



U.S. Department of Transportation
Federal Railroad Administration

Revenue Service Demonstration and “Substitute Criteria”

INFORMATION AND PROCEDURAL REQUIREMENTS

Federal Railroad Administration – Positive Train Control (PTC) Symposium #1
Presentation #3

June 15, 2018

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Outline

1. What Is Revenue Service Demonstration?
2. What Is Substitute Criteria*?
**Also Known As Alternative Criteria*
3. Eligible Railroads
4. Examples of Substitute Criteria
5. How to Request That FRA Establish Substitute Criteria



Section 1

What Is Revenue Service Demonstration (RSD)?

What Is Revenue Service Demonstration?

RSD is the **advanced stage of field testing of an uncertified PTC system on the general rail system**, when FRA permits a railroad to operate PTC-equipped trains in revenue service under specific test conditions applicable to the railroad and its PTC system.

When? RSD is the final stage of field testing after a railroad completes functional integration testing (FIT) and functional qualification testing (FQT).

Purposes:

- a) Validate the performance of the system as a whole (including the human element);
- b) Test the system under “full load” (i.e., normal, real-world operations);
- c) Ensure training, processes, procedures, and system configurations are sufficient to support safe and normal revenue service operations; and
- d) Support the railroad’s safety case it will make in its PTC Safety Plan (if it is a host railroad).

Additional RSD Definitions

What is a territory?

- It is an entire “track segment” identified in your PTC Implementation Plan—for example, in the section where you list the risk-based schedule and sequence in which track segments will be equipped.

What constitutes initiating RSD on at least 1 territory?

- 1) Requesting and obtaining FRA’s written approval to commence RSD under 49 CFR § 236.1035;
- 2) Meeting the preconditions that FRA imposes in its approval letter; and
- 3) In fact initiating RSD on the entire territory (1 test train run across the territory at a minimum).

What Does It Take to Get to RSD?

1. All pertinent **PTC system hardware needs to be installed** on the track segment.
2. The back office and communications systems need to be functional and in operation.
3. **Configuration Management** and Software Management and Control Plan (SMCP) are **in place**.
4. **Training program** under 49 CFR §§ 236.1041–236.1049 is in place and sufficient employees have been trained to support RSD.
5. **All relevant functional field testing must be completed:**
 - a) Obtained FRA approval for field testing (49 CFR § 236.1035);
 - b) All FIT & FQT tests completed, errors logged, changes made, and re-tests completed; and
 - c) Regression testing completed.
6. Submitted request to initiate RSD to FRA and obtained approval under 49 CFR § 236.1035.



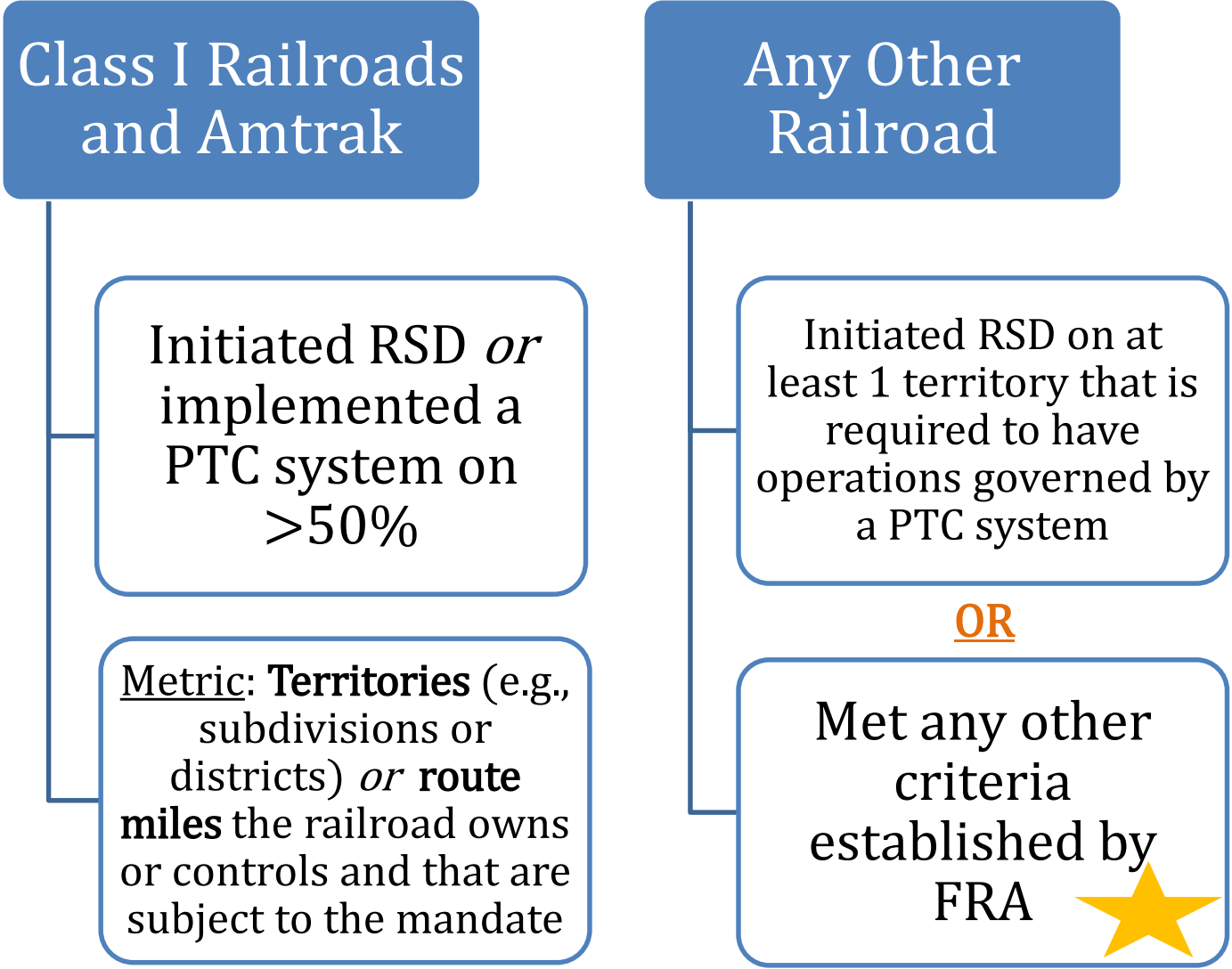
Integrated testing on PTC territory at turnout.

Section 2

What Is Substitute Criteria?

Who Can Request It?

Applicable Statutory Criterion for Alternative Schedule



FRA's Ability to Establish Substitute Criteria

Eligibility:

- FRA may establish substitute criteria only for railroads other than Class I railroads or Amtrak—for example, **commuter railroads, Class II or Class III railroads, and any other railroad subject to the statute.**
- To date, FRA has established substitute criteria for eligible railroads only on a case-by-case basis, based on railroads' written requests.

Overview of Process:

- Submit a letter proposing specific and measurable substitute criteria and requesting that FRA establish such substitute criteria under **49 U.S.C. § 20157(a)(3)(B)(vii)(II)**.
 - Upload to FRA's Secure Information Repository (<https://sir.fra.dot.gov>).
 - Address letter to: Mr. Robert C. Lauby, PE
Associate Administrator for Railroad Safety and Chief Safety Officer
Federal Railroad Administration, U.S. Department of Transportation
1200 New Jersey Avenue, SE
West Building, Third Floor (Mail Stop 25)
Washington, DC 20590

Section 3

**Examples of Substitute
Criteria Established on a
Case-by-case Basis To Date**

Substitute Criteria

Reminder: If a railroad other than a Class I railroad or Amtrak is not able to initiate FRA-approved RSD on a territory by December 31, 2018, it may request that FRA establish substitute criteria.

Any requested criteria should be:

- **Clearly defined, specific, and measurable** (the railroad will need to demonstrate it has met such criteria, so specificity is paramount);
- **Realistic** (i.e., consistent with what the railroad can achieve and provide proof of by the time it submits its formal request for an alternative schedule); and
- **Established as soon as possible** (so the railroad knows the target it must meet and can devote resources to accomplishing it).

Other General Principles

Principles to consider when proposing substitute criteria instead of RSD:

- ❖ How the tests (e.g., field testing or simulator-based) will prove the PTC system performs each of the required **functions**;
- ❖ How the tests will verify that each of the **interfaces** of the PTC system works as designed;
- ❖ The characteristics of the test locations (including exact mileposts and quantity of route miles) and explain the extent to which the locations constitute a representative portion of the railroad's main lines; and
- ❖ Clearly define all terms, and identify the precise set(s) of tests that will be conducted.
 - **Note:** Be careful how you describe the requested criteria. For example, “completion” would indicate that all tests have been successfully performed, including adjustments and regression tests.

Substitute Criteria FRA Has Established to Date

In response to railroads' written requests, FRA has established substitute criteria for three commuter railroads to date:

- **Capital Metropolitan Transportation Authority** (Docket No. FRA-2010-0072) – On December 4, 2017, FRA established substitute criteria for CMTY such that the railroad must **initiate RSD** on a **~10-mile** segment of track.
- **Central Florida Rail Corridor** (Docket No. FRA-2011-0104) – On January 23, 2017, FRA established substitute criteria for CFRC such that the railroad must **initiate RSD** on a **~15-mile** segment of track.
- **South Florida Regional Transportation Authority** (Docket No. FRA-2010-0039) – On May 30, 2018, FRA established substitute criteria for SFRTA such that it must **initiate field integration testing** of its PTC system, **subject to industry standards and other conditions**, on **all 72.6 route miles** that are subject to the statutory mandate.

To access railroads' PTC dockets, please visit: <https://www.fra.dot.gov/Page/P0628>.

Substitute Criteria Example 1:

Initiate RSD on a Smaller Territory

Context: If a railroad will be able to initiate RSD, but an entire PTCIP territory will *not* be possible, a railroad may select a portion of a territory (i.e., a portion of a track segment identified in a PTCIP).

Key Attributes to Consider When Selecting Limits and Requesting This Type of Substitute Criteria:

- Will the portion of the track segment demonstrate the major functionalities of the PTC system?
 - For example, civil speed restrictions, temporary speed restrictions, control points and routing, mandatory directives, and switch protection.
- How well does the portion of the track segment represent the physical characteristics or constitute a representative portion of the railroad's main lines that are subject to the statutory mandate?
 - For example, single/multiple track territories, signal systems, methods of operation, and traffic type.

Substitute Criteria Example 2:

Non-RSD Testing

Context: If a railroad will not be able to initiate RSD, a railroad may request that FRA establish, for example, other PTC system testing criteria.

Key Attributes to Consider When Requesting Other Test Criteria:

- Availability of a master test plan that describes the technical and management approaches when testing the PTC system;
- Detailed test plan and schedule for the proposed testing;
 - Is the testing representative of the system?
 - Does the testing contribute to prerequisite testing, such as functional testing?
 - Does the testing confirm interfaces and all communication methods?
- Clear and measurable pass/fail criteria for the proposed testing; and
- Confirmation that the configuration of the PTC system under test is representative of the end state of the PTC system.

Section 4

How to Request That FRA Establish Substitute Criteria

Procedure for Requesting Substitute Criteria

1. Submit a letter requesting that FRA establish substitute criteria under **49 U.S.C. § 20157(a)(3)(B)(vii)(II)**.

- Upload to FRA's Secure Information Repository (<https://sir.fra.dot.gov>).
- Address letter to: Mr. Robert C. Lauby, PE
Associate Administrator for Railroad Safety and Chief Safety Officer
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2. Key Reminders:

- In a letter requesting substitute criteria, a railroad does *not* need to demonstrate that it will meet the other statutory criteria necessary to qualify for an alterative schedule. This type of letter is a discrete request for substitute criteria only.
- A request for substitute criteria is a public document that will be uploaded to the railroad's PTC docket on [regulations.gov](https://www.regulations.gov).
- You can submit a request for substitute criteria now.



Questions?