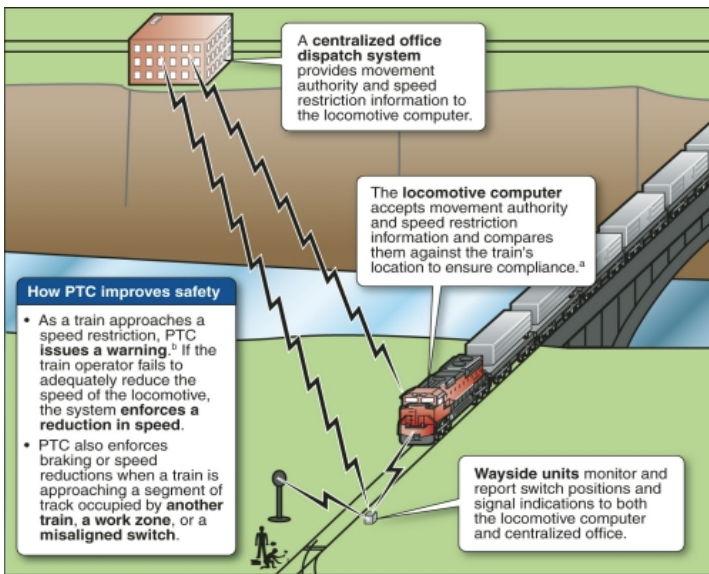


# Positive Train Control

## POSITIVE TRAIN CONTROL

Positive Train Control (PTC) is a computerized system that prevents certain types of train-to-train collisions, helps avoid derailments and other accidents caused by excessive speed and increases safety for railroad workers. The system integrates GPS, wayside sensors and communications units with Metra’s centralized office dispatching system. Together, these components track trains, convey operating instructions and monitor the crew’s compliance. PTC will automatically stop a train if the system detects that a violation or equipment failure is about to occur.



## IMPLEMENTATION TIMELINE

The 2008 Rail Safety Improvement Act required implementation of PTC by the end of 2015 on all passenger rail routes and on freight lines carrying certain hazardous materials. In the fall of 2015, new legislation was passed that extended the deadline for installation of PTC to 2018 but also allowed up to two additional years to finalize implementation and testing of PTC provided the railroads file an alternative schedule and meet specific benchmarks.

In January 2016, Metra filed an alternative schedule for implementing PTC by 2020, although we have previously committed to implementation in 2019.

## KEY MILESTONES

By the end of 2018, to meet the benchmarks required for an alternative schedule, Metra will have:

- Installed all PTC equipment
- Acquired all necessary radio spectrum
- Trained all necessary personnel
- Initiated revenue service PTC demonstration on one line.

## PTC AND FUNDING

Nationally, the cost to carry out the PTC mandate is estimated to exceed \$10 billion, including \$3.48 billion for commuter railroads. PTC implementation is expected to cost Metra between \$350 million and \$400 million.

To date, Metra has spent \$95 million in capital funding on PTC and has \$282 million under contract. Metra is counting on additional state and federal funds to provide the remaining funding needed to complete PTC. In addition, the FAST Act authorizes \$199 million in fiscal year 2017 to assist in financing the installation of PTC. Metra plans to apply for a portion of this grant funding.

## IMPLEMENTATION PLAN

Metra is responsible for installing PTC on all trains and along the five lines it controls – Metra Electric, Milwaukee North, Milwaukee West, Rock Island and SouthWest Service.

PTC components are being installed on 154 Metra locomotives and switch engines, 187 cab cars used on our diesel lines and 26 Highliner cars used on the Metra Electric. The 160 new Highliners that were recently delivered to Metra are already PTC-compliant. Wayside towers are being installed at 219 locations to

## Positive Train Control

communicate with Metra rolling stock and with Metra’s centralized office dispatching system.

For the six other Metra lines owned by private railroads – BNSF, Union Pacific and CN – Metra is contributing a share of PTC installation costs.

Below is our anticipated schedule for PTC installation.

<u>Line</u>	<u>Testing</u>	<u>Installed</u>
BNSF	Late 2016	2017
UP lines	Late 2017	2018
Rock Island	2Q 2016	3Q 2018
Metra Electric	3Q 2016	1Q 2019
SouthWest Service	1Q 2017	2Q 2019
Milwaukee W	3Q 2017	4Q 2019
Milwaukee N	1Q 2018	4Q 2019
Heritage Corridor*		2020
North Central Service*		2020

\*Schedule dependent on CN

could not be purchased and certain components have only recently become available.

- Bandwidth availability: To support PTC-related transmissions, railroads must secure sufficient radio spectrum bandwidth from existing license holders.

One PTC is installed, our system will be in full compliance with the federal mandate and feature the latest, state-of-the-art technology to ensure the safety of our passengers.

### KEY CHALLENGES

The efforts of Metra and other railroads working to implement PTC have been affected by a number of challenges, including:

- Expense: PTC implementation is expected to cost Metra \$350 million to \$400 million, equal to the amount of federal funding Metra receives every 2½ years. And, PTC is expected to add \$15 million to \$20 million a year to Metra’s operating costs.
- Interoperability: PTC systems adopted by various railroads must be able to communicate with each other so that trains can move seamlessly between tracks controlled by different systems. Achieving PTC interoperability in Chicago will be especially complicated, since the region has the most complex railroad network in the country.
- Technology availability: PTC technology had to be developed, so off-the-shelf systems