

Sound Transit
Annual
Progress
Report Mar
2016

2015

*Sound Transit's Sounder Commuter
Rail (SRC)*

[Docket Number]

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>.

Name of Railroad or Entity Subject to 49 U.S.C. § 20157(a): Central Puget Sound Regional Transit Authority

Railroad Code: SRC

Annual PTC Implementation Progress Report for: 2016

PTCIP Version Number of File with FRA (basis for goals stated): [Click here to enter PTCIP Version Number.](#)

Submission Date: 3/31/2016

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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):

This report represents the progress towards implementing PTC for the year 2015 on Sound Transit.

In the year 2015 Sound Transit completed following milestones:

1. Sound Transit contracted Xorail to install On-board PTC hardware on the Sound Transit Locomotives, Cab Cars and designated Tacoma Rail (TR) Locomotives. Sound Transit has completed installation of all required On-board PTC equipment on its vehicles.
2. Sound Transit completed installation of Wayside Interface Units (WIU)s on designated Sound Transit owned tracks.
3. Sound Transit completed field testing to verify wayside, on-board installations and data links to Burlington Northern Santa Fe (BNSF) Back Office Server (BOS).
4. GIS Database is undergoing validation which will be completed by the end of 2016.
5. Sound Transit is reviewing its Revenue Service Demonstration (RSD) application and will submit by the end of the 2nd quarter 2016.

Sound Transit is closely working with BNSF and FRA in planning and testing all aspects of the PTC system. Over the next several months, Sound Transit is planning to complete an RSD application and submit its PTC Safety Plan (PTCSP).

| 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 | 6 | 6 | 32 | 32 |
| Installation/Track Segments Completed | 0 | 0 | 1 | 1 |
| Radio Towers Fully Installed and Equipped | 5 | 5 | 5 | 5 |

| | | | | |
|---|---|-----|----|----|
| Employees Trained | 2 | N/A | 2 | 4 |
| Route Miles In Testing or Revenue Service Demonstration | 0 | 0 | 10 | 10 |
| Route Miles in PTC Operation | 0 | 0 | 0 | 0 |

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 (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†: Lakewood Subdivision | Yes | Necessary Spectrum has been leased from PTC220, LLC | Activity complete no additional spectrum required to meet PTCIP | Necessary Spectrum has been leased from PTC220, LLC |

†Note: To add rows for additional spectrum areas or locations, click on the blue “+” symbol at the bottom right-hand corner. Please be sure to first click anywhere inside the table to activate this function.

If this function is unavailable for your document, please manually add additional rows.

Please provide any additional narrative for Spectrum Acquisition below:

Sound Transit has leased the necessary spectrum from PTC 220, LLC. The spectrum has been tested to ensure that other radios will not interfere with the PTC frequency.

3. Quantity Update on Hardware Installation

Required content:

- Separated by each major hardware category and subcategory identified 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 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) | 6 | 6 | 32 | 32 |
| Software For Train Management and other applications | 6 | 6 | 32 | 32 |
| PTC Displays | 6 | 6 | 32 | 32 |
| Event Recorders | 6 | 6 | 32 | 32 |
| Onboard Antennas and/or Transponder Readers | 6 | 6 | 32 | 32 |
| GPS Receivers | 6 | 6 | 32 | 32 |
| Locomotive Radios – Primary Communications (e.g., 220 MHz radios) | 6 | 6 | 32 | 32 |

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

| | | | | |
|---|---|---|----|----|
| Secondary Communications (e.g., cell or Wi-Fi communications) Equipment | 6 | 6 | 32 | 32 |
|---|---|---|----|----|

Please provide any additional narrative for Locomotive Status below. If any of the information called for in Section 3.1 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.

I-ETMS hardware has been installed on eighteen (18) Sound Transit cab cars and fourteen (14) locomotives. Entering 2015 8 locomotives and 18 cab cars had completed PTC on-board installation. During 2015 the remaining 6 locomotives were completed. These 32 vehicles represent the entire Sound Transit fleet. At this time Onboard PTC installations have been completed.

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) | 0 | 0 | 0 | 0 |
| Physical Back Office System Equipment (installations complete) | 0 | 0 | 0 | 0 |

| | |
|---|-----|
| Are the Back Office Location(s) fully operable? | N/A |
| Are the Dispatching Location(s) fully operable? | N/A |

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

Sound Transit has an operation agreement with BNSF to manage all the dispatching requirements. This will include use of BNSF BOS to manage Sound Transit I-ETMS operational functionalities. These systems are located within weather-hardened and access-secured BNSF office

complexes at the Network Operations Center (NOC) Corporate Headquarters in Fort Worth, Texas and the BNSF office complex in Topeka, Kansas, respectively. Please refer to BNSF’s PTC documentation for information regarding progress and schedule.

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 |
|--|---|---------------------|---|---|
| Identification of the Territory (i.e., Subdivision, District, Track Segment, Etc.)†: Lakewood Subdivision | | | | |
| Wayside Interface Units† (Lakewood Subdivision) | 15 | 15 | 15 | 15 |
| Communication Towers or Poles† (Lakewood Subdivision) | 5 | 5 | 5 | 5 |
| Switch Position Monitors†(Lakewood Subdivision) | 19 | 19 | 19 | 19 |
| Wayside Radios† (Lakewood Subdivision) | 5 | 5 | 5 | 5 |
| Base Station Radios† | 0 | 0 | 0 | 0 |
| Are all necessary communication backbone utilities for this track segment (including fiber, copper, ground wiring etc.) installed and ready for operation?† Yes | | | | |

†Note: To add rows for additional territories and associated sub-components, click on the blue “+” symbol at the bottom right-hand corner. Please be sure to first click anywhere inside the table to activate this function. If this function is unavailable for your document, please manually add additional rows.

Please provide any 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.

Base Station Communications Provided by BNSF either directly or through a BNSF-managed federated link. The Lakewood Subdivision (1 track segment) constitutes the entirety of Sound Transit's territory requiring PTC.

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 applicable calendar year, as compared to the number the railroad stated would be trained by the end of that calendar year and in total, in the applicable revised PTCIP, as amended

| Employee Category ² | 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 | 0 | 0 | 0 | 0 |
| Employees who Dispatch Train Operations | 0 | 0 | 0 | 0 |
| Train and Engine (Operations) Employees | 0 | 0 | 0 | 0 |
| Roadway Worker Employees | 0 | 0 | 0 | 0 |
| Direct Supervisors of the Above Employees | 2 | N/A | 2 | N/A |

Please provide any additional narrative for Employee Training below:

² See 49 C.F.R. § 236.1041(a).

Sound Transit has elected to contract BNSF and Amtrak to operate and maintain the PTC system, dispatch operations, train and engine employees and roadway workers. Sound Transit has trained a total of two of its own supervisors on PTC systems. Sound Transit's supervisors oversee the work of all contracted employees. Sound Transit's PTCIP did not include specific numbers on employees to be trained, however it has since been determined to be 4. Sound Transit will train an additional 2 supervisors during 2016 to bring their total to the required 4 personnel.

Operations (Train Crews) – Provided by BNSF under contract to Sound Transit

Operations (Dispatch) – Provided by BNSF as part of their Fort Worth, Texas Dispatch Center

Maintenance (Office) – Provided by BNSF

Maintenance (On-board) – Provided by Amtrak under contract to Sound Transit. Forces have been initially trained and a training program is available for them as a refresher course.

Maintenance (Wayside) – Provided by Stacy-Witbeck's under contract to Sound Transit. Forces have been initially trained and a training program is available for them as a refresher course.

5. Progress on Implementation Schedule/Milestones

Required content:

- Describe the extent to which the railroad or other entity is not complying with the implementation schedule it provided in its revised PTCIP, as amended

Sound Transit has followed its implementation schedule laid out in the PTCIP. All 4 segments of the PTC system have been installed and preliminarily tested. Awaiting submission and approval of the RSD and PTC Safety Plan to complete implementation.

6. Summary 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:

Sound Transit has completed installation of the PTC system and is awaiting validation testing to complete implementation.

There are no challenges or risks expected at this time.

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 or implemented, as compared to the total number of route miles required to have a PTC system (see Section 1 Summary Table)
- Estimated start date (month and year) for RSD

| Segment Identification ³ | Number of Route Miles in Segment | Status at End of Calendar Year <i>Current status of installation/track segment. Choose one:</i> | Estimated Start Date for Revenue Service Demonstration (if not already completed) |
|---|----------------------------------|---|--|
| Segment (add additional rows for segments as necessary): Lakewood Subdivision | 10 | <input type="radio"/> Not Started <input type="radio"/> Installing <input checked="" type="radio"/> Testing <input type="radio"/> Operational/Complete | RSD Application will be submitted 2 nd quarter 2016. Once approved RSD can be scheduled for 2017. |

Note: To add additional rows, click on the blue “+” symbol at the bottom right-hand corner. Please be sure to first click anywhere inside the table to activate this function.

If this function is unavailable for your document, please manually add additional rows.

³ Segment identification should be consistent with segments listed in Section 3.3.

Please provide any additional narrative for Revenue Service Demonstration or Implementation below:

RSD application will be submitted during the 2nd quarter of 2016. The Lakewood Subdivision (1 track segment) constitutes the entirety of Sound Transit's territory requiring PTC.

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:

Amtrak :

Sound Transit has contracted Amtrak to provide inspection and maintenance on Sound Transit's fleets of locomotives and cab cars. Amtrak has a contractual obligation to provide sufficient quantity of properly trained resources to meet all rolling stock inspection and maintenance obligations which includes PTC.

Sound Transit:

Please reference the other sections of this report for information regarding Sound Transits PTC Implementation efforts.

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

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

Amtrak :

Amtrak has committed to equip their Sound Transit Lakewood Subdivision operating locomotives with I-ETMS onboard hardware and software as part of its interoperability agreement with ST. Refer to Amtrak’s PTCIP for their rolling stock characteristics and schedule for installation.

BNSF Railway:

BNSF has committed to equip their Sound Transit Lakeview Subdivision operating locomotives with I-ETMS onboard hardware and software as part of its interoperability agreement with ST. Refer to BNSF’s PTCIP for their rolling stock characteristics and schedule for installation.

Union Pacific:

UP has committed to equip their Sound Transit Lakeview Subdivision operating locomotives with I-ETMS onboard hardware and software as part of its interoperability agreement with ST.

Tacoma Rail:

TR has committed to having particular Sound Transit Lakeview Subdivision operating locomotives equipped with I-ETMS onboard hardware and software as part of its interoperability agreement with ST.

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

| Tenant Identification <i>(Please add rows for additional tenants as necessary)</i> | Estimated Tenant Locomotive Fleet <i>(if the tenant does not have a separate PTCIP on file)</i> | Current Tenant Implementation Status <i>Choose one:</i> |
|--|---|---|
| Amtrak | Has its own PTCIP on file. | <input type="radio"/> Not Started <input type="radio"/> Installing <input checked="" type="radio"/> Testing |

| | | |
|----------------|--|---|
| | | <input type="radio"/> Operational/Complete |
| BNSF Railway | Has its own PTCIP on file. | <input type="radio"/> Not Started <input type="radio"/> Installing <input checked="" type="radio"/> Testing <input type="radio"/> Operational/Complete |
| Union Pacific | Has its own PTCIP on file. | <input type="radio"/> Not Started <input type="radio"/> Installing <input checked="" type="radio"/> Testing <input type="radio"/> Operational/Complete |
| Tacoma Railway | Fleet size: 4 vehicles. 2 have been equipped the other 2 will be installed this year. Tacoma Rail is not required to submit a PTCIP. | <input type="radio"/> Not Started <input checked="" type="radio"/> Installing <input type="radio"/> Testing <input type="radio"/> Operational/Complete |

Note: To add additional rows, click on the blue “+” symbol at the bottom right-hand corner. Please be sure to first click anywhere inside the table to activate this function.

If this function is unavailable for your document, please manually add additional rows.

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 |
|------------------------------|
| 4 th Quarter 2016 |

Please provide any additional narrative for PTCSP Submission below:

The PTCSP is undergoing final edits and will be submitted by: 4th quarter 2016.

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

Please provide Update on Testing and Integration efforts below:

Integration testing was completed in July of 2015. Once RSD is submitted and approved, testing and integration will be completed in 2017.

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). A railroad may submit this information by means other than shapefile format.

Please provide any additional narrative for GIS Information below:

Validation of the GIS is currently in progress. Completion of the validation process is expected to occur during 2016.

Public reporting burden for this information collection is estimated to average 38.41 hours per response, including the time for

reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. According to the Paperwork Reduction Act of 1995, a federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with, a collection of information unless it displays a currently valid OMB control number. The valid OMB control number for this information collection is **2130-0553**. All responses to this collection of information are mandatory. Send comments regarding this burden estimate or any other aspect of this collection, including suggestions for reducing this burden to OMB's Office of Information and Regulatory Affairs, Attn: FRA OMB Desk Officer.