OMB Control No. 2130-0553

Annual PTC Progress Report

2015

Utah Transit Authority-FrontRunner Commuter Rail

FRA-2010-0052

The following information is provided to report Utah Transit Authority's (UTA) progress towards implementing Positive Train Control (PTC) during the 2015 calendar year.

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

Railroad Code: UFRC

Annual PTC Implementation Progress Report for: 2015

PTCIP Version Number on File with FRA (basis for goals stated): PTCIP Rev. 7.3

Submission Date: January 26th 2016

Contents

1 Summary

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

The Utah Transit Authority's (UTA) revised PTCIP Version 7.3, dated January 26, 2016, lists E-ATC PTC equipment to be installed on 18 locomotives (100% of the fleet) and 22 cab cars (100% of the fleet) by the end of CY 2011. UTA met the PTCIP goal of equipping 100% of locomotives and cab cars in CY 2011. However, a solution to the No Code Proceed MAS will require a future software modification. The UTA PTCIP also lists I-ETMS PTC equipment to be installed on two locomotives and two cab cars. UTA installed I-ETMS PTC equipment on zero (0) locomotives during CY 2015 (0% of the fleet). UTA met the PTCIP goals of equipping zero (0) locomotives and cab cars in CY 2015.

Modifications to UTA's existing automatic train control system are required for the system to be PTC compliant. Preliminary design for the modifications started in CY 2014. Final design and procurement for wayside hardware locations began in 2015.

UTA's revised PTCIP Version 7.3, dated January 26, 2016, indicates that zero percent of UTA trains will be operated in PTC equipped territories with PTC equipped locomotives and cab cars during CY 2015. In CY 2015, UTA operated zero percent of its trains with PTC equipped controlling locomotives operating in PTC equipped territory. UTA met the PTCIP goals of zero percent in CY 2015.

In summary, PTC related work planned and/or currently being performed is listed by track segment and subdivision, below:

1. Provo to Ogden
    a. FrontRunner North (Salt Lake to Ogden) – PTC design started in September of 2014, and construction work is currently underway.
    b. FrontRunner South (Salt Lake to Provo) – Remaining PTC design started in September of 2014, and construction work is scheduled to begin spring of 2016.
        1. In 2012, approximately 50 of 86 locations were equipped with PTC hardware or had wiring modifications to address PTC.
        2. In 2012, PTC hardware was manufactured and delivered, but not installed for the remaining 34 locations. Installation of the remaining hardware is scheduled to begin spring of 2016.
    c. Fiber Optic Modifications
        1. By 2012, approximately 129 of 155 locations were connected to the fiber optic backbone. Modifications will be required to tie in the remaining 26 locations to the fiber optic backbone on the Provo to Ogden segment. To date, 23 of 26 locations have been completed.
        2. Fiber Optic Communication modifications will be required at wayside locations. 86 of 155 locations were completed in 2012 as part of the FrontRunner South project. The remaining 69 locations are currently designed, equipment received, and construction is scheduled to begin spring of 2016.
    d. Back-office server installation

1. Back-office server design started in September 2014 and construction work is scheduled to begin spring of 2016.

2. Ogden to Pleasant View
   a. No I-ETMS PTC interoperability work has been performed.
   b. Rolling stock modifications are the responsibility of UTA. Field modifications are the responsibility of Union Pacific Railroad.

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	0	N/A	40	40
Installation/Track Segments completed	0	0	0	2
Radio towers fully installed and equipped	N/A	N/A	N/A	N/A
Employees trained	0	0	0	200
Back office locations completely installed and fully operable	0	0	0	2
Dispatching locations completely installed and fully operable	0	0	1	1
Route miles in testing	0	0	0	87.78
Route miles in RSD	0	0	0	87.78
Route miles in full PTC operation	0	0	0	87.78

2 Update on Spectrum Acquisition

Required content:

- Spectrum Acquisition is not applicable with UTA's Enhanced-Automatic Train Control (E-ATC) PTC system. Communication between wayside and office is propagated via UTA-owned fiber optic cable running the entire length of the UTA FrontRunner corridor.

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
N/A	N/A	N/A	N/A	N/A

Please provide any additional narrative for Spectrum Acquisition below:

Spectrum Acquisition is not applicable for UTA's E-ATC PTC system.

3 Quality Update on Hardware Installation

Required content:

3.1 Rolling Stock Hardware Installation Quantity Update

The Utah Transit Authority's (UTA) revised PTCIP Version 7.3, dated January 26, 2016, lists E-ATC PTC equipment to be installed on 18 locomotives (100% of the fleet) and 22 cab cars (100% of the fleet) by the end of CY 2011. UTA met the PTCIP goal of equipping 100% of locomotives and cab cars in CY 2011.

The UTA PTCIP also lists I-ETMS PTC equipment to be installed on two locomotives and two cab cars for the Ogden to Pleasant View segment. UTA installed I-ETMS PTC equipment on zero (0) locomotives during CY 2015 (0% of the fleet). UTA met the PTCIP goals of equipping zero (0) locomotives and cab cars in CY 2015.

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)	0	0	40	40
Software for Train Management & other applications	0	0	0	40
PTC User Displays	0	0	0	40
Event Recorders	0	0	40	40
Onboard Antennas	N/A	N/A	N/A	N/A
Transponder readers as applicable	N/A	N/A	N/A	N/A
GPS receivers	N/A	N/A	N/A	N/A
Locomotive radios – Primary communications (e.g. 220 MHz radios)	N/A	N/A	N/A	N/A
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:

E-ATC requires only slight modifications to the PTC user displays and a software upgrade prior to testing and commissioning. The No Code Proceed operation will require a software modification to change MAS from 79 mph to 15 mph. The cab signal Aspect Display Unit faceplate requires changing the 60 mph text to 59 mph text.

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)	0	0	1	1
Back Office Locations (installation complete)	0	0	0	2

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

UPRR back office interface will be via third-party contractor between Ogden and Pleasant View.

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)				
Installation/ Track Segment Identification: Provo to Ogden				
Wayside Interface Units	N/A	N/A	N/A	N/A
Communications towers or poles	N/A	N/A	N/A	N/A
Switch Position Monitors	N/A	N/A	N/A	N/A
Fiber or ground wiring (per mile)	N/A	N/A	N/A	N/A
Wayside Radios	N/A	N/A	N/A	N/A
Base Station Radios	N/A	N/A	N/A	N/A

Installation/ Track Segment Identification: Ogden to Pleasant View				
Wayside Interface Units	N/A	N/A	N/A	N/A
Communications towers or poles	N/A	N/A	N/A	N/A
Switch Position Monitors	N/A	N/A	N/A	N/A
Fiber or ground wiring (per mile)	N/A	N/A	N/A	N/A
Wayside Radios	N/A	N/A	N/A	N/A
Base Station Radios	N/A	N/A	N/A	N/A

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

The track segment elements listed above are not applicable for E-ATC. UTA is a tenant to Union Pacific Railroad on the Ogden to Pleasant View Segment. Rolling stock modifications are the responsibility of UTA. Field modifications are the responsibility of Union Pacific Railroad.

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 (Operations) Employees	0	0	0	55
Mechanical Employees*	N/A	N/A	N/A	N/A
MOW/Engineering/Roadway Worker Employees	0	0	0	106
Management Employees	0	0	0	39
Other Employees	N/A	N/A	N/A	N/A

Please provide any additional narrative for Employee Training below:

*Mechanical employees are included in the MOW/Engineering/Roadway Worker Employees category.

5 Progress on Implementation Schedule / Milestones

In summary, PTC related work planned and/or currently being performed is listed by track segment and subdivision , below:

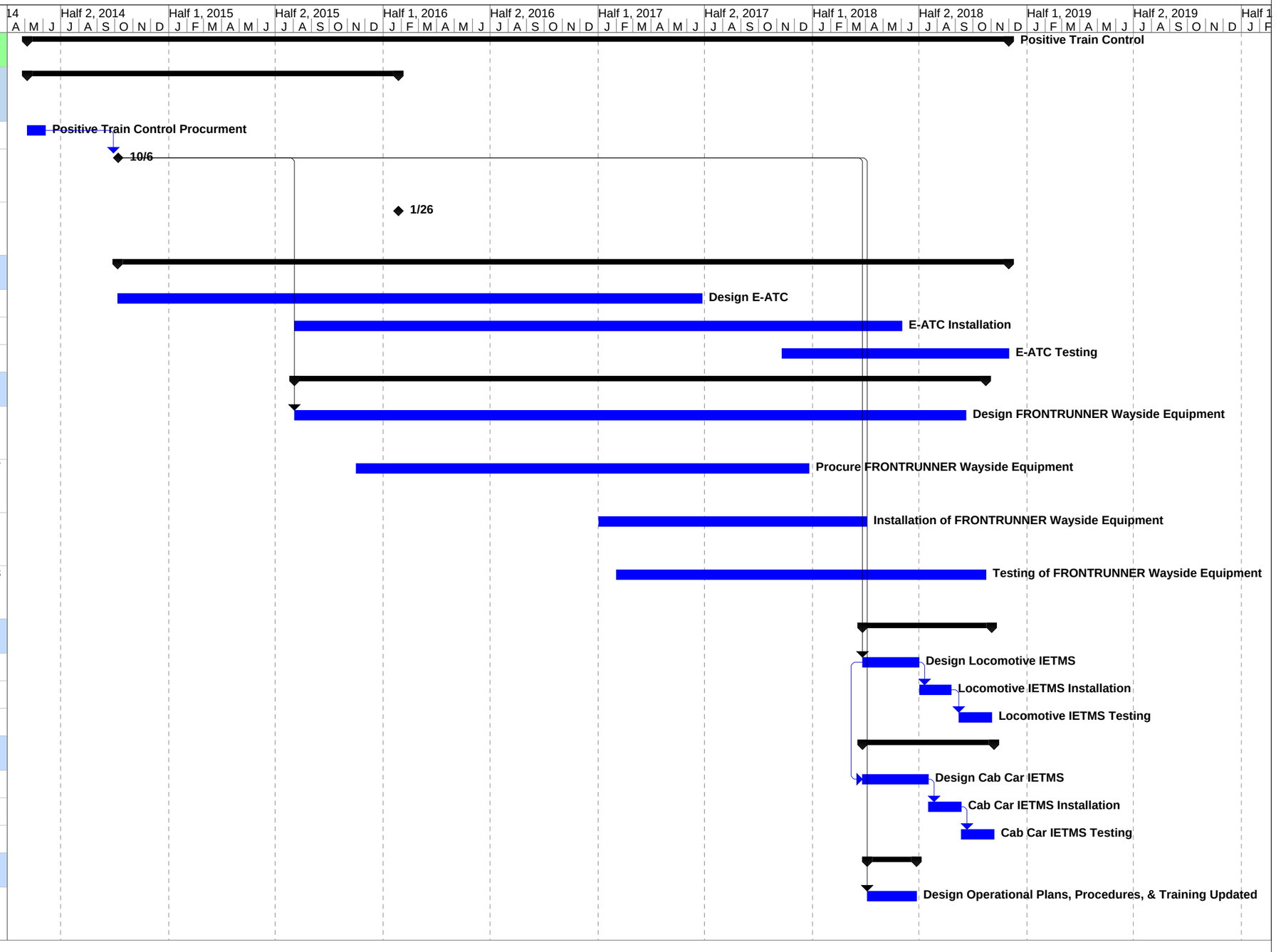
1. Provo to Ogden
    a. FrontRunner North (Salt Lake to Ogden) – PTC design started in September of 2014, and construction work is currently underway.
    b. FrontRunner South (Salt Lake to Provo) – Remaining PTC design started in September of 2014, and construction work is scheduled to begin spring of 2016.
        i. In 2012, approximately 50 of 86 locations were equipped with PTC hardware or had wiring modifications to address PTC.
        ii. In 2012, PTC hardware was manufactured and delivered, but not installed for the remaining 34 locations. Installation of the remaining hardware is scheduled to begin spring of 2016.
    c. Fiber Optic Modifications
        1. By 2012, approximately 129 of 155 locations were connected to the fiber optic backbone. Modifications will be required to tie in the remaining 26 locations to the fiber optic backbone on the Provo to Ogden segment. To date, 23 of 26 locations have been completed.
        2. Fiber Optic Communication modifications will be required at wayside locations. 86 of 155 locations were completed in 2012 as part of the FrontRunner South project. The remaining 69 locations are currently designed, equipment received, and construction is scheduled to begin spring of 2016.
    d. Back-office server installation
        i. Back-office server design started in September 2014 and construction work is scheduled to begin spring of 2016.
2. Ogden to Pleasant View
    a. No I-ETMS PTC interoperability work has been performed.
    b. Rolling stock modifications are the responsibility of UTA. Field modifications are the responsibility of Union Pacific Railroad.

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

See schedule below.

Utah Transit Authority Positive Train Control

ID	Task Name	Duration	Start	Finish
1	**Positive Train Control**	**1195 days**	**Mon 5/5/14**	**Fri 11/30/18**
2	**Positive Train Control IP & Procurement**	**452 days**	**Mon 5/5/14**	**Tue 1/26/16**
3	Positive Train Control Procurment	23 days	Mon 5/5/14	Wed 6/4/14
4	Positive Train Control Procurment Award	1 day	Mon 10/6/14	Mon 10/6/14
5	Resubmit Positive Train Control Implementation Plan	1 day	Tue 1/26/16	Tue 1/26/16
6	E-ATC System	1085 days	Mon 10/6/14	Fri 11/30/18
7	Design E-ATC	711 days	Mon 10/6/14	Mon 6/26/17
8	E-ATC Installation	740 days	Mon 8/3/15	Fri 6/1/18
9	E-ATC Testing	276 days	Fri 11/10/17	Fri 11/30/18
10	Wayside Equipment	841 days	Mon 8/3/15	Mon 10/22/18
11	Design FRONTRUNNER Wayside Equipment	817 days	Mon 8/3/15	Tue 9/18/18
12	Procure FRONTRUNNER Wayside Equipment	551 days	Mon 11/16/15	Mon 12/25/17
13	Installation of FRONTRUNNER Wayside Equipment	326 days	Mon 1/2/17	Mon 4/2/18
14	Testing of FRONTRUNNER Wayside Equipment	449 days	Wed 2/1/17	Mon 10/22/18
15	**Locomotive IETMS**	**158 days**	**Tue 3/27/18**	**Thu 11/1/18**
16	Design Locomotive IETMS	69 days	Tue 3/27/18	Sat 6/30/18
17	Locomotive IETMS Installation	40 days	Mon 7/2/18	Fri 8/24/18
18	Locomotive IETMS Testing	40 days	Fri 9/7/18	Thu 11/1/18
19	**Cab Car IETMS**	**160 days**	**Tue 3/27/18**	**Mon 11/5/18**
20	Design Cab Car IETMS	80 days	Tue 3/27/18	Mon 7/16/18
21	Cab Car IETMS Installation	40 days	Tue 7/17/18	Mon 9/10/18
22	Cab Car IETMS Testing	40 days	Tue 9/11/18	Mon 11/5/18
23	Operational Plans & Training	60 days	Wed 4/4/18	Tue 6/26/18
24	Design Operational Plans, Procedures, & Training Updated	60 days	Wed 4/4/18	Tue 6/26/18



Project: Utah Transit Authority PTC
Date: Tue 1/26/16

Task	Rolled Up Milestone	Project Summary	Inactive Summary	Manual Summary	Deadline
Milestone	Rolled Up Progress	Group By Summary	Manual Task	Start-only	
Summary	Split	Inactive Task	Duration-only	Finish-only	
Rolled Up Task	External Tasks	Inactive Milestone	Manual Summary Rollup	Progress	

6 Summary of Update of Challenges / Risks

Required content:

Regarding the specific challenges listed in this section, our analysis is outlined as follows:

- Availability of public funding – funding for full implementation of PTC has not been secured.
- Interoperability – Complexity of dual-equipping rolling stock; i.e. implementation, operation, and maintenance
- Spectrum – not applicable.
- Software – Complexity of multiple TSR implementation with fixed cab speed options
- Permitting – not applicable.
    - Testing, Demonstration and Certification – Construction, implementation, and testing of a fully complaint PTC system with limited track access due to maintaining current revenue passenger operations
    - Vital Sim software modeling versus actual field testing of all applicable scenarios.
    - Availability of qualified technical resources

Please provide Summary Update of Challenges/Risks below:

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
Provo to Ogden	87.78	O Not Started X Installing O Testing O Operational/ Complete	11/30/2018
Ogden to Pleasant View	4.65	X Not Started O Installing O Testing O Operational/ Complete	11/30/2018

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

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):

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

UTA has dedicated a project team to implement PTC. Funding is allocated to PTC as it becomes available. UTA has procured a contractor to design, install, test, and support PTC.

9 Update on Interoperability Progress and Other Formal Agreements

Required content:

Please provide Update on Interoperability below:

- UTA's tenant railroads are not required to be PTC equipped per §236.1006(b)(5) as further described in UTA's PTCIP Rev. 7.3 January 26, 2016.
- UTA has received a Letter of Understanding from UPRR executed on or about March 9, 2010 as further described in UTA's PTCIP Rev. 7.3 January 26, 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
April 2 2018

Please provide any additional narrative for PTCSP Submission below:

If additional funding becomes available, UTA has the ability to accelerate the implementation of PTC, thereby submitting the PTCSP in the late spring or early summer of 2017.

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

Please provide Update on Testing and integration efforts below:

None completed in 2015.

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 hove 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:

See attached files