



U.S. Department of Transportation
Federal Railroad Administration

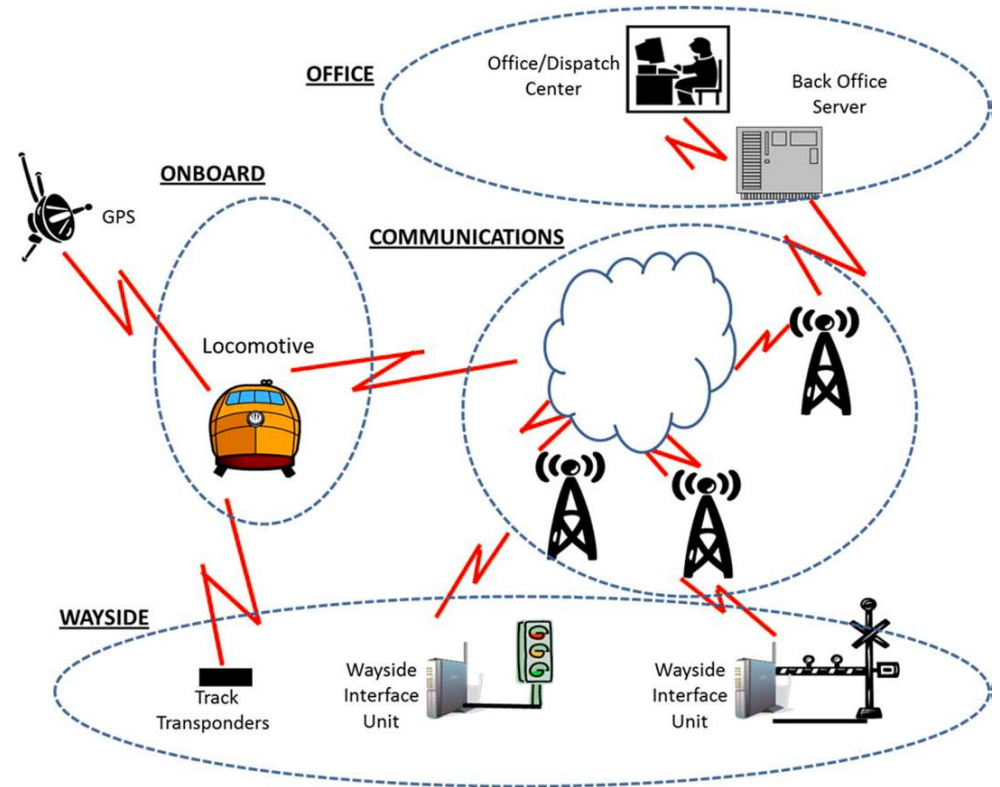
Positive Train Control (PTC) Briefing

Community of Interest
Fort Worth, Texas

March 28, 2018

What is PTC?

- A PTC system consists of four main parts:
 - Onboard System,
 - Wayside Devices,
 - Back Office Systems, and
 - Communications Backbone.
- A PTC system may be an overlay to conventional signaling systems, or a standalone system, replacing conventional signaling systems.



PTC Requirements

Performance Standard:

- Prevent train-to-train collisions,
- Prevent over-speed derailments,
- Prevent incursions into roadway worker zones, and
- Prevent movement through switches in the wrong position.

Interoperability

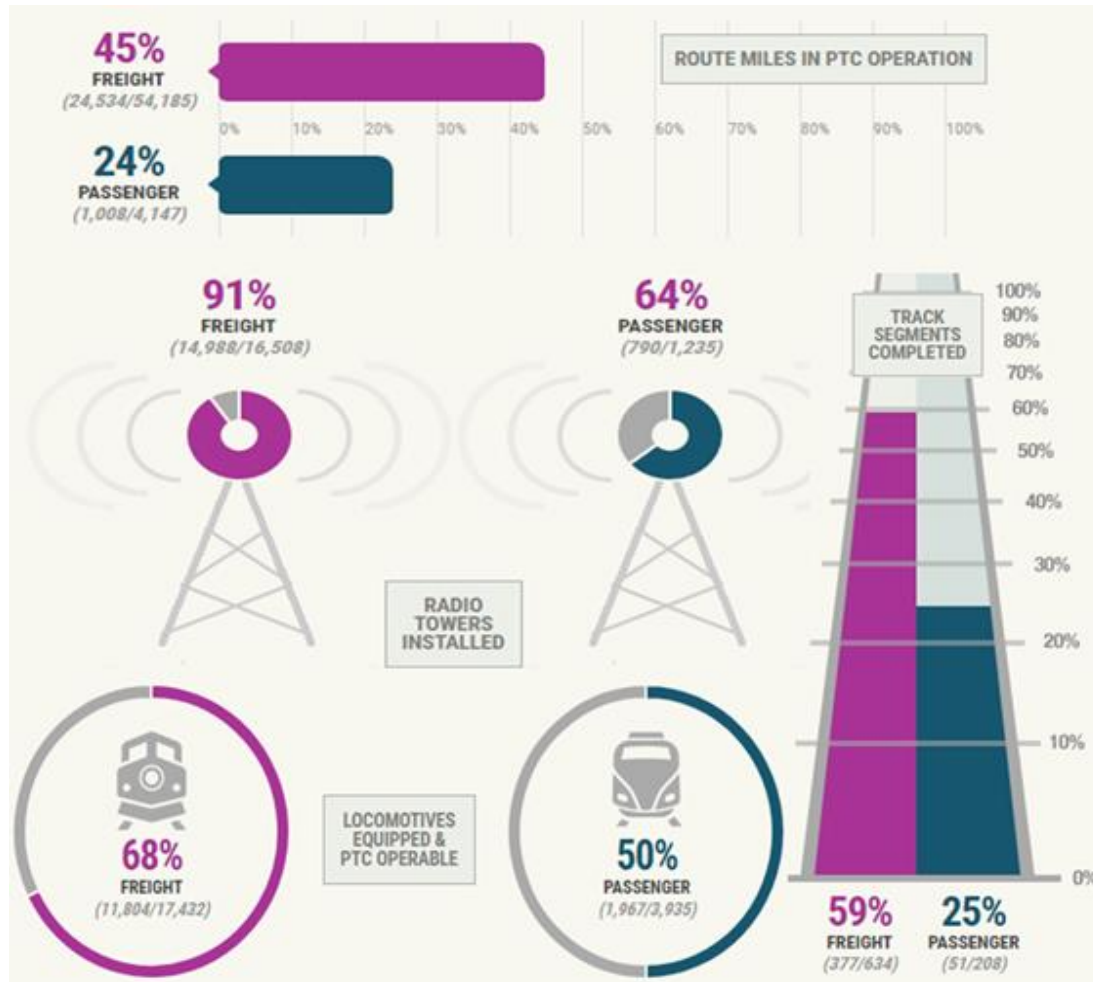
- A PTC system must be interoperable with the movements of trains of other railroads over the same main lines.

Full PTC System Implementation:

1. All wayside hardware installed on ALL required routes
2. All rolling stock equipped with onboard PTC equipment
3. The back office, dispatch, and communications systems are operational
4. Training program in place and sufficient staff trained to support operations
5. Field testing, including RSD testing, satisfactorily completed
6. Submitted PTCSP to FRA
7. Obtained PTC System Certification
8. Achieved interoperability with all required tenant railroads
9. Operating the PTC system in revenue service on all required route miles

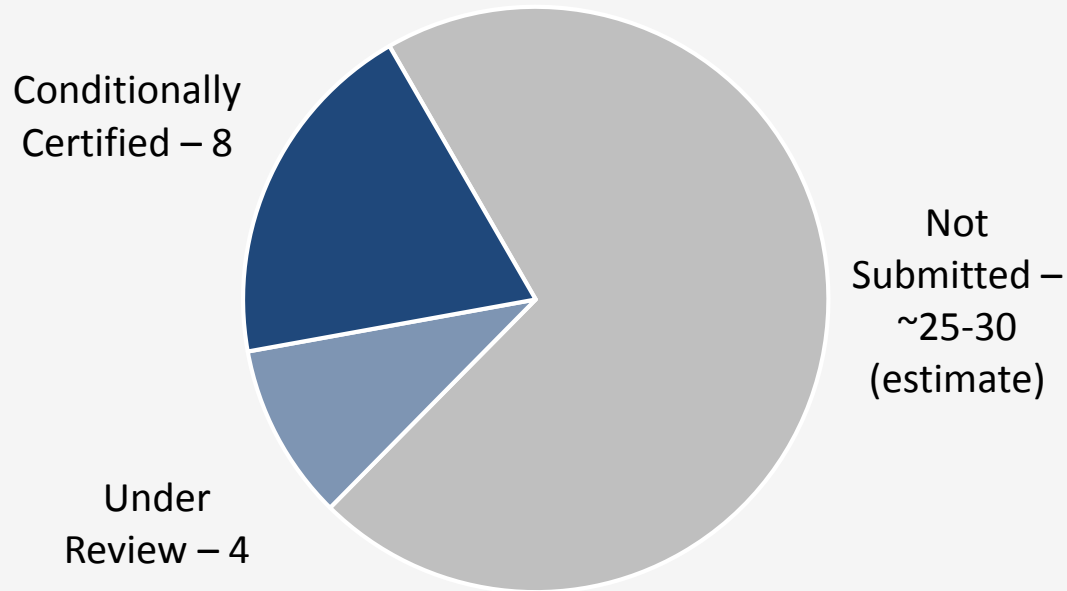
Overview of Industry Progress

Based on data from railroads' Quarterly PTC Progress Reports for Quarter 3 (current as of September 30, 2017)



PTC Safety Plan Progress

As of February 23, 2018



Conditionally Certified:

Amtrak, BNSF, CP, CSX, NS, SCRRRA, SEPTA, and UP

Under FRA Review:


CN, KCS, PNWR, and SDNX (NCTD)


As of September 30, 2017, what progress has each railroad made towards meeting the following statutory criteria for an extension?

Railroad Name	Total Hardware Installed	Onboard Hardware Installed ²	Wayside Hardware Installed	All Spectrum Acquired?	Sufficient RSD Initiated?	Employees Trained
Southeastern Pennsylvania Transportation Authority (SEPA)	100%	1,525/1,525	152/152	Yes	Yes	1,192/1,192
Sonoma-Marin Area Rail Transit (SMART)	100%	45/45	75/75	N/A	Yes	75/75
Regional Transportation District Commuter (RTDC) "Denver"	100%	264/264	228/228	Yes	Yes	120/120
Northstar Commuter Rail (NSCR)	100%	60/60	N/A	N/A	Yes	18/18
North County Transit District (SDNX)	100%	68/68	86/86	Yes	Yes	97/98
Portland & Western Railroad (PNWR) and TriMet (TMEV)	100%	68/68	20/20	N/A	No	30/32
Sounder Commuter Rail (SCR)	100%	128/128	24/24	Yes	No	2/4
Peninsula Corridor Joint Powers Board (PCMZ) "Caltrain"	100%	335/335	246/246	Yes	No	87/199
Terminal Railroad Association of St. Louis (TRRA)	100%	68/68	43/43	Yes	No	47/230
Denton County Transportation Authority (DCTA)	100%	44/44	121/121	N/A	No	0/50
Utah Transit Authority FrontRunner Commuter Rail (UFRC)	100%	120/120	96/96	N/A	No	0/200
Virginia Railway Express (VREX)	100%	164/164	N/A	N/A	To Be Determined	0/108
Southern California Regional Rail Authority (SCAX) "Metrolink"	99%	448/448	625/635	Yes	Yes	330/330
BNSF Railway (BNSF)	98%	19,396/20,000	13,627/13,735	Yes	Yes	21,877/21,877
Amtrak (ATK)	96%	1,968/1,968	591/689	No	Yes	9,817/10,985
CSX Transportation (CSX)	91%	8,000/8,000	5,019/6,248	Yes	No	18,711/19,234
Alaska Railroad (ARR)	90%	216/216	251/301	Yes	No	21/472
Union Pacific Railroad (UP)	86%	16,264/22,624	29,363/30,170	Yes	No	18,765/32,027
Kansas City Terminal Railway (KCT)	85%	8/16	48/50	No	No	0/14
Northeast Illinois Regional Corporation (NIRC) "Metra"	84%	1,727/2,112	721/789	Yes	No	545/1,801
Norfolk Southern Railway (NS)	83%	8,692/11,600	10,335/11,193	Yes	No	17,325/18,832
Canadian Pacific Railway (CP)	81%	1,630/2,020	2,219/2,732	Yes	No	1,564/2,775
Port Authority Trans-Hudson (PATH)	81%	1,095/1,150	1,625/2,210	N/A	No	910/910
Canadian National Railway (CN)	79%	2,651/2,930	3,928/5,378	Yes	No	4,150/4,603
Florida East Coast Railway (FECR)	72%	24/146	288/288	N/A	No	24/477
Kansas City Southern Railway (KCS)	69%	1,328/2,456	2,830/3,572	Yes	No	1,436/2,483
Belt Railway Company of Chicago (BRC)	63%	8/8	11/22	N/A	No	0/160
Metro-North Commuter Railroad Co. (MNCW)	62%	1,737/2,655	105/312	Yes	No	2,007/2,915
Long Island Rail Road (LIRR)	57%	1,571/2,900	210/210	Yes	No	1,207/3,194
Massachusetts Bay Transportation Authority (MBTA)	49%	730/985	128/760	Yes	No	215/932
Northern Indiana Commuter Transportation District (NICD)	41%	90/292	49/51	N/A	No	259/259
Central Florida Rail Corridor (CFRC) "SunRail"	39%	0/96	79/105	No	No	0/114
Consolidated Rail Corp. (CRSH)	31%	50/208	20/20	Yes	No	212/349
Maryland Area Regional Commuter (MACZ) "MARC"	29%	92/312	N/A	N/A	To Be Determined	0/100
New Mexico Rail Runner Express (NMRX) "Rio Metro"	9%	0/72	21/162	No	No	0/88
New Jersey Transit (NJTR)	7%	125/2,200	55/334	Yes	No	137/1,100
Altamont Corridor Express (ACEX)	7%	5/70	N/A	N/A	To Be Determined	0/16
South Florida Regional Transportation Authority (SFRV) "Tri-Rail"	4%	0/156	9/80	Yes	No	0/184
Capital Metropolitan Transportation Authority (CMTY)	0%	0/104	0/35	N/A	No	0/148
Nashville Regional Transportation Authority (NERR/NRTX) "Music City Star"	0%	0/70	0/147	Yes	No	0/15
Trinity Railway Express (TRE)	0%	0/68	0/89	Yes	No	0/80

 **Installed All Positive Train Control Hardware**
by December 31, 2018.

 **Acquired All Necessary Spectrum**
by December 31, 2018.

 **Made Sufficient Progress on Revenue Service Demonstration**
Class I railroads and Amtrak must have implemented a PTC system or initiated FRA-approved RSD on the majority of territories (e.g., subdivisions or districts) or route miles that the railroad owns or controls and that require PTC-governed operations. Any other railroad must have initiated FRA-approved RSD on at least one territory required to have PTC-governed operations, or have met any other criteria FRA previously established for that railroad.

 **Made Sufficient Progress on Employee Training**
A railroad must have completed PTC training for all applicable personnel in any territory, or segment thereof, where a PTC system is currently being operated in RSD or revenue service.
See 49 CFR §§ 236.1041–236.1049.

*Based on self-reported data from
railroads' Quarterly PTC Progress
Reports for Quarter 3 of 2017.*

Enforcement of Statutory Mandate & FRA's Regulations

Overview of Current Enforcement Actions

- As of February 23, 2018, FRA has initiated enforcement action against **14 railroads** for deadline-related violations of the statutory PTC mandate and/or FRA's regulations.
 - **7 cases** were initiated in response to a railroad's failure to implement a PTC system in accordance with the railroad's Revised PTC Implementation Plan, including the failure to complete one or more of the railroad's end-of-2016 hardware installation milestones, and
 - **7 cases** were initiated in response to a railroad's failure to submit a timely Annual PTC Progress Report (Form FRA F 6180.166, OMB Control No. 2130-0553) to FRA by the statutory March 31st deadline.
- In 13 of the 14 cases, the railroad has either paid a civil penalty or, at a minimum, agreed to pay a civil penalty.

Enforcement Actions – 13 Closed Cases & 1 Open Case

As of February 23, 2018

Missed End-of-2016 Hardware Installation Milestone(s)

Railroad	Assessed Amount
Belt Railway Company of Chicago	\$5,200
Capital Metropolitan Transportation Authority	\$3,600
Nashville & Eastern Railroad	\$10,500
New Jersey Transit	\$12,000
Northern Indiana Commuter Transportation District	\$6,250
Terminal Railroad Association of St. Louis	\$3,600

Late Reporting

Railroad	Assessed Amount
Amtrak	\$1,000
New Mexico Rail Runner Express	\$1,000
Northstar Commuter Rail	\$853
Regional Transportation District Commuter Rail	\$1,000
Southeastern Pennsylvania Transportation Authority	\$853
Southern Commuter Rail	\$853
Sonoma-Marín Area Rail Transit	\$1,000

1 Open Case:
 In addition to the 13 closed cases, there is one open enforcement case against a railroad for its alleged failure to complete one or more end-of-2016 milestones.

FRA's Oversight Role

The statutory PTC mandate requires FRA to:

- Prescribe regulations that specify the essential functionalities of PTC systems and the means by which FRA will certify PTC systems. *See* 49 CFR part 236, subpart I;
- Certify PTC systems;
- Conduct at least annual reviews to ensure railroads are complying with their PTC Implementation Plans (PTCIP); and
- Enforce the requirements of the statutory PTC mandate.

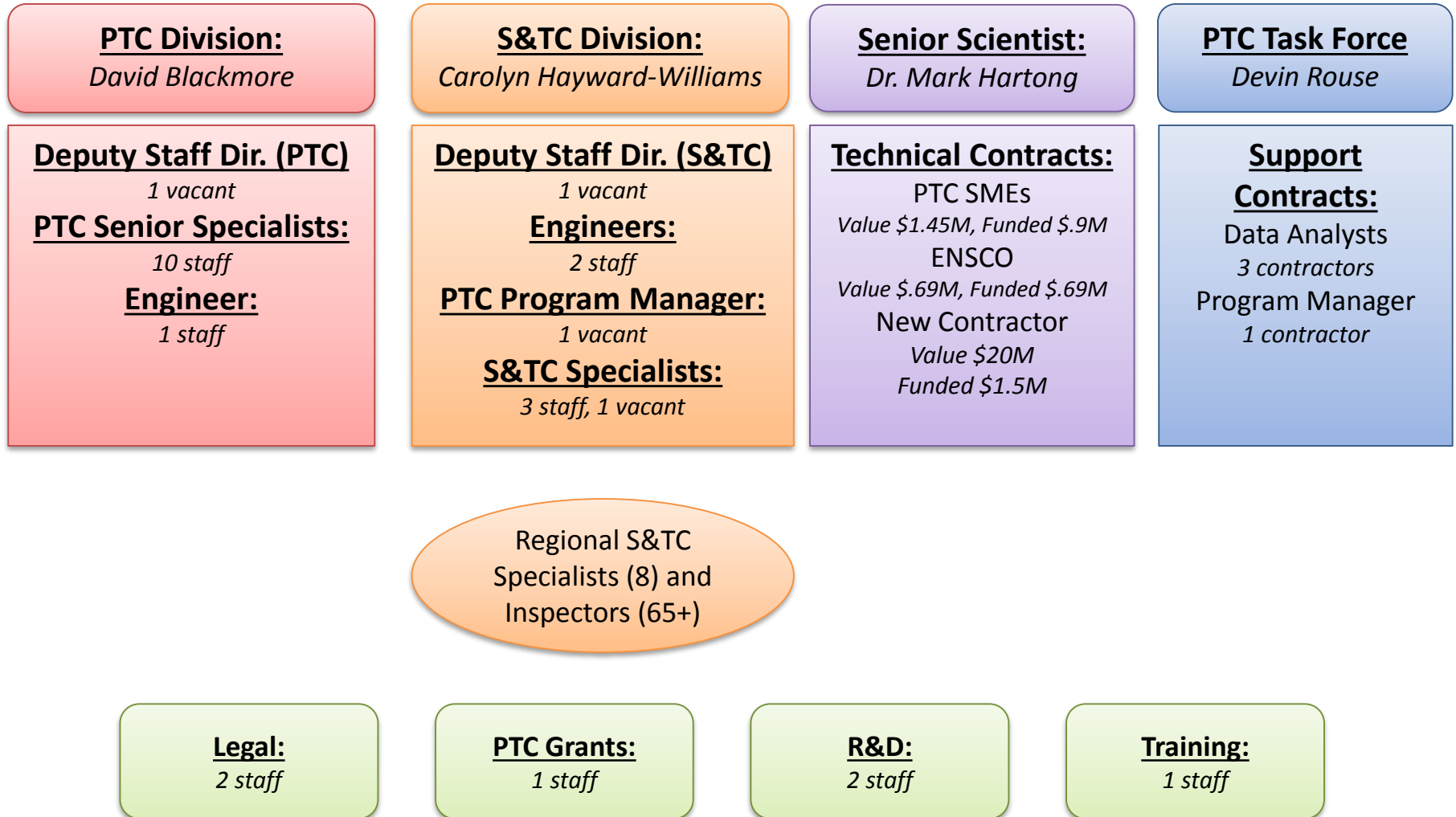
In addition, FRA provides extensive technical assistance, including:

- Continued operation of the PTC test bed at the Transportation Technology Center in Pueblo, Colorado,
- Participation in industry stakeholder meetings, including industry working groups designed to promote sharing of information and lessons learned, and
- Direct technical support and guidance to individual railroads throughout testing and integration.

PTC System Certification Process

- Phase 1: Implementation Planning
 - Timeframe: Oct. 2008 – Early 2010
 - Approvals: PTC Implementation Plan
- Phase 2: System Development
 - Timeframe: 2010 – 2012
 - Approvals: PTC Development Plan
- Phase 3: System Deployment & Testing
 - Timeframe: 2013 – Ongoing
 - Approvals: Field Test Requests, Revenue Service Demonstration
- Phase 4: Certification & Full Implementation
 - Timeframe: 2015 – Ongoing
 - Approvals: PTC Safety Plan

PTC Organization within FRA



PTC Grants & Other Financing

- **PTC Grants** – In total, the Federal Railroad Administration and the Federal Transit Administration have awarded approximately \$925 million in grant funding to support railroads' implementation of PTC systems.
 - The sources of grant funding are:
 - \$475 million from FRA's High-Speed Intercity Passenger Rail Grant (HSIPR) Program;
 - \$86 million from FRA's Railroad Safety Technology Grant Program;
 - \$51 million in American Recovery and Reinvestment Act grant funding to Amtrak;
 - \$116 million in annual capital grant funding to Amtrak (as of November 2017); and
 - \$197 million in Fixing America's Surface Transportation (FAST) Act funding.
- **Other Financing for PTC**
 - Railroad Rehabilitation and Improvement Financing (RRIF) – In May 2015, FRA issued a \$967.1-million loan to Metropolitan Transportation Authority for Long Island Rail Road's and Metro-North Railroad's implementation of PTC systems.
 - On December 8, 2017, the Build America Bureau closed a \$162 million Transportation and Infrastructure Finance and Innovation ACT (TIFIA) loan and a \$220 million RRIF loan to be issued to the Massachusetts Bay Transportation Authority for PTC system implementation.

FY 17 PTC Grant Program

\$197 mn FAST Act Funding

- **Overview**

- Purpose is to assist in financing the installation of PTC systems
- Matching cost share: 20% min. of total requested project cost
- Agency Roles:
 - In coordination with FTA, FRA prepared the Notice of Funding Opportunity, reviewed applications, and selected the projects for funding
 - FTA is responsible for awarding and administering the grants
 - FRA is assisting FTA with monitoring the PTC grant projects

- **Eligible Projects Submitted**

- 27 total from 16 states requesting ~\$455 mn

- **Selected Projects**

- 17 selected from 13 states totaling \$197 mn
- Key focus of project selections:
 - Influence and assistance of nationwide PTC implementation to benefit the entire rail industry
 - Improve rail safety and PTC reliability
 - Provide sound technical solutions

FY 17 Appropriations by Program

First Appropriated Funds Using the FAST Act-Authorized Programs

Program Name	FY17 Funding	Federal Share	Set-Asides, Special Provisions
Partnership	\$25M	Max: • 80% Preference: • 50% or less	<ul style="list-style-type: none"> • Up to 1% takedown
Restoration & Enhancement	\$5M*	Year 1 – 80% Year 2 – 60% Year 3 – 40%	<ul style="list-style-type: none"> • Allocation to Special Transportation Circumstances (~\$150k) • Up to 1% takedown
CRISI	\$68M*	Max: • 80% Preference: • 50% or less	<ul style="list-style-type: none"> • \$10M for initiation/restoration capital projects • At least 25% (\$17M) for rural area projects • Allocation to Special Transportation Circumstances (~\$2.09M) • Up to 1% takedown

* As noted under "Set-Asides, Special Provisions," a portion of these funds are allocated toward the ~\$2.24M available for the Special Transportation Circumstances Directed Grant