



Advanced Signal System (CBOSS PTC)

Updated Installation Work Plan

LPMG Meeting
September 25, 2014



Context

Caltrain Modernization Program

- Projects
 - ➔ Advanced Signal System (2015)
 - Corridor Electrification and Electric Multiple Units (2019)



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Project Description

- Communications Based Overlay Signal System (CBOSS) Positive Train Control (PTC)
- Fiber Optic Network
- Project Requirements
 - Includes federal mandate (PTC)
 - Improves Caltrain performance
- Project Partners
 - FRA, UP, CHSRA, JPB
- Needed for Blended System

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CBOSS PTC Requirements

- PTC
 - Prevent train to train collisions
 - Prevent over speed derailments
 - Prevent incursions into established work zones
 - Prevent movement through a misaligned switch
 - Interoperability
- CBOSS
 - Enhanced crossing safety / performance
 - Improved headways and operational flexibility
 - Enforcement of scheduled station stops
 - Schedule management
 - Employee In Charge

Project Total Cost and Milestones

Description	Cost (in millions)	Milestones
Project Planning and Procurement	\$5	2010 - 2011
Phase 1 - Critical Design	\$25	2012 – 2013
Phase 2 - Final Design, Data Communications Subsystem & Fiber Backbone Installation	\$51	2013 – 2014
Phase 3 /4 - Installation, Testing, Commissioning	\$150	2014 – 2016 (Revenue service Oct. 2015)
Total	\$231	



Installation Work Update



Progression: South to North

PHASE I (S. MP26)

Segment 3

SJ
Santa Clara (S of Lafayette St)

Segment 2

Santa Clara (N of Lafayette St)
Sunnyvale
Mountain View
Palo Alto
Menlo Park
Atherton
Redwood City (S Dumbarton Spur)

PHASE II (N. MP26)

Segment 2

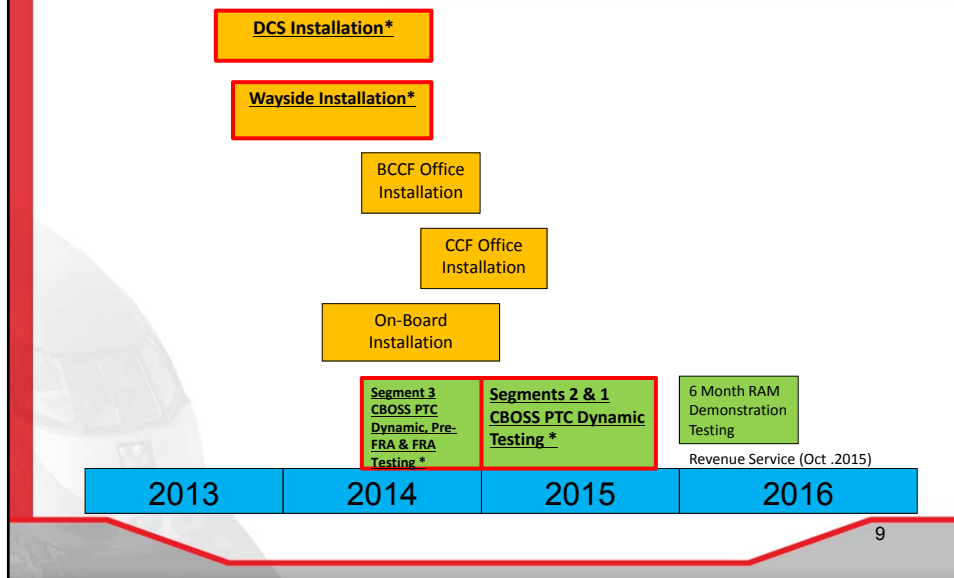
Redwood City (N Dumbarton Spur)
SMC
San Carlos
Belmont
San Mateo
San Bruno
SSF (S of Oyster Point)

Segment 1

SSF (N of Oyster Point)
Brisbane
SF



Milestones (Entire Corridor)



Installation Work Update

- DCS Installation
 - Potholing, boring, conduit, fiber, base stations
 - Segment 3 / 2 (S. MP26): 100% complete
 - Currently working in San Carlos, Belmont, San Mateo
- Wayside Installation
 - Modules installed at key system points
 - Associated gate activity
 - Segment 3 / 2 (S. MP26): 100% complete
 - Currently working in a variety of locations with wayside equipment

Installation Work Continued

- BCCF and CCF Installation
 - Modify space and install equipment
 - BCCF fit out 100% complete, installing servers
- On-board Equipment Installation
 - 6 of 8 pilot vehicle installations complete
 - #7 in progress

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Testing (Pilot) Segment 3

- Dynamic Pre-FRA Testing
 - Scheduled to begin January 2015
 - Ongoing verification / validation track database
- FRA Testing
 - Expected first quarter 2015

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Installation Pictures 1



Potholing



Installing Conduit

Installation Pictures 2



Preparing to install fiber



End of work ground verification test

Installation Pictures 3



Fiber Slicing



Confirming no dust or dirt on the fiber

Installation Pictures 4



Onboard Equipment



Simulator for training



Challenges

- Construction on an active railroad !

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Outreach

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Outreach To Date

- Activities
 - CSCG (5 meetings)
 - LPMG (4 meetings, next 9/25/14)
 - One-on-one (each of the 17 cities/3 counties)
 - Community Groups, as requested (8 meetings)
- Communication tailored to location
 - Direct mailers (28), flyers stations
 - Website, social media, email, phone
 - City/County Staff coordination

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Complaints 12+ months

- First six months
 - 5 people (noise, foliage disturbed, mud on street)
 - questions about the project
- Next six months
 - none
 - questions about the project

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Next Steps

- Activities
 - Community Groups Meetings (as requested)
- Communication
 - Direct mailer residents
 - Website, social media, email, phone
 - Separate installation and testing notices
- City/County Staff coordination

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Questions

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