



Advanced Signal System (CBOSS PTC)

Noise / Light Update

LPMG
September 26, 2013



CBOSS PTC - What is it?

- Communications Based Overlay Signal System Positive Train Control
- Project Requirements
 - Includes federal mandate (PTC)
 - Improves Caltrain performance
- Project Partners
 - Federal Railroad Administration (FRA)
 - Union Pacific (UP)
 - California High Speed Rail Authority (CHSRA)
- Needed for Blended System

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
- Caltrain
 - Enhanced crossing safety / performance
 - Improved headways and operational flexibility
 - Enforcement of scheduled station stops
 - Schedule management
 - Employee In Charge

Project Cost & Milestones

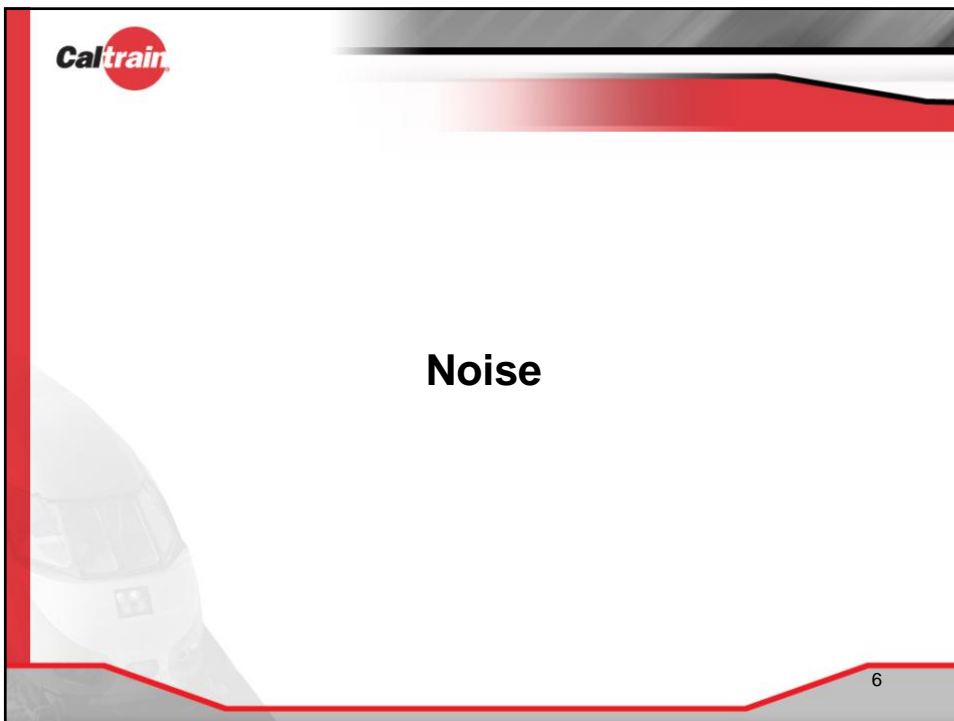
Description	Cost (in millions)	Milestones
Project Planning and Procurement	\$5	2010 - 2011
Phase 1 - Critical Design	\$25	2012 - 2013
Phase 2 - Final Design, Data Communications Subsystem & Fiber Backbone Installation	\$51	2013 - 2014
Phase 3/4 - Installation, Testing, Commissioning	\$150	2014 - 2016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



Segments – South to North



Noise



Noise Examples

- Whisper (30 dB)
- Conversational speech (60 dB)
- **Noisy restaurant (75 dB)**
- **Freeway traffic (90 dB)**
- Chain saw (120 dB)
- Jet plane (148 dB)

Note: The human ear does not judge sound in absolute terms, but instead senses the intensity of how many times greater one sound is to another. A decibel is the basic unit of sound level.

Installation Equipment (76- 88 dB)



Trench w/ mini excavator



Potholing - vacuum-excavation/compressor



Boring Power Unit



Concrete Pump



Note: Back up alarms required by law.

Monitor / Measure / Mitigate

- Measure noise during work windows
 - At site location
 - Edge of right-of-way
 - Next to neighborhoods
- 16 working days thus far
 - Several nights by residential buildings
 - No complaints (to date)
- Mitigate as needed / appropriate

Light

Light Examples

- Provides safe environment for workers
- Federal / State lighting requirements
- Lux examples
 - Direct sunlight ranges: ~32,000 to 100,000
 - TV studio lighting: ~ 1,000
 - **A bright office: ~ 320 to 500**
 - Building corridors: ~100
 - Full Moon night: ~1

Note: Lux is a standardized unit of measurement of the light intensity

Installation Light Equipment



Light reading from field:

Lux: 350-450 at site; 196-228 25' away

Note: Lights required by state and federal law. Light generator noise 73dB.

Monitor / Measure / Mitigate

- Ensure equipment functioning properly
- Measure lux with a light meter
- Position equipment
 - Towards work area
 - Away from roadways, residents, and businesses
- Mitigate as needed / appropriate

Outreach



Project Contact Info

- Dedicated Project Line: (650) 508-6499
- Email: caltrainptc@samtrans.com
- Website: www.caltrain.com/CBOSSPTC
 - Fact sheets, presentations, notices
 - Subscription for installation updates
- Social Media: @caltrain_news
 - Installation updates

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Information Sharing

- Caltrain website
- Project hotline line and project e-mail
- Social media
- CBOSS PTC subscription notification list
- Caltrain construction e-notice
- CalMod e-newsletter
- Direct mailers prior to installation
- Local jurisdiction website (if requested)

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Stakeholder Outreach

- City/County Staff Coordination Group (4 meetings)
- Local Policy Maker Group (3 meetings)
- One-on-One Meetings (17 cities / 3 counties)
 - Fact sheets
 - Tentative schedules
 - Tailored outreach
 - Communication material review
- Community Meetings (as requested)
 - San Bruno, Palo Alto, Atherton
 - RWC Chamber, Menlo Park Chamber
 - PFRUG
 - North Fair Oaks Community Council

Public Fact Sheets

- General Project Information
- FAQ
- Fiber and DCS Installation
- Noise and Light Equipment





Tentative Schedule

City of Atherton Installation Fact Sheet
For Communications Based Overlay Signal System (CBOSS)
Positive Train Control (PTC)

Sequence of Events
CBOSS PTC final design and approval by the Peninsula Corridor Joint Powers Board (JPB) is expected by early fall 2013. In addition, the approval of the installation plan, schedule, and site specific work plans are required prior to commencement of the State Communications System (SCS) installation work. Caltrain expects the DCS installation to begin September 2013 and continue through June 2014, although work will not be continuous at all locations.

Prior to beginning DCS installation, and throughout the project, the Caltrain CBOSS PTC project team and installation contractor will work closely with local jurisdictions and utilities to acquire all necessary permits, develop traffic control plans, and inform surrounding communities and neighborhoods as needed. Where feasible, existing JPB conduit at grade crossings will be used to reduce the number of permits and traffic impact.

The remaining CBOSS PTC substations (see table on board and official installation will commence in late 2013 through 2014. The sequence of installation is the same as DCS installation, which will begin near the Hansen Station in San Jose and will proceed north, terminating at the 4th and King/Station in San Francisco. Caltrain must test the advanced signal system in order to receive safety certification prior to placing PTC into service. A series of substation and system integration testing are required to assure the system is functioning properly. Caltrain will operate extra trains to test the system and per Federal Railroad Administration regulations, engineers will be required to sound the train horns as they approach the crossings.

Anticipated DCS Installation Schedule for the City of Atherton (Mile Post 28.07 to Mile Post 27.57)

Fiber Activity	Location	Timeline	Commence Dates 2013-14
Trench & Bore	Atherton	1 Week	Mid-November 2013
Install Conduit & Inner-Bundle	Atherton	1 Week	Late January 2014
Install Fiber Cable	Atherton	1 Week	Late February 2014
Test Cable	Atherton	2 Week	Early April 2014

Possible Permits	Locations
Encroachment	1. Atherton Park Station 2. Watkins Ave

For more information: Visit www.caltrain.com/CBOSS/PTC, Email caltrain@caltrain.com, or Call (800) 548-6488



Next Steps

- Continue outreach
- Respond to inquiries
- Permits
- Installation coordination

Discussion