Positive Train Control Benefits


- An approved PTC System must prevent the following:
  - Train-to-train collisions.
  - Over-speed derailments.
  - Injuries to workers as the result of unauthorized incursions by train into a work zone.
  - Movement of a train through an improperly aligned switch
PTC System Design

ACSES II major subsystems:
- On-Board (Rolling Stock)
- Wayside (Interlocking and Right of Way Infrastructure)
- Back Office (Temporary Speed Restriction Servers and Central Office Equipment)
- Communications (Ground Based, Land Mobile Data Radio and Wireless Networks)
- Roadway Worker Protection System (RWPS)
What PTC Does

- **Protection Against Passing a Stop Signal**
  - Enforce 45 mph
  - Enforce 30 mph
  - Enforce 30 to 15 mph
  - Enforce 15 mph

- **Protection Against Train-to-Train Collision**
  - Enforce 45 mph
  - Enforce 30 mph
  - Enforce 30 to 15 mph
  - Enforce 15 mph

- **Protection Against Over-Speed Derailments**
  - PTC Protects against overspeed on curves and other civil restrictions.

- **Roadway Protection**
  - Enforces 15 mph to STOP

- **Interlocking**
  - Cab Signal Protects movement of train through an improperly aligned switch

- **Roadway Worker**
  - PTC Protects against unauthorized incursions by a train into a work zone
What Signaling Systems Do LIRR/MNR Have Today?

• Railroads primarily rely on Automatic Speed Control (ASC) with CAB signaling
  – Monitors train speed
  – Maintains safe braking distance
  – Maintains train separation

• Exceptions:
  – MNR Waterbury Branch
  – LIRR segments

• Railroads’ ASC Improvements
  – Civil Speed Enforcement
Current MNR Cab Signal System

- Port Jervis
- Suffern
- Woodbine Yard
- Pearl River
- Yonkers Curve
- Croton-Harmon
- White Plains Curve
- North White Plains
- Spuyten Duyvil Curve
- Portchester Curve
- Mott Haven
- Grand Central
- Poughkeepsie
- Wassaic
- Brewster
- Danbury
- Bridgeport
- New Haven
- West of Hudson

- FRA EO-29 Curves and Bridges - Completed 2014
- FRA EO-29 Curves – Complete March 1, 2014
- FRA EO-29 Bridges - Complete Sept., 2014
- Cab Signal with Automatic Train Control
- Manual Block

- Woodlawn
- Norwalk
- Stamford
- New Canaan
- Cos Cob BR.
- Danbury
- Devon BR.
- Walk BR.
- Peck BR.
- Jenkins Curve
- Bridgeport
Current LIRR Signal System

Signal Territory

- **Automatic Speed Control** (234 rte mil / 361 trk mi)
- **Automatic Block Signal** (42 rte mi / 72 trk mi)
- **Controlled Manual Block** (7 rte mi and 7 trk mi)
- **Manual Block** 46 rte mi and 46 trk mi

*Installation of ASC Signal System between Speonk and Montauk is currently in process.*
PTC Implementation

- System Integration Contract with Joint Venture between Bombardier/Siemens.
- Schedule Risks.
- Pilot Testing including Roadway Worker Protection System.
RWPS

Safety Server Transmits Temporary Speed Restrictions to Trains

Cellular & WiFi

Temporary Speed Restriction Communication

Cellular & WiFi

EIC Device:
- Handheld
- Laptop
- Workstation

Can be Located:
- Hi Rail Truck
- Station

ACSES II Management and Communications Systems

Safety Server Transmits

Railroad Data Network

EIC Portable

Signal Location
Meeting Compliance Date of Dec. 2015

- Rail Industry Position
  - Demonstrate good faith efforts
  - Secretary of Transportation
    - Proposal on waivers
PTC Implementation Schedule and Acceleration

• Current Negotiations/Targeted Schedule Improvements
  – Metro-North
    • Enforce Civil and Maximum Authorized Speeds from New Haven to GCT by mid-2015.
    • Install PTC onboard kits on 336 M7s & 138 M3s 16 to 20 months earlier for Harlem and Hudson Lines by October 2017.
    • Complete installation of PTC on all wayside segments 12 months earlier – by July 2017.
  – LIRR
    • Complete Installation of PTC Wayside Kits in electric territory by 12 months earlier – July 2017.
    • Complete Installation of PTC On-Board Kits on 836 M-7 cars 16 months earlier by May 2017.
## MNR Targeted PTC Implementation

### West of Hudson
- Port Jervis
- Pascack Valley Line will be done by New Jersey Transit (NJT) and completed by June 2017. Port Jervis Line will be undertaken jointly (NJT to do rolling Stock Installation and completed by January 2018.
- Suffern
- Woodbine Yard
- Pearl River

### On Board
- **On Board**
  - Dec. 31, 2015: 129 (30 miles)
  - Dec. 31, 2016: 255 (122.3 miles)
  - Dec. 31, 2017: 443 (270.4 miles)
  - Dec. 31, 2018: 533 (270.4 miles)

### Wayside
- **Wayside**
  - Dec. 31, 2015
  - Dec. 31, 2016
  - Dec. 31, 2017
  - Dec. 31, 2018

### Key Dates
- **MNR Pilots Complete 3/27/2016**
- **Full Deployment of Wayside PTC**
- **Enforcement of Civil and Maximum Authorized Speed – Complete 6/15/2015**
- **Enforcement of Civil and Maximum Authorized Speed – Complete 4/1/2016**

### Stations
- Poughkeepsie
- Wassaic
- Croton-Harmon
- Tarrytown
- North White Plains
- Woodlawn
- Mott Haven
- Grand Central
- Port Chester
- Stamford
- Norwalk
- Danbury
- New Canaan
- Woodlawn
- Port Chester
- Bridgeport
- Waterbury
- New Haven
- Bridgeport
- Pascack Valley Line
- Suffern
- Woodbine Yard
- Pearl River

### Mileage
- **On Board**
  - Dec. 31, 2015: 129 miles
  - Dec. 31, 2016: 255 miles
  - Dec. 31, 2017: 443 miles
  - Dec. 31, 2018: 533 miles
LIRR PTC Targeted Implementation

Pilot 16 miles

Pilot 17 miles

MNR – LIRR Positive Train Control Status