Advanced Signal System (CBOSS PTC)

Noise / Light Update

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

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost (in millions)</th>
<th>Milestones</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Planning and Procurement</td>
<td>$5</td>
<td>2010 - 2011</td>
</tr>
<tr>
<td>Phase 1 - Critical Design</td>
<td>$25</td>
<td>2012 – 2013</td>
</tr>
<tr>
<td><strong>Phase 2 - Final Design, Data Communications Subsystem &amp; Fiber Backbone Installation</strong></td>
<td><strong>$51</strong></td>
<td><strong>2013 – 2014</strong></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$231</strong></td>
<td></td>
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</tbody>
</table>
Segments – South to North

Segment 1 (SSF – SF) 8 Miles

Segment 2 (Santa Clara - SSF) 36 Miles

Segment 3 (San Jose - Santa Clara) 8 Miles

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
San Mateo County
San Carlos
Belmont
San Mateo
San Bruno
SSF (S of Oyster Point)

Segment 1
SSF (N of Oyster Point)
Brisbane
SF

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-excitation/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

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)
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

Next Steps

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