

Positive Train Control (PTC) Fact Sheet



What is PTC?

PTC is technology that can prevent train-to-train collisions, derailments due to excessive speeds, and casualties or injuries to roadway workers. Federal legislation passed in 2008 mandates that PTC systems 1) prevent train-to-train collisions, 2) prevent over-speed derailments by enforcing speed limits, 3) prevent unauthorized incursions by trains into established work zones, and 4) prevent movement of a train through a switch left in the wrong position. Moreover, legislation requires that PTC systems are interoperable with all railroad operators on each corridor.

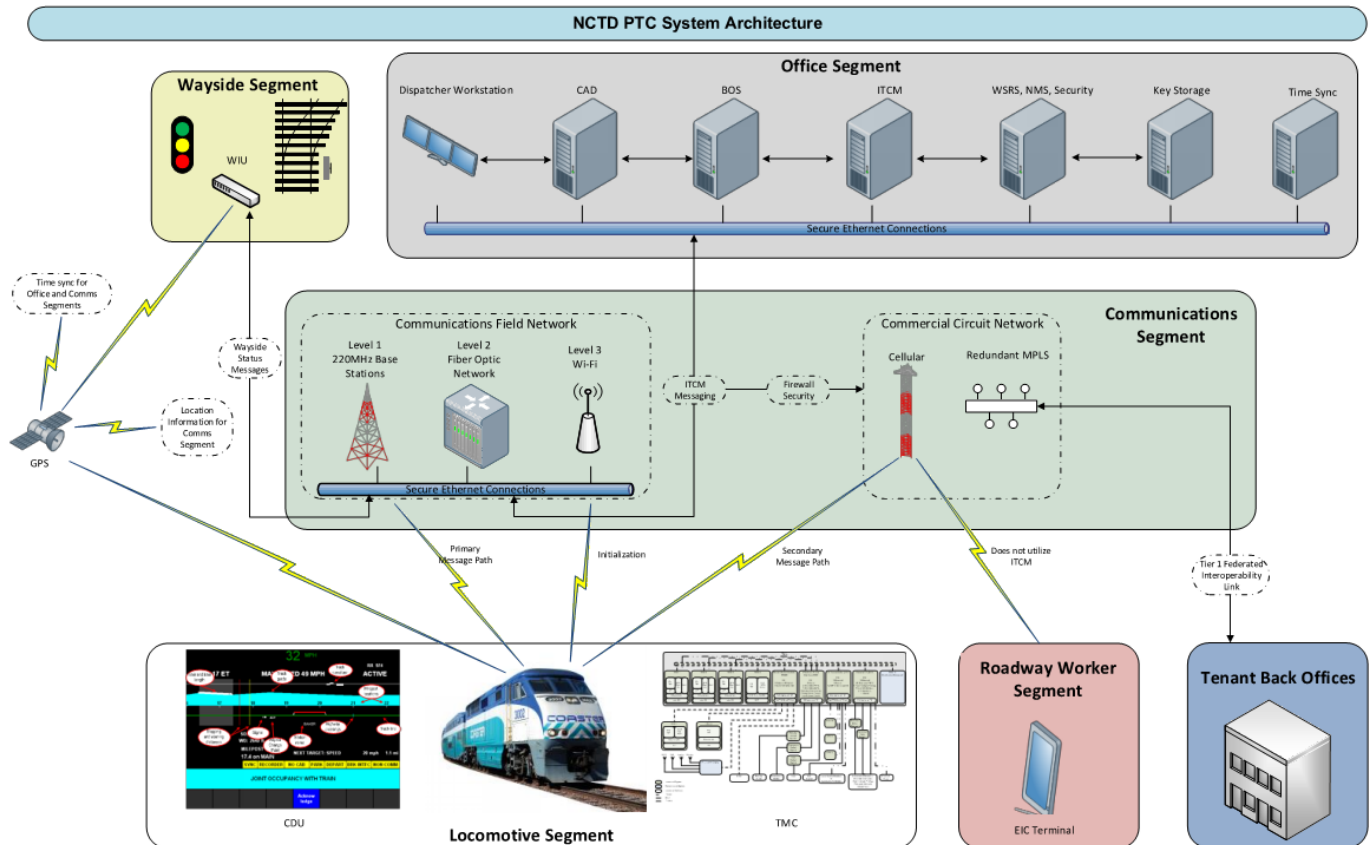
Has NCTD implemented PTC? If so, where?

NCTD has achieved full implementation of the federally-mandated Positive Train Control (PTC) safety system for 58.5 miles of track it controls within the San Diego County portion of the Los Angeles-San Diego-San Luis Obispo Rail Corridor (LOSSAN).

What was the PTC implementation timeline for NCTD?

On September 21, 2018, the Federal Railroad Administration (FRA) provided conditional approval of NCTD's PTC Safety Plan and conditionally certified the PTC system. At that time, NCTD was one of only ten railroads in the nation to receive this conditional approval. The Safety Plan demonstrated to the FRA that NCTD's PTC system met federal requirements and worked as designed.

FRA's conditional approval of this Safety Plan and PTC system enabled NCTD to begin interoperability testing with Metrolink, Amtrak, BNSF, and Pacific Sun Railroad to validate successful integration with NCTD's system. Metrolink successfully completed testing and began Interoperable Revenue Service Operation (RSO) on October 31, 2018, followed by Amtrak which began RSO on November 7, 2018. BNSF Railway completed testing and started RSO on December 5, 2018, followed by Pacific Sun Railroad which completed testing and commenced RSO on December 27, 2018.



PTC Timeline

2011

August 2011

Positive Train Control (PTC) project begins with the selection of the vendor, Herzog Technologies, Inc. Fiber optic network is installed along the entire San Diego subdivision.

2017

July 5, 2017

PTC system moved to Revenue Service Demonstration (RSD) — live testing of the system — on active trains.

September 5, 2017

Safety Plan is submitted to the FRA and NCTD receives Conditional Certification of the PTC system which also includes conditional approval of the Safety Plan.

December 1, 2017

RSD is complete.

2018

September 22, 2018

NCTD enters PTC Revenue Service Operations.

October 31, 2018

Interoperable Revenue Service begins with Metrolink.

November 7, 2018

Amtrak begins PTC Revenue Service Operations on the San Diego subdivision.

December 5, 2018

BNSF begins PTC Revenue Service Operations.

December 27, 2018

Pacific Sun begins PTC Revenue Service Operations and NCTD sends full implementation letter to the FRA.

December 31, 2018

FRA acknowledges receipt of NCTD's letter for full implementation of the PTC.

On December 27, 2018, NCTD notified the FRA it had achieved full implementation of PTC based on its completion of testing to demonstrate interoperability between NCTD's PTC system and all passenger and freight trains operating within the San Diego portion of the LOSSAN rail corridor. As of December 31, 2018, all trains operating on the NCTD San Diego subdivision are operating with PTC protection.

NCTD is one of only four railroads in the country to fully implement PTC without needing a deadline extension beyond 2018.

How does PTC work?

PTC uses digital communications systems, global positioning system (GPS) technology, and on-board computers with track databases to continuously monitor train location and speed. PTC is integrated with railroad dispatching systems to manage train traffic. Unlike reactive systems such as the automatic train stop system currently in place on the LOSSAN corridor, PTC is a proactive system of signal enforcement that stops a train before a potential collision or accident occurs.

Components of NCTD's PTC System

NCTD's PTC system (pictured on previous page) contains the following components:

Back office server (BOS): The BOS system is the storehouse for the speed restriction, track geometry, and wayside signaling configuration databases.

Onboard system: The onboard system displays train operations information and is a combination of software and hardware that monitors and controls train movement if the engineer fails to respond appropriately in the operation of the train. The database information contained in the BOS is used to calculate the safe braking distance, which is the minimum braking distance needed ahead of target stopping locations.

Wayside signal system: The existing wayside signal system houses the signal equipment, which is tied into the dispatching system and switches that activate the red, green, and yellow signals the engineer uses in the operation of the train. Wayside interface units (WIUs), PTC radios, and global positioning system (GPS) antennas must be installed along with hardware and software integrating the wayside signal system with the PTC System. The WIUs and PTC radios allow the wayside signal system to communicate with the BOS and onboard systems, which allows PTC to stop the train in the event of human error.

Communication network component: The communication network component is a redundant system consisting of base station radios, a fiber optic network, and a wireless communication network to connect components such as the locomotive and cab car, back office server and base stations, and wayside interface unit.

Computer-aided dispatching (CAD) system: The CAD system interacts with the PTC BOS system to enforce a train's authorization to occupy designated segments of track. Employees responsible for the protection and safety of workers performing work on or near the tracks have the ability to remotely communicate with the CAD system and the train engineer, via the train's onboard system, to notify the train engineer of approaching work zones.

Description	Total Funding
Federal Section 5307 Formula Funds	\$7,658,502
FRA	\$24,900,000
Prop 1A - Discretionary	\$24,010,000
Prop 1A - Formula	\$17,833,000
Prop 1B - PTMISEA	\$1,302,585
Prop 1B - TSGP	\$5,757,164
Other State / Local Funding	\$3,641,402
TDA Article 4.0	\$1,190,316
TransNet Major Corridor	\$1,000,000
Total	\$87,292,969

Additional Information

For additional information on NCTD's PTC implementation, please email media@nctd.org.

7/2/2019