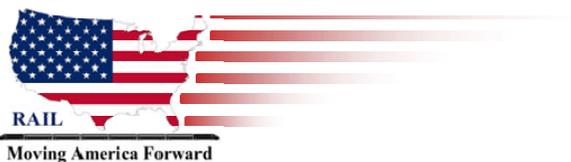


PTC Collaboration Session

Second of Six in 2019 and 2020

June 5, 2019

*To promote information-sharing,
best practices, and collaboration
between FRA and industry*



U.S. Department
of Transportation
**Federal Railroad
Administration**

Topics For Discussion

- Industry's PTC Status as of March 31, 2019 & Self-reported Challenges
- FRA's PTC Organization
- FRA's Interoperability Initiatives
- PTC Safety Plans – Content Streamlining
- PTC System Breakout Groups & Debriefs
- Q&A



Overview of Progress Toward Full Implementation

As of March 31, 2019

• Status of Host Railroads' PTC-governed Operations

- As of March 31st, PTC systems were in operation on **~48,048** (83%) of the 57,875 required route miles—a 3% increase from December 31, 2018
- In addition, 9 commuter railroads were operating PTC systems in revenue service demonstration (RSD) on **~341.5** route miles, as of Quarter 1 of 2019

• Status of PTC System Interoperability

- Host railroads have reported that **~38** tenant railroads have achieved PTC system interoperability—i.e., 17% of the 227 required host-tenant railroad relationships
- Also, as of March 31st, host railroads reported that 87 additional tenant railroads were currently conducting interoperability testing and 74 were in the installation phase



Remaining Main Lines Where PTC Must be Activated

As of March 31, 2019

- Total Route Miles Required to Be Governed by PTC: 57,875
- Route Miles Where Host Railroads' Operations Were Governed by PTC as of March 31 (in RSD or Operation): ~48,389
- Remaining Route Mileage That Must be Governed by PTC*: ~9,486

**Subtracting route miles where host railroads' operations were governed by a conditionally certified PTC system, in provisional PTC operations, or in RSD as of March 31st*

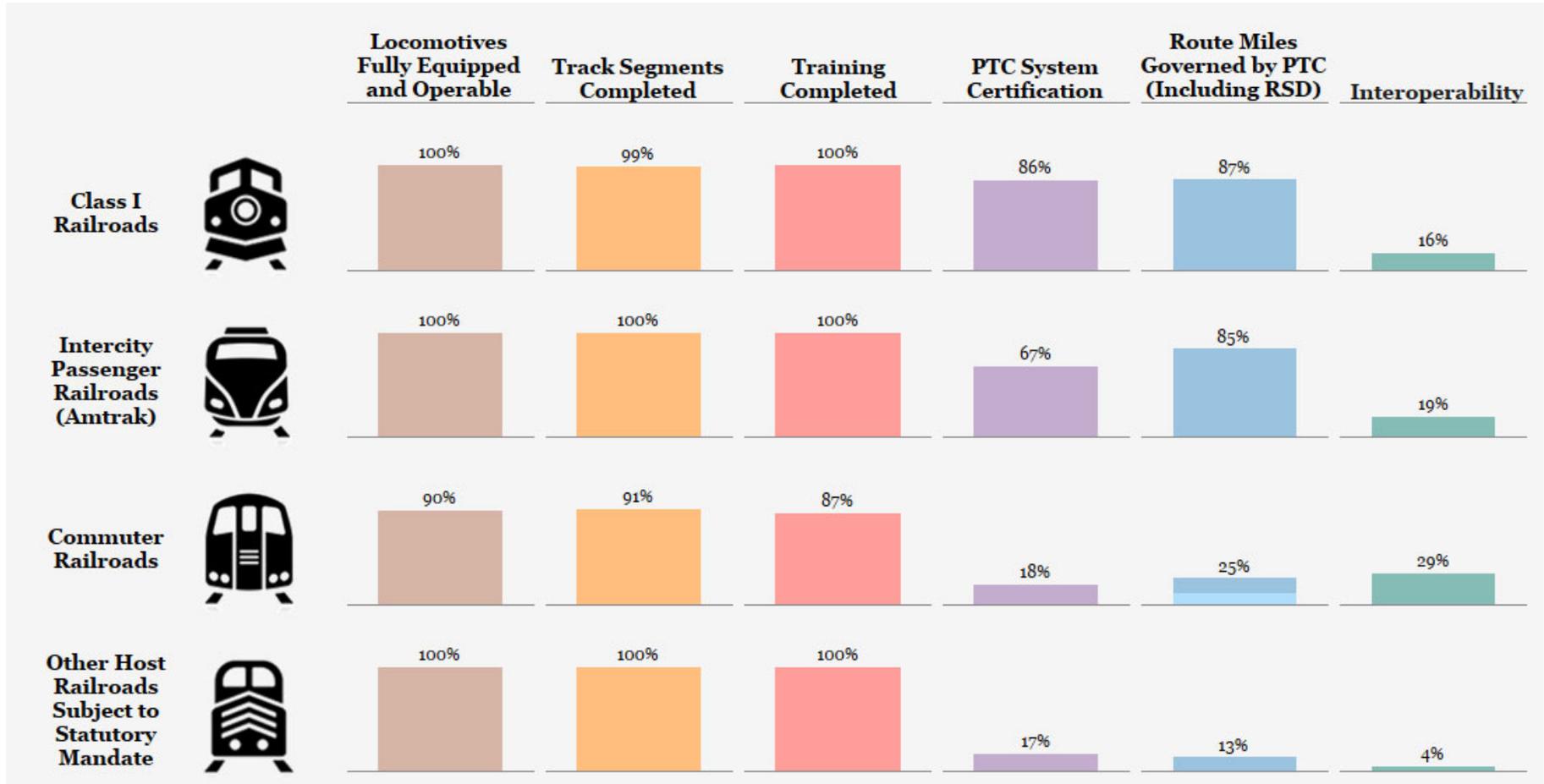
From Their Standpoint as Host Railroads (as of March 31st)

- Class I Railroads' Remaining Mileage: ~6,930 Route Miles (13%)
- Amtrak's Remaining Mileage: ~136 Route Miles (15%)
- Commuter Railroads' Remaining Mileage: ~2,326 Route Miles (75%)
- Six Other Host Railroads' Remaining Mileage: ~94 Route Miles (87%)



Progress by Sector Toward Full PTC System Implementation

Based on Railroads' Self-reported Progress and PTC Implementation Plans as of March 31, 2019

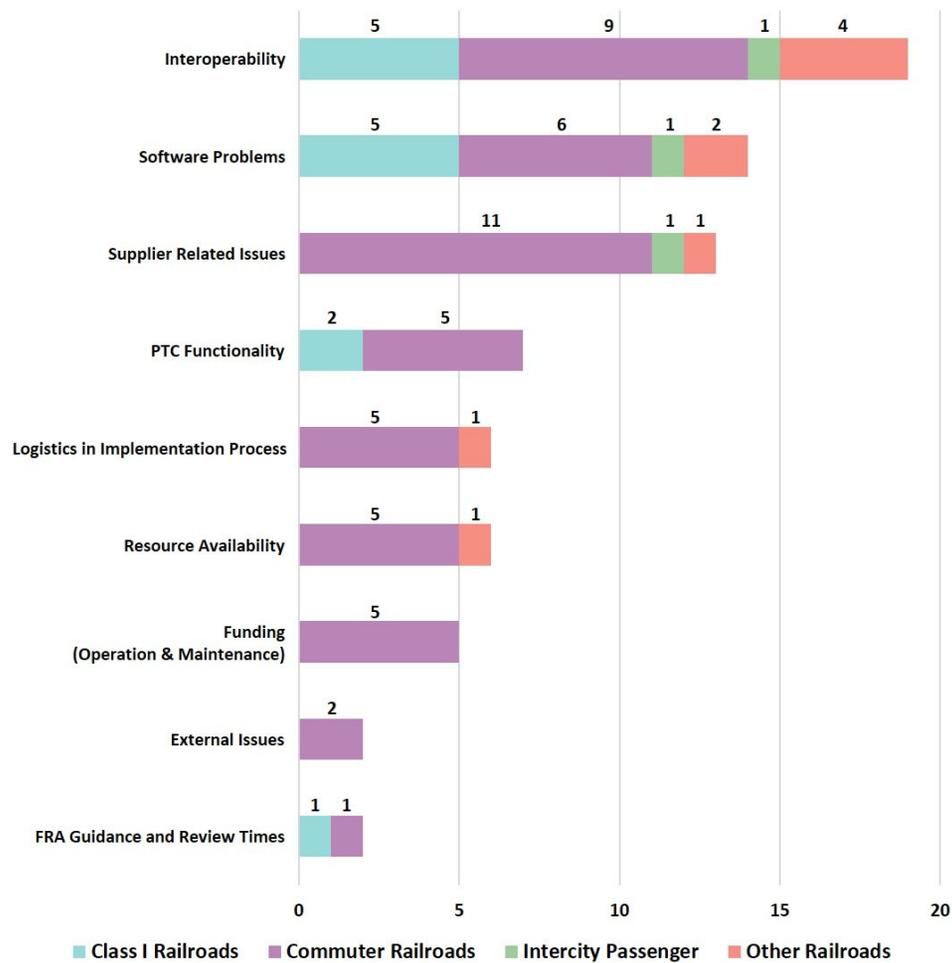


See <https://www.fra.dot.gov/ptc> for the full set of infographics summarizing progress as of Quarter 1 of 2019



Railroads' Self-reported Challenges

Based on Railroads' Annual PTC Progress Reports for 2018



FRA PTC Organization Changes

- **Karl Alexy** – Deputy Associate Administrator, Railroad Safety
- **Carolyn Hayward-Williams** – Director, Technical Oversight, Railroad Safety
- **Gabe Neal** – Acting Staff Director – PTC/S&TC Division
Deputy Staff Director – PTC
- **Calvin Viser** – Sr. PTC Specialist – West
Acting PTC Specialist R4
- **Billy Bennett** – PTC Specialist R5



Brief Overview of Interoperability Requirement

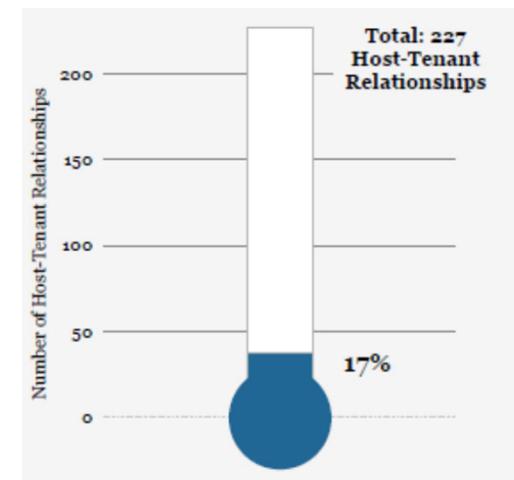
General Rule: Any train that operates on a main line subject to the mandate—including trains operated by foreign power and tenant railroads—must be governed by a PTC system, including uninterrupted movements over property boundaries.

Practical Steps for Tenant Railroads on PTC-required Main Lines:

- Equip controlling locomotives and/or cab cars with onboard PTC hardware and software;
- Comply with the host railroad’s PTC Implementation Plan and PTC Safety Plan; and
- Conduct all necessary PTC system interoperability testing

Limited Exceptions to the Interoperability Requirement:

- Certain limited Class II or Class III railroad operations (only in the case of 4 or fewer unequipped movements per day), under 49 CFR § 236.1006(b)(4) and (c);
- Certain freight switching movements in or near yards, under 49 CFR § 236.1006(b)(5); and
- Operations during certain system failure scenarios (until ~December 31, 2021), under 49 U.S.C. § 20157(j)



Railroads’ Progress Toward Achieving Interoperability as of March 31, 2019



FRA's Observation of Interoperability Challenges

- **Scope of Required Interoperability**

- ~**101** distinct tenant freight and passenger railroads operate on PTC main lines
- Because many railroads operate on multiple host railroads, there are ~**227** host-tenant railroad relationships in which PTC system interoperability must be achieved by December 31, 2020

- **Complexity of Required Interoperability**

- Although railroads are primarily implementing 4 types of PTC systems, railroads are in some cases implementing PTC systems of the same type in different manners (e.g., variances in design, functionality, and operation), requiring additional testing and configuration management
- In some cases, 2 different types of PTC systems will be operated concurrently on a single main line, or portion thereof, adding to the complexity of interoperability



FRA's Past Interoperability Initiatives

- **June and July 2018 – Focus on Interoperability During Symposia**

- FRA provided an overview of the various statutory and regulatory interoperability requirements, including any exceptions, and best practices for interoperability testing between host railroads and tenant railroads
 - These presentations are available in FRA's eLibrary at https://www.fra.dot.gov/eLib/Find#p1_z5_gD_kPTC%20Symposium%20June%202018 and https://www.fra.dot.gov/eLib/details/L19578#p1_z5_gD_IOP_y2018_m7

- **July 2018 – Written Guidance**

- FRA issued a revised and simplified guidance document that addresses interoperability testing and the responsibilities of a host railroad and its tenant railroads with respect to a host railroad's PTC Safety Plan and FRA's certification of PTC systems
 - Revised PTC Guidance Regarding Interoperability Testing, Operations and Maintenance Manuals, and Certification Responsibilities is available at https://www.fra.dot.gov/eLib/details/L19583#p1_z5_gD_IPO



FRA's Current Interoperability Initiatives

- **November 2018 to Present** – FRA engaged with each Class I railroad and several NEC railroads to help validate the list of PTC-required tenant railroads and ensure the accuracy of host railroads' governing PTC Implementation Plans
- **April 2019** – FRA sent a letter to each freight, non-Class I tenant railroad that operates on one or more PTC main lines (based on host railroads' PTC Implementation Plans) to emphasize the importance of achieving interoperability in a timely manner and to invite them to meet in Washington, DC, this summer
- **May 21st to Early August 2019** – The FRA Administrator and PTC staff plan to meet individually with each freight, non-Class I tenant railroad in Washington, DC
 - **Purposes:** *Offer technical assistance and discuss any challenges tenant railroads might currently be experiencing with respect to PTC system implementation; tenant railroads' progress to date; and their strategies for completing any PTC system hardware and software installation and testing necessary to achieve interoperability*



FRA's Engagement with Industry Groups Safety Plans

- **Safety Plan Comment and Condition Resolution**
 - As we close out the comments, the railroads must submit resolutions
 - Submission of the spreadsheets
 - Include corrections in your revised Safety Plans
- **PTC System Baselining Efforts**
 - BNSF is working with FRA on a streamlined I-ETMS Safety Plan
 - This will apply to those that have a certified system and have previously submitted a PTCSP
 - PNWR/TriMet, in coordination with the E-ATC working group, is working with FRA on a baseline E-ATC Safety Plan
- **I-ETMS Mixed System Safety Plan**
 - BNSF, supported by AAR, is working with FRA on an I-ETMS Mixed System Safety Plan



Safety Plan Streamlining

- **Safety Plan contents must be compliant with 49 CFR § 236.1015**
- **Be mindful of requirements, as many content areas require just a description, for example:**
 - V&V Processes
 - Training Plan
 - Test Procedures and Equipment
 - Additional Warnings
 - Configuration Control
 - And a further 9 others
- **References to key documents, such as Development Plans and Type Approvals, may be used (rather than included)**
- **Please note that FRA may request a copy of the full documents, as needed, for example, the O&M Manual or the Training Plan**



Break-Out Sessions & Debrief

- **E-ATC (Room 6)**
- **ACSES II and ACES II (Room 7)**
- **I-ETMS and ITC (Oklahoma Room)**

