

Annual PTC
Progress
Report

2015

SEPTA (Southeastern Pennsylvania
Transportation Authority) Regional Rail

Docket FRA-
2010-0036

The Annual Positive Train Control (PTC) Progress Report is due by March 31"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>.

Name of Railroad or Entity Subject to 49 U.S.C §20157(a): SEPTA Regional Rail

Railroad Code: SEPA

Annual PTC Implementation Progress Report for: 2015

PTCIP Version Number on File with FRA (basis for goals stated): PTCIP Addendum Revision: 1.3.
December 24, 2015, PTCIP Revision 3.0 January 11, 2016

Submission Date: March 31, 2016

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1 Summary

Please provide a narrative summary of overall PTC implementation progress during the preceding calendar year (January 1 to December 31, 2015):

Summary statement:

SEPTA has completed the installations on a substantial portion of its PTC territory, spectrum has been acquired, employees trained, Safety Plan submitted, initial Line System testing successfully completed with the FRA PTC Specialists, and documentation submitted to FRA seeking approval to commence Revenue Service Demonstration.

SEPTA continues to test and debug Lines in preparation for RSD in accordance with Table 1 “PTC Line Deployment” as described in the submitted PTC Implementation Plan (PTCIP) Addendum dated December 16, 2015 excerpts of which are included for reference herein. At the end of calendar year 2015, SEPTA was prepared to commence RSD on seven (7) of its required eleven (11) rail lines.

At this time, SEPTA is fully prepared and eager to commence RSD, and awaits FRA authorization to proceed.

Category	Quantity installed during CY 2015	PTCIP Year End Goal (if Applicable)	Cumulative qty installed at end of CY2015	Total Required for PTC Implementation
Locomotives Fully Equipped	269	19	269	288
Installation/Track Segments completed	10 Rail lines	1 Rail Line	11 Rail lines	11 Rail Lines
Radio towers fully installed and equipped	36	0	36	36
Employees trained	1172	20	1192	1192
Back office locations completely installed and fully operable	1	0	1	1
Dispatching locations completely installed and fully operable	1	0	1	1
Route miles in testing	164.5	2	166.5	166.5*
Route miles in RSD	0	166.5	166.5	166.5*
Route miles in full PTC operation	0	166.5	166.5	166.5*

*= Assumes FRA formal approval of Main Track Exclusion Area request

2 Update on Spectrum Acquisition

Required content:

- The amount of spectrum acquired and available for use during the applicable calendar year and the cumulative amount acquired and available for use at the end of the applicable calendar year, as compared to the amount the railroad stated would be acquired and available for use by the end of that calendar year and in total for PTC implementation in the applicable revised PTCIP, as amended
- The basis for how the railroad is determining that the acquired spectrum is available for use by PTC radios (e.g. ensuring non-interference with other radios)

Spectrum Area or Location	Spectrum Acquired and available for use (owned/leased) during CY 2015	Cumulative amount of spectrum acquired and available for use (owned/leased) at end of CY 2015	PTCIP Year-end goal for spectrum acquired and available for use	Total spectrum required for PTC implementation, as reported in PTCIP
ALL TERRITORIES	COMPLETE	COMPLETE	COMPLETE	COMPLETE

Please provide any additional narrative for Spectrum Acquisition below:

SEPTA has deployed all the required spectrum necessary to operate the PTC system under the FCC regulation. SEPTA had previously acquired its spectrum on the open market in Oct., 2009, call sign WPOI1924, and SEPTA owns the license to operate its PTC control system radios on all its railroad Lines. Presently SEPTA has its radio frequency (RF) installations complete, and it is projected that SEPTA's RF systems are ready to commence PTC operations.

3 Quality Update on Hardware Installation

Required content:

- Separated by each major hardware category and subcategory below, the amount of PTC hardware installed during the applicable calendar year and the cumulative quantity installed at the end of the applicable calendar year, as compared to the amount the railroad stated would be installed by the end of that calendar year and in total for PTC implementation, in the applicable revised PTCIP as amended.

3.1 Locomotive Status

Category/Installation Feature	Quantity installed during CY 2015	PTCIP year-end goal	Cumulative qty installed at end of CY 2015	Total required for PTC implementation as reported in PTCIP
Locomotive (Apparatus)				
Onboard computer (e.g., TMC)	269	19	269	288
Software for Train Management & other applications	269	19	269	288
PTC User Displays	448	31	448	479
Event Recorders	269	19	269	288
Onboard Antennas	269	19	269	288
Transponder readers as applicable	269	19	288	288
GPS receivers	269	19	288	288
Locomotive radios – Primary communications (e.g. 220 MHz radios)	269	19	288	288
Secondary communications – cellular	N/A	N/A	N/A	N/A
Secondary Communications - WiFi	N/A	N/A	N/A	N/A

Please provide any additional narrative for Locomotive Status below:

Presently, SEPTA has all vehicles outfitted, tested and is prepared to commence RSD.

3.2 Infrastructure / Back Office Status

Category/Installation Feature	Quantity installed during CY 2015	PTCIP year-end goal	Cumulative qty installed at end of CY 2015	Total required for PTC implementation as reported in PTCIP
Infrastructure (Back Office)				
Dispatching Locations (installation complete)	1	0	1	1
Back Office Locations (installation complete)	N/A	N/A	N/A	N/A

Please provide any additional narrative for Infrastructure/Back Office Status below:

SEPTA has installed all the required equipment for its Operations Dispatching Control Center, and testing is being finalized on all system to fully support the PTC operation. Presently SEPTA's Operations Dispatching Control Center installations complete, and ready to commence RSD operations.

3.3 Installation / Track Segment Status

Category/Installation Feature	Quantity installed during CY 2015	PTCIP year-end goal	Cumulative qty installed at end of CY 2015	Total required for PTC implementation as reported in PTCIP
Infrastructure – Wayside (By installation/Track Segment per the PTCIP)				
<i>Subdivision / Installation Segment: West Chester Line (100%)</i>				
Wayside Interface Units	5	0	5	5
Communications towers or poles	5	0	5	5
Switch Position Monitors	N/A			
Fiber or ground wiring (per mile)	30	0	30	30
Transponders	185	0	185	185
Base Station Radios	5	0	5	5
<i>Subdivision / Installation Segment: Main Line South</i>				
Wayside Interface Units	MTEA	MTEA	MTEA	MTEA
Communications towers or poles	MTEA	MTEA	MTEA	MTEA
Switch Position Monitors	N/A			
Fiber or ground wiring (per mile)	MTEA	MTEA	MTEA	MTEA
Transponders	MTEA	MTEA	MTEA	MTEA
Base Station Radios	MTEA	MTEA	MTEA	MTEA
<i>Subdivision / Installation Segment: Main Line North</i>				
Wayside Interface Units	MTEA	MTEA	MTEA	MTEA
Communications towers or poles	MTEA	MTEA	MTEA	MTEA
Switch Position Monitors	N/A			
Fiber or ground wiring (per mile)	MTEA	MTEA	MTEA	MTEA
Transponders	MTEA	MTEA	MTEA	MTEA
Base Station Radios	MTEA	MTEA	MTEA	MTEA
<i>Subdivision / Installation Segment: Ivy Ridge Line (100%)</i>				
Wayside Interface Units	2	0	2	2
Communications towers or poles	2	0	2	2
Switch Position Monitors	N/A	N/A	N/A	N/A

Category/Installation Feature	Quantity installed during CY 2015	PTCIP year-end goal	Cumulative qty installed at end of CY 2015	Total required for PTC implementation as reported in PTCIP
Fiber or ground wiring (per mile)		0	3	3
Transponders	18	0	18	18
Base Station Radios	2	0	2	2
<i>Subdivision / Installation Segment: Chestnut Hill East Line (100%)</i>				
Wayside Interface Units	2	0	2	2
Communications towers or poles	2	0	2	2
Switch Position Monitors	N/A			
Fiber or ground wiring (per mile)	12	0	12	12
Transponders	52	0	52	52
Base Station Radios	2	0	2	2
<i>Subdivision / Installation Segment: Chestnut Hill West Line (100%)</i>				
Wayside Interface Units	2	0	2	2
Communications towers or poles	1	0	1	1
Switch Position Monitors	N/A			
Fiber or ground wiring (per mile)	14	0	14	14
Transponders	50	0	50	50
Base Station Radios	1	0	1	1
<i>Subdivision / Installation Segment: West Trenton Line (50%)</i>				
Wayside Interface Units	4	0	4	4
Communications towers or poles	3	0	3	3
Switch Position Monitors	N/A			
Fiber or ground wiring (per mile)	44	0	44	44
Transponders	0	118	118	118
Base Station Radios	3	0	3	3
<i>Subdivision / Installation Segment: Doylestown Line (100%)</i>				
Wayside Interface Units	5	0	5	5
Communications towers or poles	2	0	2	2

Category/Installation Feature	Quantity installed during CY 2015	PTCIP year-end goal	Cumulative qty installed at end of CY 2015	Total required for PTC implementation as reported in PTCIP
Switch Position Monitors	N/A			
Fiber or ground wiring (per mile)	10.5	0	10.5	10.5
Transponders	75	0	75	75
Base Station Radios	2	0	2	2
<i>Subdivision / Installation Segment: Norristown Line (80%)</i>				
Wayside Interface Units	5	0	5	5
Communications towers or poles	2	0	2	2
Switch Position Monitors	N/A			
Fiber or ground wiring (per mile)	30	0	30	30
Transponders	80	37	117	117
Base Station Radios	2	0	2	2
<i>Subdivision / Installation Segment: Fox Chase Line (100%)</i>				
Wayside Interface Units	3	0	3	3
Communications towers or poles	2	0	2	2
Switch Position Monitors	N/A			
Fiber or ground wiring (per mile)	5	0	5	5
Transponders	35	0	35	35
Base Station Radios	2	0	2	2
<i>Subdivision / Installation Segment: Airport Line (100%)</i>				
Wayside Interface Units	4	0	4	4
Communications towers or poles	2	0	2	2
Switch Position Monitors	N/A			
Fiber or ground wiring (per mile)	11	0	11	11
Transponders	68	0	68	68
Base Station Radios	2	0	2	2
<i>Subdivision / Installation Segment: Warminster Line (100%)</i>				
Wayside Interface Units	6	0	6	6

Category/Installation Feature	Quantity installed during CY 2015	PTCIP year-end goal	Cumulative qty installed at end of CY 2015	Total required for PTC implementation as reported in PTCIP
Communications towers or poles	3	0	3	3
Switch Position Monitors	N/A			
Fiber or ground wiring (per mile)	10.5	0	10.5	10.5
Transponders	81	0	81	81
Base Station Radios	3	0	3	3

Please provide any additional narrative for Installation/Track Segment Status below:

SEPTA has outfitted and tested all its eleven (11) Rail Lines to fully support the PTC system wayside hardware equipment requirements. Presently, SEPTA has sufficient Lines fully outfitted with wayside equipment and hardware to commence RSD operations.

4 Quantity Update on Employees Trained

Required content:

- Separated by each employee category identified below, the number of employees trained during the applicable calendar year and the cumulative number of employees trained at the end of the calendar year, as compared to the number the railroad stated would be trained by the end of that calendar year and in total, per the applicable revised PTCIP as amended.

Employee Category	Number employees trained during CY 2015	PTCIP Year-end goal	Cumulative number of employees trained at end of CY 2105	Total as reported in PTCIP
T&E Crew – Engineers, Conductors and Supervisors	452	20	472	472
Dispatchers and Supervisors	30	0	30	30
Locomotive Maintainers and Supervisors	250	32	282	282
MOW/Engineering/Roadway Worker Employees	404	404	404	581
TOTAL number of employees trained	1095	1095	1095	1365

Please provide any additional narrative for Employee Training below:

SEPTA has about 1365 personnel that need to be trained to support PTC system operation and regulation. Currently, all personnel required to implement RSD operations have been fully trained and are ready to proceed with RSD.

5 Progress on Implementation Schedule / Milestones

In its annual progress reports, each subject railroad and entity must provide a progress up dates with respect to its project schedule. A railroad should only submit schedule information demonstrating actual progress as measured against the schedule in its revised PTCIP, as amended. This could be accomplished by providing detailed project schedules and visual aids (e.g., a Gantt chart) if available, or any other information documenting current progress as compared to the implementation schedule in the railroad's revised PTCIP, as amended. Details regarding any notable variances or trends that are affecting, or could possibly affect, PTC implementation goals should also be explained in the annual progress reports. Where circumstances are adversely affecting a railroad's implementation of PTC, the railroad must also provide an action plan to recover from, or mitigate, any adverse consequences.

Required content:

- Schedule/Milestone Progress Information as described above.
- The extent to which the railroad or other entity is complying with the implementation schedule it provided in its revised PTCIP, as amended.

Please provide any additional narrative for Progress on Implementation Schedule/Milestones below:

SEPTA has met all its milestones as were required by the systems design that are necessary to commence RSD in February 2016.

6 Summary of Update of Challenges / Risks

Required content:

- Any update to the summary of remaining technical, programmatic, operational, or other challenges that the railroad or other entity provided in its revised PTCIP, as amended, including challenges with availability of public funding, interoperability, spectrum, software, permitting, and testing, demonstration, and certification
- Schedule Risk Updates (e.g., funding, technology, agreements)

Please provide Summary Update of Challenges/Risks below:

SEPTA has completed 98% of its PTC implementation. All the risks which SEPTA encountered during the PTC installation have been identified in the PTCIP Revision: 2.6 (Date of Revision: October 2015) Section 6 (above). Also Table 4.1-2 in Section 4.1.2 identified the risks to successful PTC completion that are known at this point and have been addressed.

7 Progress on Revenue Service Demonstration (RSD) or Implementation

Required content:

- The total number of route miles on which PTC has been initiated for revenue service demonstration (RSD) or implementation as compared to the number of route miles required to have a PTC system installed
- Estimated start date (month and year) for RSD

Segment Identification ⁴	Number of Route Miles in segment	Status at end of CY 2015	Estimated Start date for RSD if not yet begun
West Chester Line	29.2	<input type="radio"/> Not Started <input type="radio"/> Installing <input checked="" type="radio"/> Testing <input type="radio"/> Operational/ Complete	June 2016
Main Line South	1	<input type="radio"/> Not Started <input checked="" type="radio"/> Installing <input type="radio"/> Testing <input type="radio"/> Operational/ Complete	N/A – MTEA location
Main Line North	59.2	<input type="radio"/> Not Started <input checked="" type="radio"/> Installing <input checked="" type="radio"/> Testing <input type="radio"/> Operational/ Complete	N/A – MTEA location
Ivy Ridge Line	2.7	<input type="radio"/> Not Started <input type="radio"/> Installing <input checked="" type="radio"/> Testing <input type="radio"/> Operational/ Complete	April 2016
Chestnut Hill East Line	12.1	<input type="radio"/> Not Started <input type="radio"/> Installing <input checked="" type="radio"/> Testing <input type="radio"/> Operational/ Complete	April 2016
Chestnut Hill West Line	14	<input type="radio"/> Not Started <input type="radio"/> Installing <input checked="" type="radio"/> Testing <input type="radio"/> Operational/ Complete	April 2016
West Trenton Line	43.5	<input type="radio"/> Not Started <input checked="" type="radio"/> Installing <input checked="" type="radio"/> Testing <input type="radio"/> Operational/ Complete	June 2016
Doylestown Line	10.2	<input type="radio"/> Not Started <input type="radio"/> Installing <input checked="" type="radio"/> Testing <input type="radio"/> Operational/ Complete	April 2016
Norristown Line	28.9	<input type="radio"/> Not Started <input checked="" type="radio"/> Installing <input type="radio"/> Testing <input type="radio"/> Operational/ Complete	June 2016
Fox Chase Line	4.9	<input type="radio"/> Not Started <input type="radio"/> Installing <input checked="" type="radio"/> Testing	March 2016

Segment Identification ⁴	Number of Route Miles in segment	Status at end of CY 2015	Estimated Start date for RSD if not yet begun
		O Operational/ Complete	
<i>Airport Line</i>	10.9	O Not Started O Installing X Testing O Operational/ Complete	May 2016
<i>Warminster Line</i>	10.1	O Not Started O Installing X Testing O Operational/ Complete	March 2016

Segment identification should be consistent with the segments listed in Section 3.3.

NOTE: SEPTA's PTC system is the Type Approved, Amtrak ACSES II PTC system. ACSES II is measured in miles and or lines and not track segments as IETMS.

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

If this section is not applicable to your railroad, please mark N/A

Required content (if applicable):

- For each entity providing regularly scheduled intercity or commuter rail passenger transportation, a description of the resources identified and allocated to implement PTC.

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

The Resources allocated to PTC on SEPTA Regional Rail as of December 2015 are as follows:

Over 2000 SEPTA employees

7 SEPTA engineering consultant employees

27 Prime Contractor (Ansaldo) employees – does not include manufacturing employees

8 Subcontractor (Siemens) employees– does not include manufacturing employees

22 Installation Subcontractor (Farfield) employees

2 Consultant teams to SEPTA for PTC

9 Update on Interoperability Progress and Other Formal Agreements

Required content:

- For host railroads: Provide updates to any agreements and key milestones for all tenant operations
- For tenant railroads: provide updates to any agreements and key milestones for all operations over tracks hosted by another railroad

Please provide Update on Interoperability below:

9.1 SEPTA as Tenant:

SEPTA is a tenant railroad to Amtrak on the Northeast Corridor and the Harrisburg Line. Amtrak and SEPTA are operating compatible ACSES II PTC systems and are fully interoperable.

9.2 SEPTA as Host:

SEPTA is a host railroad to CSX on the Main Line, Airport Line and West Trenton Line, and Norfolk Southern (NS) on the Airport and Norristown Lines.

CSX and SEPTA have an agreement in place whereas CSX will be operating a captured fleet using the ACSES II PTC system and will be fully interoperable with SEPTA's ACSES II PTC system.

NS will be operating a mixed system of PTC, similar to the PTC system on the Northeast Corridor employing cab signaling and I-ETMS for Interlocking Status (IS) and Temporary Speed Restriction (TSR) delivery and enforcement. SEPTA and NS will have a tentative agreement in place by mid-April 2016.

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

If this section is not applicable to your railroad, please mark N/A.

PTCSP Submission Date

N/A – already submitted

Please provide any additional narrative for PTCSP Submission below:

SEPTA's PTC Safety Plan was submitted to FRA on October 16, 2015, thereby beginning a nominal 180 day cycle for FRA response and revision, which is currently in process. Revenue service will be based on PTCSP Certification which is anticipated before December 31, 2018 per the new statute.

The SEPTA PTCSP describes in sufficient detail the measures taken to ensure the safety, operability, maintainability and reliability of the PTC systems and the supporting PTC program. In addition, the PTCSP will describe the methods of interoperability operation between all host and tenant railroads that operate on the SEPTA Regional Rail system including: New Hope and Ivyland / Pennsylvania Northeast and West Chester Short Lines as well as the Norfolk Southern and CSX Main Line Railroads. Main Line tenants will be equipped with a PTC system per Part 236 Subpart I.

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

Please provide Update on Testing and integration efforts below:

SEPTA has been continually testing its PTC system on all its rail lines.

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

In its annual progress reports, a subject railroad or entity may submit a geographic information system {GIS} shapefile to indicate where various rail segments that must have PTC are located, as long as it includes the following fields: (1) a PTC attribute field (coded with "Y" if line segment is to have PTC installed, otherwise left blank); (2) a SUBDIV attribute field (populated with subdivision name); (3) a MONTH attribute field (populated with the month in which PTC is to be installed); and (4) a YEAR attribute field (populated with the year in which PTC is to be installed).

If a railroad chooses to submit the required information by means other than shapefile format, please inform FRA as to the railroad's preference prior to the March 31st annual reporting deadline.

Please provide any additional narrative for GIS Information below:

GIS information is not available from SEPTA at this time.