

Advanced Signal System

NOISE & LIGHT IMPACTS | November 2015



WHAT IS CBOSS PTC?

The Communications Based Overlay Signal System (CBOSS) Positive Train Control (PTC) is an advanced signal system project that will monitor and control train movements, providing significant safety improvements, increased reliability and operating performance, and improved capacity and service. The project also fulfills a federal mandate that requires implementation of a Positive Train Control (PTC) system on all commuter



corridors by 2016. PTC is intended to prevent train-to-train collisions, over speed derailments, and movement into established work zones or through a misaligned switch.

CBOSS PTC installation began in fall 2013 and is moving north from San Jose to San Francisco. Work includes the installation of a Data Communications System, consisting of conduit, fiber optic cable, and 10 radio base stations. Installation is anticipated to be complete in 2016.

CBOSS PTC is a key element of the Caltrain Modernization Program, which includes electrification of the corridor and replacement of the system's diesel trains with high-performance electric trains.

IMPLEMENTATION

Caltrain is also installing up to 52 miles of conduit and fiber optic cable within the Caltrain corridor from San Jose's Tamien Station to San Francisco's 4th and King Station. The work begins with boring and trenching (where needed) with a second crew laying conduit and inner ducts to house the fiber optic cable. A third crew installs and tests the fiber optic cable, and cleans up the area.

Caltrain is also installing 10 radio base stations within the right-of-way, which are primarily located near Caltrain stations. Field activities include: preparing the site, laying foundation, assembling the radio pole, connecting the cable, securing the station shelter, connecting power, and testing. View the Data Communications System Installation fact sheet for more information about installation activities [hyperlink to fact sheet once posted].

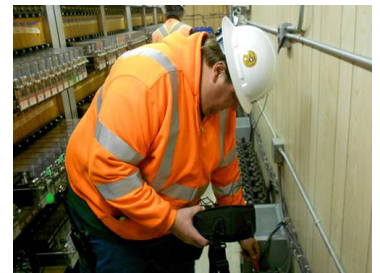
In order to maintain daytime train service, Caltrain performs most of the installation work during off-peak hours (between 8:00 p.m. and 6:00 a.m.). Installation field activities are broken into one- to two-mile segments, with several crews working simultaneously in different segments.



Trench (42" deep x 9.5" wide)



Installing Cable



Ground Verification Test

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NOISE

During installation activities, crews regularly monitor the noise from equipment being used in the right-of-way. Typical equipment noise levels range from 76 to 88 decibels, or the approximate sound of a vacuum cleaner.

The installation team is coordinating with cities along the corridor about anticipated noise impacts and will continue to work as quietly as possible.

Noise Example	Standard Decibel Level
Whisper	30 decibels
Conversational speech	60 decibels
Noisy restaurant*	75 decibels
Freeway traffic*	90 decibels
Chainsaw	120 decibels
Jet plane	148 decibels

* Approximate noise level of CBOSS PTC installation work.

LIGHT

Caltrain crews are required by the Occupational Safety & Health Administration (OSHA) to use lighting equipment to provide a safe work environment during night work. Crews are required to ensure that all lights are positioned to point only at the installation area, and away from roadways, residential, and business areas. Lumen readings are also taken using a light meter throughout the work window.

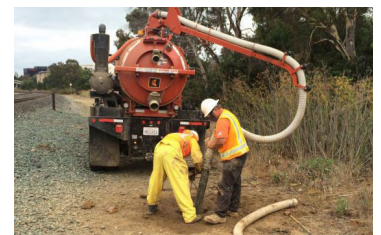
The installation team is coordinating with cities along the corridor about anticipated light impacts and will continue to direct light only on the work area in the Caltrain right-of-way.

Light Example	Standard Lumen Reading
Full moon light	~ 1 lux
Building corridors	~ 100 lux
A bright office*	~ 320 – 500 lux
TV studio lighting	~ 1,000 lux
Direct sunlight	~ 32,000 – 100,000 lux

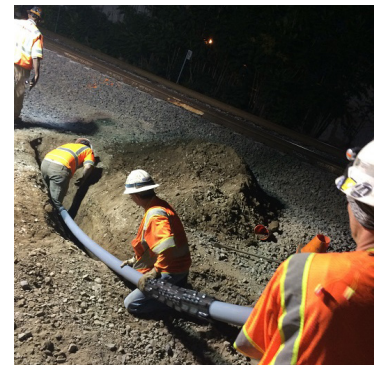
* Approximate light impact of CBOSS PTC installation work.



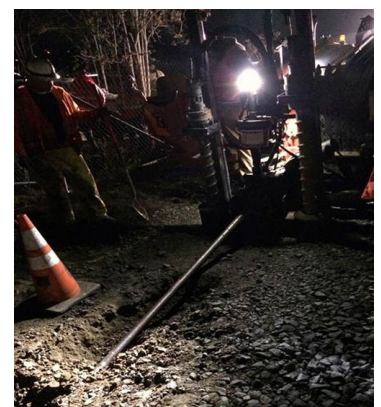
Mini Excavator



Compressor for Potholing



Example of Lighting Level During Night Work



Example Lighting Level During Night Time Conduit Installation

FOR MORE INFORMATION / PARA MÁS INFORMACIÓN

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