OMB Control No. 2130-0553

Annual PTC Progress Report

2015

Metro-North Railroad

FRA-2010-0032

The Annual Positive Train Control (PTC) Progress Report is due by March 31st of each year until full PTC system implementation is complete. The Annual PTC Progress Report must cover the railroad's implementation efforts and progress from the directly previous calendar year, and must be submitted electronically to the Federal Railroad Administration (FRA) via the FRA Secure Information Repository at https://sir.fra.dot.gov.

FRA F 6180.166 (2-16)

OMB Approval Expires 9/30/2016
OMB Approval Granted 3/16/2016

Name of Railroad or Entity Subject to 49 U.S.C. § 20157(a): Metro-North Commuter Railroad

Railroad Code: MNCW

Annual PTC Implementation Progress Report for: 2015

PTCIP Version Number of File with FRA (basis for goals stated): Rev 6.0

Submission Date: 3/31/2016

Contents

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1. Summary

Narrative summary of overall PTC implementation progress during the preceding calendar year (January 1 to December 31):

Metro-North Railroad's (MNR) system consists of Cab Signaling with ATC and ACSES II. For 2015, MNR accomplished the following high level elements towards PTC compliance:

- Completed enforcement of critical curve civil speed restrictions using the railroad's cab signal/ATC system for those segments of the railroad equipped with cab signaling (includes all lines except the Waterbury Branch and Port Jervis Line). The cab signal/ATC segments therefore are currently meeting the PTC requirements for protection against overspeed derailment.
- Attained a RRIF loan to ensure funding for its PTC program.
- Filed necessary waivers with the FCC for use of the spectrum for PTC. MNR has been pursing spectrum for the 4 counties located in New York (Dutchess and Putnam) and Connecticut (Fairfield and New Haven) in which it does not have 220 MHz spectrum.
- Working in collaboration with the System Integrator consortium of Bombardier/Siemens (BT/SRA) progressed system engineering design to the Final Design phase for hardware implementation.
- MNR has had numerous technical meetings with Amtrak to resolve interoperability issues between the MNR ACSES II system and Amtrak's ACSES II system.
- MNR has advanced the implementation of cab signaling/ATC signaling on the Port Jervis line from Suffern, NY to Port Jervis, NY. The new signaling has been purchased and installed. The system is being tested and readied for commissioning.
- MNR implemented an Enhanced Employee Protection System (EEPS) that provides the Roadway Worker In-Charge of works the ability to control the track blocking protection of their work zone. This system provides redundant protection to the existing system of track blocking and the future ACSES enforcement of work zones with Temporary Speed Restrictions.
- The State of Connecticut committed to providing cab signaling on the Waterbury Branch. Signaling the Waterbury eliminates the need for the previously approved MTEA for the Waterbury Branch.
- MNR filed and received approval from the FCC for PTC radio antenna pole installations for pilot locations.

Category	Quantity Installed During Calendar Year	PTCIP Year End Goal (If Applicable)	Cumulative Quantity Installed at End of Calendar Year	Total Quantity Required for PTC Implementation
Locomotives Fully Equipped	0	0	0	563
Installation/Track Segments Completed	0	0	0	12

Category	Quantity Installed During Calendar Year	PTCIP Year End Goal (If Applicable)	Cumulative Quantity Installed at End of Calendar Year	Total Quantity Required for PTC Implementation
Radio Towers Fully Installed and Equipped	0	0	0	95
Employees Trained	0	0	0	2915
Route Miles In Testing or Revenue Service Demonstration	0	0	0	329.8
Route Miles in PTC Operation	0	0	0	329.8

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2. Update on Spectrum Acquisition

Spectrum Area or Location (E.g., county)	Spectrum Acquired and Available for Use (Owned/Leased) During Calendar Year	Cumulative Amount of Spectrum Acquired and Available for Use (Owned/Leased) at End of Calendar Year	PTCIP Year End Goal for Spectrum Acquired and Available for Use	Total Spectrum Required for PTC Implementation, as Reported in PTCIP
Spectrum Coverage Area or Location†:	Previously acquired spectrum available for use in New York, Bronx & Westchester Counties, NY	500kHz (to be shared with Long Island Rail Road)	100%	Spectrum still required for 4 counties in NY and CT: Dutchess & Putnam – NY Fairfield & New Haven - CT

Additional narrative for Spectrum Acquisition below:

MNR awaits FCC decision modifying the existing license to provide spectrum in the remaining four counties.

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3. Quantity Update on Hardware Installation

3.1. Locomotive Status

Category / Installation Feature	Quantity Installed During Calendar Year	PTCIP Year End Goal	Cumulative Quantity Installed at End of Calendar Year	Total Required for PTC Implementation, as Reported in PTCIP
Locomotive (Apparatus)[1]				
On-board Computers (e.g., Train Management Computer)	BL-14 locos 0 BL-20 Locos Eq'd P32AC Locos 8 M-8 EMU pairs Eq'd M-7a EMU pairs 0 M-3a EMU pairs 0 Cab Car 7 GP35 R 0 West of Hudson GP-40F/PH 0 F-40PH-2Cat 0 Cab Car 0	BL-14 locos 0 BL-20 Locos Eq'd P32AC Locos 0 M-8 EMU pairs Eq'd M-7a EMU pairs 0 M-3a EMU pairs 0 Cab Car 0 GP35 R 0 West of Hudson GP-40F/PH 0 F-40PH-2Cat 0 Cab Car 0	BL-14 locos 0 BL-20 Locos 12 P32AC Locos 8 M-8 EMU pairs 190 M-7a EMU pairs 0 M-3a EMU pairs 0 Cab Car 7 GP35 R 0 West of Hudson GP-40F/PH 0 F-40PH-2Cat 0 Cab Car 0	BL-14 locos 2 BL-20 Locos 12 P32AC Locos 31 M-8 EMU pairs 190 M-7a EMU pairs 168 M-3a EMU pairs 70 Cab Car 52 GP35 R 6 West of Hudson GP-40F/PH 7 F-40PH-2Cat 8 Cab Car 17
Software For Train Management and other applications	Base software available – all units. Required modifications & new functions not implemented	Not applicable	Base software available – all units. Required modifications & new functions not implemented	Same as Onboard computers
PTC Displays	Same as Onboard computers	Same as Onboard computers	Same as Onboard computers	Same as Onboard computers

[1] Railroads may elect to add categories or subcategories if more detail is desired.

Category / Installation Feature	Quantity Installed During Calendar Year	PTCIP Year End Goal	Cumulative Quantity Installed at End of Calendar Year	Total Required for PTC Implementation, as Reported in PTCIP
Locomotive (Apparatus)[1]				
Event Recorders	Same as Onboard computers	Same as Onboard computers	Same as Onboard computers	Same as Onboard computer
Onboard Antennas and/or Transponder Readers	Antennas - 0 Transponder scanner – same as onboard	Antennas - 0 Transponder scanner – same as onboard	Antennas - 0 Transponder scanner – same as onboard	Same as Onboard computer
GPS Receivers	Not required	Not required	Not required	Not required
Locomotive Radios – Primary Communications (e.g., 220 MHz radios)	none	none	None	Same as Onboard computers
Secondary Communications (e.g., cell or Wi-Fi communications) Equipment	None	None	None	Same as Onboard

Additional narrative for Locomotive Status below.

Although many of MNR's rolling stock has base ACSES II equipment, none yet have operational RF communications systems referred to as the Mobile Communications Package, including primary and secondary radios, transceivers, and antennas, Mobile Communications Manager, and interconnection with the ACSES II Onboard Computer.

3.2. Infrastructure/Back Office Status

Category / Installation Feature	Completed During Calendar Year	PTCIP Year End Goal	Cumulative Quantity Complete at End of Calendar Year	Total Required for PTC Implementation, as Reported in PTCIP
Infrastructure (Back Office)				
Dispatching Locations (installations complete)	None	None	None	2
Physical Back Office System Equipment (installations complete)	None	None	None	2

Are the Back Office Location(s) fully operable?	No
Are the Dispatching Location(s) fully operable?	No

Additional narrative for Infrastructure/Back Office Status below:

Site surveys were completed and preparation of the Primary and Backup control centers for receipt of ACSES II Office equipment progressed.

3.3. Installation/Territory Status

Category / Installation Feature	Quantity Installed During Calendar Year	PTCIP Year End Goal	Cumulative Quantity Installed at End of Calendar Year	Total Required for PTC Implementation, as Reported in PTCIP
Infrastructure – Wayside Installations by Territory (i.e., Subdivision, District, Track Segment, Etc.)[2]				
Identification of the Territory (i.e., Subdivision, District, Track Segment, Etc.)†: New Haven Line Pilot 1				
Wayside Interface Units†	1	0	1	10
Communication Towers or Poles†	6	0	6	10
Base Station Radios†	0	0	0	10
Are all necessary communication backbone utilities for this track segment (including fiber, copper, ground wiring etc.) installed and ready for operation?† No				
Identification of the Territory (i.e., Subdivision, District, Track Segment, Etc.)†: Hudson Line Pilot 2				
Wayside Interface Units†	0	0	0	3
Communication Towers or Poles†	0	0	0	3
Base Station Radios†	0	0	0	3
Are all necessary communication backbone utilities for this track segment (including fiber, copper, ground wiring etc.) installed and ready for operation?† No				

[2] Each railroad should report information in a manner consistent with its PTCIP. That is, if a railroad monitors implementation of track segments by territory or subdivision, it should report that way.

Identification of the Territory (i.e., Subdivision, District, Track Segment, Etc.)†: New Haven Line - East				
Wayside Interface Units†	0	0	0	6
Communication Towers or Poles†	0	0	0	6
Base Station Radios†	0	0	0	6
Are all necessary communication backbone utilities for this track segment (including fiber, copper, ground wiring etc.) installed and ready for operation?† No				
Identification of the Territory (i.e., Subdivision, District, Track Segment, Etc.)†: Danbury Branch				
Wayside Interface Units†	0	0	0	10
Communication Towers or Poles†	0	0	0	10
Base Station Radios†	0	0	0	10
Are all necessary communication backbone utilities for this track segment (including fiber, copper, ground wiring etc.) installed and ready for operation?† No				
Identification of the Territory (i.e., Subdivision, District, Track Segment, Etc.)†: New Canaan Branch				
Wayside Interface Units†	0	0	0	2
Communication Towers or Poles†	0	0	0	2
Base Station Radios†	0	0	0	2
Are all necessary communication backbone utilities for this track segment (including fiber, copper, ground wiring etc.) installed and ready for operation?† No				

Identification of the Territory (i.e., Subdivision, District, Track Segment, Etc.)†: New Haven Line - West				
Wayside Interface Units†	0	0	0	10
Communication Towers or Poles†	0	0	0	10
Base Station Radios†	0	0	0	10
Are all necessary communication backbone utilities for this track segment (including fiber, copper, ground wiring etc.) installed and ready for operation?† No				
Identification of the Territory (i.e., Subdivision, District, Track Segment, Etc.)†: Harlem Line - South				
Wayside Interface Units†	0	0	0	10
Communication Towers or Poles†	0	0	0	10
Base Station Radios†	0	0	0	10
Are all necessary communication backbone utilities for this track segment (including fiber, copper, ground wiring etc.) installed and ready for operation?† No				
Identification of the Territory (i.e., Subdivision, District, Track Segment, Etc.)†: Harlem Line - North				
Wayside Interface Units†	0	0	0	15
Communication Towers or Poles†	0	0	0	15
Base Station Radios†	0	0	0	15
Are all necessary communication backbone utilities for this track segment (including fiber, copper, ground wiring etc.) installed and ready for operation?† No				

Identification of the Territory (i.e., Subdivision, District, Track Segment, Etc.)†: Hudson Line - North				
Wayside Interface Units†	0	0	0	10
Communication Towers or Poles†	0	0	0	10
Base Station Radios†	0	0	0	10
Are all necessary communication backbone utilities for this track segment (including fiber, copper, ground wiring etc.) installed and ready for operation?† No				
Identification of the Territory (i.e., Subdivision, District, Track Segment, Etc.)†: Hudson Line - South				
Wayside Interface Units†	0	0	0	10
Communication Towers or Poles†	0	0	0	10
Base Station Radios†	0	0	0	10
Are all necessary communication backbone utilities for this track segment (including fiber, copper, ground wiring etc.) installed and ready for operation?† No				
Identification of the Territory (i.e., Subdivision, District, Track Segment, Etc.)†: Waterbury Branch				
Wayside Interface Units†	0	0	0	9
Communication Towers or Poles†	0	0	0	9
Base Station Radios†	0	0	0	9
Are all necessary communication backbone utilities for this track segment (including fiber, copper, ground wiring etc.) installed and ready for operation?† No				

Identification of the Territory (i.e., Subdivision, District, Track Segment, Etc.)†: Port Jervis Line				
Wayside Interface Units†	0	0	0	9
Communication Towers or Poles†	0	0	0	9
Base Station Radios†	0	0	0	9
Are all necessary communication backbone utilities for this track segment (including fiber, copper, ground wiring etc.) installed and ready for operation?† No				

Additional narrative for Installation/Territory Status below. If any of the information called for in Section 3.3 is unavailable to the railroad at the time it is completing and submitting this form, please insert "TBD" in the appropriate field and/or use this comment box to explain when such information will be available and when the railroad expects to submit it to FRA.

Transponders installed:

- Pilot section 1 CP261 – CP274: 247 of 247 installed
- New Haven Line CP 234-CP261: 253 of 257 installed
- New Haven Line CP212 – CP234: 0 of 258 installed
- Overall NHL Civil Speed Transponder Installation: 65.6% complete

4. Quantity Update on Employees Trained

Employee Category[3]	Number of Employees Trained During Calendar Year	PTCIP Year End Goal	Cumulative Number of Employees Trained at End of Calendar Year	Total Reported in PTCIP
Employees who Install, Maintain, Repair, Modify, Inspect, and Test the PTC System (C&S)	0	0	0	1075
Employees who Dispatch Train Operations	0	0	0	60
Train and Engine (Operations) Employees	0	0	0	1780

[3] *See* 49 C.F.R. § 236.1041(a).

Employee Category[3]	Number of Employees Trained During Calendar Year	PTCIP Year End Goal	Cumulative Number of Employees Trained at End of Calendar Year	Total Reported in PTCIP
Roadway Worker Employees (Track & Power)	0	0	0	0
Direct Supervisors of the Above Employees (C&S)	0	0	0	Included above

Additional narrative for Employee Training below:

MNR is developing the training program with its PTC System Integrator(SI). Some pilot classes have been developed by the SI and reviewed by the railroad and are being finalized. Training will commence in 2016.

5. Progress on Implementation Schedule/Milestones

The System Integrator is approximately 12 months behind schedule and on-board equipment deliveries are 6 months delayed. Mitigations are in-progress to recover schedule.

6. Summary Update of Challenges/Risks

Summary Update of Challenges/Risks below:

Use of the ACSES II PTC System.

The ACSES II system was not specifically designed to meet the requirements of Metro-North's high-density commuter operations, which are currently operated with a high degree of safety, reliability and on-time performance. Thus, there is an inherent risk in adapting this system to Metro-North's extremely dense operations.

MNR's System Integrator products that are not currently Type Approved. MNR will have to undertake complex and time-consuming safety assessments and hazard analyses for FRA review and approval. Even for the elements of MNR's system that are part of the Type Approved will undergo modification requiring FRA review as a result of the necessary customizations related to MNR's unique infrastructure and operating rules, as well as the need to enhance reliability to acceptable levels. While MNR is working closely with its design engineer and System Integrator, the need for additional FRA product reviews (and the attendant time delays that accompany such reviews) may arise despite our best efforts.

Marketplace Constraints

Even though MNR has a System Integrator Contractor to design and furnish its ACSES PTC system, the limited pool of qualified systems engineers and suppliers are having an adverse impact on the ability of MNR to meet its PTC implementation schedule. The Contractor has taken extended periods to acquire the specialized staffing required for the magnitude of the MNR ACSES implementation and has had some difficulty with retaining key staff.

MTA paid for the Contractor's onboard systems supplier to increase its equipment production capacity, but startup difficulties and other issues have yet to benefit the MNR schedule. Also, the Contractor's initial communications designer and supplier proved inadequate for the task and had to be replaced.

Proprietary Products.

The PTC marketplace is currently dominated by proprietary products, which is particularly problematic given the need for interoperability. There is no common and open specification based upon which vendors can design and manufacture systems and components – nor is there time and opportunity to develop "open" specifications, particularly without the FRA taking the lead in this area. The lack of open specifications creates risk in two ways. First, despite their collective best efforts, railroads may not be able to get different and proprietary systems (for example, ASCES and I-ETMS) to function with a sufficient degree of interoperability so as to meet the objectives of the regulations. Second, the prospect of non-competitive procurements is a concern. Non-competitive procurements affect our ability to negotiate satisfactory technical and commercial terms, and put us at a disadvantage in procuring replacement parts, which are likely to be available solely from the Original Equipment Manufacturer (OEM). We believe that our chances of success are significantly diminished if in fact we are forced into non-competitive contracts.

Host-Tenant Interoperability Agreements.

Another aspect of interoperability which creates risk is the fact that agreements are required with numerous other railroads that operate on Metro-North's system, both freight and passenger. While we have made substantial progress with respect to general agreement on the systems to be installed, ultimately there must be agreement with all these parties on the technical details and related commercial terms. As FRA does not have authority to resolve potential disputes, Metro-North may, despite its best efforts, be unable to reach full agreement with all the involved railroads.

Communications and Data Radio.

Metro-North must have a PTC RF Communication System that is interoperable with Amtrak and other tenant railroads. The industry has not yet produced an interoperable "PTC radio" that is fully functional within the interoperability band of 217MHz to 222MHz. Development and commercial production of such a radio is largely out of the reasonable control of Metro-North.

Metro-North has acquired 218Mhz spectrum in some of its operating counties, but despite due diligence has not been able to acquire spectrum for four of its counties: two in New York and two in Connecticut.

Radio spectrum is further exacerbated by the high volume of trains Metro-North operates in a small geographical area, where channel interference is a major constraining factor for its own use, as well as potential interference with other operators in the area operating in the same frequency bands, such as New Jersey Transit, LIRR, and Amtrak. There are also potentially severe interference problems between the ACSES PTC Data Radio and the PTC data radio system being deployed by freight operators in the Metro-North region.

Railroad Resources.

A further risk even to the extended Implementation deadline is the strain on both Metro-North's force account resources, which pursuant to collective bargaining agreements are required to do a significant amount of the implementation work, as well as Metro-North's rolling stock maintenance shops, where in excess of 395 rail cars will require PTC retrofits. Given funding constraints and the need to operate daily train service, we have significant concerns that this work may not be completed in the requisite time frame.

7. Progress on Revenue Service Demonstration (RSD) or Implementation

Segment Identification[4]	**Number of Route Miles in Segment**	**Status at End of Calendar Year** *Current status of installation/track segment.* ***Choose one:***	**Estimated Start Date for Revenue Service Demonstration (if not already completed)**
Segment *(add additional rows for segments as necessary):*New Haven	17.6	○ Not Started ⦿ Installing	March 2018

[4] Segment identification should be consistent with segments listed in Section 3.3.

Segment Identification[4]	Number of Route Miles in Segment	Status at End of Calendar Year *Current status of installation/track segment.* ***Choose one:***	Estimated Start Date for Revenue Service Demonstration (if not already completed)
Line Pilot 1		○ Testing ○ Operational/Complete	
Segment *(add additional rows for segments as necessary):* Hudson Line Pilot 2	8	○ Not Started ◉ Installing ○ Testing ○ Operational/Complete	March 2018
Segment *(add additional rows for segments as necessary):* New Haven Line East	26.3	◉ Not Started ○ Installing ○ Testing ○ Operational/Complete	March 2018
Segment *(add additional rows for segments as necessary):* Danbury Branch	24.2	◉ Not Started ○ Installing ○ Testing ○ Operational/Complete	August 2018
Segment *(add additional rows for segments as necessary):* New Canaan Branch	6.3	◉ Not Started ○ Installing ○ Testing ○ Operational/Complete	June 2018
Segment *(add additional rows for segments as necessary):* New Haven Line - West	17.2	◉ Not Started ○ Installing ○ Testing ○ Operational/Complete	September 2018
Segment *(add additional rows for segments as necessary):* Harlem Line - South	18.6	◉ Not Started ○ Installing ○ Testing ○ Operational/Complete	September 2018
Segment *(add additional rows for segments as necessary):* Harlem Line - North	58.3	◉ Not Started ○ Installing ○ Testing ○ Operational/Complete	October 2018

Segment Identification[4]	Number of Route Miles in Segment	Status at End of Calendar Year *Current status of installation/track segment.* ***Choose one:***	Estimated Start Date for Revenue Service Demonstration (if not already completed)
Segment *(add additional rows for segments as necessary):* Hudson Line - North	41.6	⦿ Not Started ○ Installing ○ Testing ○ Operational/Complete	October 2018
Segment *(add additional rows for segments as necessary):* Hudson Line – South	26.2	⦿ Not Started ○ Installing ○ Testing ○ Operational/Complete	October 2018
Segment *(add additional rows for segments as necessary):* Waterbury Branch	26.9	⦿ Not Started ○ Installing ○ Testing ○ Operational/Complete	November 2018
Segment *(add additional rows for segments as necessary):* Port Jervis Line	58.6	○ Not Started ⦿ Installing ⦿ Testing ○ Operational/Complete	October 2018

Additional narrative for Revenue Service Demonstration or Implementation below:

Port Jervis Line will include Cab Signaling, ATC and ACSES II. The Cab Signaling/ATC will be replacement of the existing non-cab signaled wayside ABS. The new cab signaling installation was substantially completed in 2015 and is undergoing testing.

8. Update for Intercity or Commuter Rail Passenger Transportation (if applicable)

Update for Intercity or Commuter Rail Passenger Transportation below, if applicable:

All of the above pertains to Commuter Rail Passenger Transportation

9. Update on Interoperability Progress and Other Formal Agreements

Host and Tenant Railroads: Please provide a general update on interoperability in the textbox below.

Amtrak (tenant): MNR has held numerous technical interoperability discussions with Amtrak. At the end of 2015, MNR was finalizing technical design of the interfaces.

CSX (tenant): MNR has had meetings with CSX. The effort is on-going to resolve interoperability of CSX trains operating on MNR.

Providence & Worcester (P&W) (tenant): P&W participated in testing of Wayside Transponders on New Haven Line.

Pam Am Railways (tenant): MNR meets with Pan Am at monthly AAR Interoperability meetings.

Housatonic Railroad (tenant): MNR has not progressed interoperability discussions with Housatonic Railroad

Norfolk Southern Railway (tenant): MNR has had interoperability discussions with NS. Additional interoperability issues remain.

New York Susquehanna & Western (tenant): MNR provided Cab Signal Installation and commissioning schedule.

New Jersey Transit (tenant): MNR has had interoperability and coordination meetings with NJ TRANSIT. A MOU between the railroads relative to PTC has been signed.

Host Railroads Only: For each tenant, please provide additional tenant information below.

Tenant Identification *(Please add rows for additional tenants as necessary)*	**Estimated Tenant Locomotive Fleet** *(if the tenant does not have a separate PTCIP on file)*	**Current Tenant Implementation Status** ***Choose one:***
National Railroad Passenger Service (Amtrak)	PTCIP is on file: docket FRA-2010-0029	○ Not Started ○ Installing ○ Testing ◉ Operational/Complete
CSX Transportation	PTCIP is on file: docket FRA-2010-0028	○ Not Started ◉ Installing ◉ Testing ○ Operational/Complete

Tenant Identification *(Please add rows for additional tenants as necessary)*	**Estimated Tenant Locomotive Fleet** *(if the tenant does not have a separate PTCIP on file)*	**Current Tenant Implementation Status** ***Choose one:***
Providence & Worcester Railroad	24 (existing ACSES, needs modification for new function)	⦿ Not Started ○ Installing ○ Testing ○ Operational/Complete
Pam Am Railways	PTCIP is on file: docket FRA-2010-0068. Pan Am is exempt from PTC	⦿ Not Started ○ Installing ○ Testing ○ Operational/Complete
Housatonic Railroad	Housatonic does not currently operate on MNR, although it has trackage rights. If the current state of no active operations were to change, Housatonic would only be permitted to operate FRA and MNR PTC approved rolling stock on MNR.	⦿ Not Started ○ Installing ○ Testing ○ Operational/Complete
Norfolk Southern Railway	PTCIP is on file: docket FRA-2010-0060	○ Not Started ⦿ Installing ⦿ Testing ○ Operational/Complete
New York Susquehanna & Western (NYS&W)	No docket was found for NYS&W.	⦿ Not Started ○ Installing ○ Testing ○ Operational/Complete
New Jersey Transit	PTCIP is on file: docket FRA-2010-0033	○ Not Started ⦿ Installing ⦿ Testing ○ Operational/Complete

10. Estimated PTC Safety Plan (PTCSP) Submission Date (if not already submitted)

PTCSP Submission Date
March 2018

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Additional narrative for PTCSP Submission below:

No additional comments at this time

11. Testing and Integration Efforts (if applicable, laboratory, integration, and revenue service demonstration)

Update on Testing and Integration efforts below:

PTC hardware is undergoing extensive environmental testing including, shock & vibration, temperature tests, and EMI/EMC. The 220 MHz radios also have been lab tested for immunity to interference.

Transponder mountings underwent pilot installations in the railroad track.

The MNR System Integrator has an integration lab for testing PTC functionality of Office, wayside, and onboard subsystems.

12. Updated Information That FRA Can Use to Maintain Its Geographic Information System (GIS) Database – Segments Complete and Operable

Additional narrative for GIS Information below:

No segments have been completed or have been updated with the GIS database information