltrain will also complete tenant testing on Caltrain property and interoperability requirements on UPRR property as well.

- To limit the risk of not completing the above steps, Caltrain is also pursuing an alternative FRA-approved path to achieve RSD:
 - o Submission for FRA approval of Caltrain-specific Substitute Criteria activities to be completed in 2018.
 - o Upon completion of Substitute Criteria activities, submission for FRA approval of Alternative Schedule to be followed to achieve RSD.
 - o Upon completion of Alternative Schedule, submission of RSD application for approval by FRA.
 - o Once RSD achieved, Caltrain will complete necessary steps to complete tenant testing on Caltrain property as well as interoperability requirements on UPRR property as well.

- To date, the FRA has been very receptive and supportive to both the Caltrain Designated RSD strategy as well as the Caltrain alternative path strategy.
 - o Caltrain will continue working toward achieving the Designated RSD approval in 2018 while preparing submissions as needed to pursue the alternative path should conditions warrant its use.

6. Cost – Spend vs budget – through August 31, 2018

	(A)	(B)	(C)	(D)	(E)	(F)=(C-E)	(G)=(D/E)
Project Cost Analysis	Original Budget (US\$MM)	Approved Changes (Contractor) (US\$MM)	Project Current Budget (US\$MM)	Expended and Accrual To- Date (US\$MM)	Estimated at Completion (EAC) (US\$MM)	Variance at Completion (US\$MM)	% Expended of EAC
CBOSS PTC Project (Jan 2008 - Feb 2018)	\$ 231.00		\$ 239.88	\$ 202.26	\$ 202.26		
Caltrain PTC Project (March 1st 2018 - June 2020):							
Integrator WABTEC Contract	\$ 43.01		\$ 43.01	\$ 5.54	\$ 43.01	\$ -	12.87%
Other Contractors	\$ 6.00		\$ 6.00	\$ 0.43	\$ 6.00	\$ -	7.21%
Potential Changes	\$ 2.00		\$ 2.00		\$ 2.00	\$ -	
Potential Incentive - WABTEC	\$ 2.00		\$ 2.00		\$ 2.00		
Other Program Costs	\$ 30.34		\$ 30.34	\$ 3.75	\$ 29.77	\$ 0.57	12.59%
Project Contingency	\$ 6.06		\$ 6.06		\$ 5.95	\$ 0.11	
Total PTC Project	\$ 89.41		\$ 89.41	\$ 9.72	\$ 88.73	\$ 0.68	10.95%

Note:

- 1). Expended and Annual to Date is through August 31, 2018;
- 2). Integrator Wabtec Contract Value includes Shared Risk with Not to Exceed Total of \$1.91MM;
- 3). Other Contractors amount includes ROCS Modification and potential fiber fixes;
- 4). Potential Changes amount is set for future project change orders as result of WABTEC assessment and survey for the communications and office subsystems;
- 5). Potential incentive amount reflects what is in the WABTEC conformed agreement;
- 6). Other Program Costs includes JPB project oversight costs, TASI support and Other Direct Cost for PTC project delivery;
- 7). Project contingency includes a) contingencies for WABTEC contract per Board Staff Report; b) JPB project team cost contingency;
- 8). CBOSS PTC project budget and actual cost are highlighted to reflect prior March 1st, 2018 CBOSS project financial data.

- Note – Caltrain continues effort to reduce previously identified \$30M funding gap. Award of \$18.7M CRISI grant (noted below) is used to reduce gap, Caltrain will reallocate funds from other resource avenues.

7. Items of note in September – This section reports on PTC general progress and issues being tracked outside the Wabtec contract during the current reporting month.

- 1) Received formal written conditional approval of Caltrain Test Request (submitted June 22) from FRA. Team incorporating conditions as needed into test plans.
- 2) Team drafted substitute criteria letter and reviewed with multiple levels of FRA representatives (both regional and national). Strong positive feedback received at all levels, team is preparing formal letter for submittal
- 3) Team continued FRA required brake testing on F40 and MP36 locomotives and Bombardier and Gallery cab car equipment, based on approval of test plans by FRA. Test plans submitted for review, comments received, test plans revised and re-submitted, FRA approval received. Testing will continue to completion on all vehicle types (4 total) through the fall.
- 4) Team initiated a project status review meeting with UPRR counterparts to discuss PTC implementation and related interoperability requirements for the Caltrain and UPRR properties. Meetings will continue as progress on both sides continues.
- 5) Team participated in MTA04 design meeting with regional partners and TTCI representatives to continue to ensure of Spectrum radio bandwidth needs are met for all participating railroads.
- 6) Team worked with ARINC to clarify modifications required for ROCS to support PTC implementation, including CCF and BCCF updates as required.
- 7) The PTC project continues its coordination efforts with the Electrification and EMU programs via regularly scheduled status meetings such as the Biweekly CalMod Systems Integration, the PCEP Delivery Coordination and the PTC-PCEP coordination meetings. Ad hoc meetings to discuss topics requiring in-depth or immediate decisions are held as needed. Data sharing of fiber audit results and testing schedules (sharing of track and time) ongoing to insure both teams coordinate needs.

- 8) Caltrain configuration management (CM) manager continues full integration into project team to ensure all Caltrain CM requirements are maintained during project execution and transition to daily operations upon project completion.
- 9) Caltrain Go Live team reinstated to ensure smooth transition of PTC operations and maintenance upon project completion. These efforts include manloading planning for both Caltrain and TASI operations and maintenance, as well as coordination of Master Service Agreements (MAS) negotiations with key suppliers required to support PTC long term service needs.

8. Upcoming Key Activities in October -

- 1) Begin Critical Feature Validation and Verification (V&V) field testing of non-designated RSD track, once all Designated RSD section testing is completed as necessary for FRA approval.
- 2) Continue meeting with UPRR PTC counterparts to strengthen relationship needed to successfully implement interoperability on both properties. Caltrain requires UPRR continued support to receive FRA 2019 extension, no issues foreseen at this time.
- 3) Continue brake testing on Caltrain locomotives and cab cars as required by FRA to complete prior to entering RSD.
- 4) Continue production onboard installations on Caltrain fleet – Continue production effort to complete onboard PTC product installation on (40) production vehicles that have been chosen for the (44) total vehicles to be installed and tested to complete the RSD requirements for fleet installations.
- 5) Continue regular monthly review with Wabtec senior management to ensure the Wabtec project team maintains focus on completing all activities required to meet 2018 RSD requirements.
- 6) Continue V&V testing activities in designated RSD area to ensure all PTC equipment is in good working condition.
- 7) Continue to work closely with the FRA regional and national representatives to ensure all aspects of documentation and testing requirements are maintained and approvals (by FRA) granted.

9. Vehicle Installation

- Progress good, installation time reducing as experience increases, integrator needs to focus on remaining 2018 installs as gaining cars to retrofit will be harder as pool to complete is reduced. 44 vehicles require full installation of PTC equipment by December 2018 to achieve RSD goal.

I-ETMS On-Board Installation Progress (As of 9/24/18)			
Equipment	Completed	In Progress	Pending
F40PH-2CAT	10	1	5
MP36	1	0	5
Bombardier Cab	1	0	4
Gallery Cab	14	1	2
Total	26	2	16
%	59%	5%	36%