United States Department of Transportation
Annual Modal Research Plans
Fiscal Year 2017

Federal Railroad Administration
March 2016
Maryam Allahyar, Director, Office of Research, Development and Technology

FY 2017 RD&T Program Funding Details

RD&T Program Name	FY 2017 Pres. Budget ($000)	FY 2017 Basic	FY 2017 Applied	FY 2017 Development	FY 2017 Technology
Track	11,429		8,927	2,502	
Rolling Stock	24,722		22,450	2,272	
Train Control & Communication	8,086		5,256	2,830	
Human Factors	5,542		4,322	1,220	
Railroad Systems Issues	3,721		3,140	581	
Totals	**53,500**		**44,095**	**9,405**	

FY 2017 RD&T Program Budget Request by DOT Goal(s)

RD&T Program Name	FY 2017 Pres. Budget ($000)	Safety	State of Good Repair	Economic Competitiveness	Quality of Life in Communities	Environmental Sustainability
Track	11,429	11,429				
Rolling Stock	24,722	24,722				
Train Control & Communication	8,086	8,086				
Human Factors	5,542	5,542				
Railroad Systems Issues	3,721	3,721				
Totals	**53,500**	**53,500**				

Track Research Program

11,429
($000)

Program Description:

The Track Research program addresses:

Track and structure inspection techniques, material and component reliability, design, and performance.

Track and train interaction, derailment mechanisms, and vehicle-track performance.

Rail integrity related derailments and rail inspection systems.

Track safety standards for freight and passenger operations

R&D facilities at FRA's Transportation Technology Center (TTC)

Program Objectives:

FRA's Track Research program is aimed at reducing train derailments due to track related causes. The main causes are broken rails, track geometry defects and track buckles in hot weather.

Anticipated Program Activities:

Continue a joint research program with the industry studying ballast degradation and safety limits under heavy axle service loads.

Procedures for evaluation track geometry measurement systems over the new variable track geometry test track will be developed.

Testing and evaluation of multiple track geometry conditions and vehicles responses on the new variable geometry test track at TTC.

Perform a series of tests to investigate rail passenger car coil spring properties and how to use them in computer models.

Continue International Collaborative Research Initiative to study rolling contact fatigue.

Investigate Passive Air-coupled Rail Defect Detection approach to rail flaw detection.

Complete the evaluation project being conducted on developing and implementing a Neutral Temperature (NT) and Incipient Buckling Detection system for continuously welded rail projects.

Development of engineering guides for the inspection frequencies of the various track inspection parameters, based on co-relations developed from the FRA Track Research Platform simultaneous integrated measurements of these parameters, and related studies of track degradation.

Completed research program into concrete tie design and manufacturing and will assist in modifying industry standards (AREMA, ASTM, PCI).

Developing and evaluating concrete tie bending measurement methods to assess ballast support conditions.

Applied research and field testing of non-destructive rail stress measurement technology.

Development and evaluation of a machine vision based track geometry measurement system.

Establish FAA approval for UAS research at the Transportation Test Center, Pueblo, CO.

Complete development and demonstration of a wheel load cycle tag useful for rail fatigue research.

Complete development of a wireless strain sensor that can be imbedded into concrete ties to measure dynamic stress in track.

Complete wireless bridge condition monitoring system suitable for campaign monitoring of bridge conditions.

Complete development and demonstration of Autonomous Track Geometry Measurement System (ATGMS).

Continue development of passive rail temperature control technologies to prevent sun kinks.

Complete field investigation of concrete tie abrasion – prevalence and severity.

Continue the investigation of rail fatigue properties of modern rail steels.

Expected Program Outcomes:

Fewer train derailments due to poor track conditions, broken rails, track buckles, landslides and washouts. Improved facilities for conducting track research.

FY 2017 Collaboration Partners (Internal DOT)

Program Name	Name of Collaboration Partner(s) (Internal DOT)
Track Research	**Volpe National Transportation Systems Center** – engineers and scientists at the Volpe Center conduct R&D for FRA on topics such as rail integrity and vehicle-track interaction.

How does the Program meet statutory requirements?

The program meets the annual funding appropriation act's requirement to conduct track research.

The Track Research program meets the FAST Act Section 11414 requirement for a report to Congress on Vertical Track Deflection.

How does the Program incorporate public and stakeholder input into the research planning process?

The Track Research program is evaluated periodically by a special committee of the Transportation Research Board.

The program is coordinated with the Association of American Railroads research program through the AAR's Heavy Axle Load Engineering Research Committee and Technology Outreach Program Committee.

Program staff are members of industry working groups such as the American Railway Engineering and Maintenance of way Association committees.

Program staff participate in the FRA's Railway Safety Advisory Committee meetings.

Program staff present research results for peer review at various conferences and in technical journals.

Fiscal Year 2018
Track Research Program
DOT Goal - Safety

Program Description:

The Track Research program addresses:

Track and structure inspection techniques, material and component reliability, design, and performance.

Track and train interaction, derailment mechanisms, and vehicle-track performance.

Rail integrity related derailments and rail inspection systems.

Track safety standards for freight and passenger operations

R&D facilities at FRA's Transportation Technology Center (TTC)

Program Objectives:

FRA's Track Research program is aimed at reducing train derailments due to track related causes. The main causes are broken rails, track geometry defects and track buckles in hot weather.

Anticipated Program Activities:

Complete a joint research program with the industry studying ballast degradation and safety limits under heavy axle service loads.

Implementation of safety and performance metrics for vertical track deflection measurements.

Continued testing and evaluation of vehicle responses to multiple track geometry conditions.

Continue to develop Passive Air-coupled Rail Defect Detection approach to rail flaw detection.

Prototype development of an autonomous rail flaw defect detection system for use in revenue service.

Development of engineering guidelines for track inspection parameters based on correlations between measured data and track degradation.

Evaluation and implementation of concrete tie bending measurement methods to assess ballast support conditions.

Development and evaluation of a machine vision-based track geometry measurement system.

Evaluation of unmanned aircraft systems for hazard warning and railroad safety inspections.

Complete the investigation of rail fatigue properties of modern rail steels.

Continued development of facilities and test equipment at FRA's Transportation Technology Center.

Expected Program Outcomes:

Fewer train derailments due to poor track conditions, broken rails, track buckles, landslides and washouts. Improved facilities for conducting track research.

FY 2018 Collaboration Partners (Internal DOT)

Program Name	Name of Collaboration Partner(s) (Internal DOT)
Track Research	**Volpe National Transportation Systems Center**– engineers and scientists at the Volpe Center will continue to conduct R&D for FRA on topics such as rail integrity and vehicle-track interaction.

How does the Program meet statutory requirements?

The program meets the annual funding appropriation act's requirement to conduct track research.

How will the Program incorporate public and stakeholder input into the research planning process?

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The program will be coordinated with the Association of American Railroads research program through the AAR's Heavy Axle Load Engineering Research Committee and Technology Outreach Program Committee.

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Program staff will present research results for peer review at various conferences and in technical journals.

Rolling Stock Research Program

24,722
($000)

Program Description:

The Rolling Stock Research program addresses:

Rolling stock and components, onboard and wayside monitoring systems, material and design improvements

Hazardous materials transportation risk reduction, tank car damage assessment, inspection, and integrity

Safety and clean energy benefits of Electronically Controlled Pneumatic brakes and other rolling stock technologies

Train occupant protection, locomotive and passenger car safety and performance

Program Objectives:

FRA's Rolling Stock Research program is aimed at reducing derailments due to equipment failures, minimizing the consequences of derailments, and minimizing hazardous material releases.

Anticipated Program Activities:

Further research into safety and energy benefits from electronically controlled pneumatic brakes.

Increased number of in-service demonstrations of advanced equipment monitoring systems and electronically driven hand brakes.

A rule change implementing the findings of the causes of vertical split wheel rims.

Enhanced operational practices for wayside monitoring.

Evaluation of legacy natural gas fuel tender crashworthiness.

In collaboration with PHMSA, completion of the full scale testing of tank cars carrying hazardous material.

Continued development of an easy-to-use portable instrument to identify the packaging group of crude oil samples.

Full-scale pool fire tests on tank cars designed to transport liquefied natural gas.

Risk analysis of unit trains carrying liquefied natural gas and crude oil.

Evaluation of new technologies and materials to improve the puncture resistance and construction of tank cars.

Full testing and proof of the prototype vapor reclamation system for locomotive fuel tanks.

Final rulemaking for Tier III (> 125 mph) passenger equipment safety standards.

Together with the U.S. Access Board, new regulations for accommodations for passengers with disabilities.

Expected Program Outcomes:

Fewer train derailments due to rolling stock equipment failures, better protection for passengers and train crews in accidents, and reduced release of hazardous materials.

FY 2017 Collaboration Partners (Internal DOT)

Program Name	Name of Collaboration Partner(s) (Internal DOT)
Rolling Stock Research	**Volpe National Transportation Systems Center**– engineers and scientists at the Volpe Center conduct R&D for FRA on topics such as train occupant protection and accident investigation.
Rolling Stock Research	**Pipelines and Hazardous Materials Safety Administration, Maritime Administration –** FRA, PHMSA and MARAD collaborate on R&D leading to new and improved regulations for hazardous materials shipped in tank cars.

How does the Program meet statutory requirements?

The program meets the annual funding appropriation act's requirement to conduct rolling stock research.

The Rolling Stock Research program helps meet the FAST Act Section 7311 requirement for a test involving Electronically Controlled Pneumatic brakes.

How does the Program incorporate public and stakeholder input into the research planning process?

The Rolling Stock Research program is evaluated periodically by a special committee of the Transportation Research Board.

The program is coordinated with the Association of American Railroads research program through the AAR's Locomotive Committee and Equipment Engineering Committee.

Program staff are members of industry working groups such as the American Passenger Transportation Association committees.

Program staff participate in the FRA's Railway Safety Advisory Committee meetings.

Program staff present research results for peer review at various conferences and in technical journals.

Fiscal Year 2018
Rolling Stock Research Program
DOT Goal - Safety

Program Description:

The Rolling Stock Research program addresses:

Rolling stock and components, onboard and wayside monitoring systems, material and design improvements

Hazardous materials transportation risk reduction, tank car damage assessment, inspection, and integrity

Safety and clean energy benefits of Electronically Controlled Pneumatic brakes and other rolling stock technologies

Train occupant protection, locomotive and passenger car safety and performance

Program Objectives:

FRA's Rolling Stock Research program is aimed at reducing derailments due to equipment failures, minimizing the consequences of derailments, and minimizing hazardous material releases.

Anticipated Program Activities:

Research to gain a better understanding of current wheel failure modes and mechanisms.

Completion of testing and analysis to develop the technical basis for potential rulemaking related to passenger equipment fuel tanks under dynamic loading scenarios.

Completion of research to comprehensively describe the engineering requirements placed on glazing systems, develop effective strategies for balancing all of the safety demands and provide recommendations for glazing strategies which offer maximized occupant containment in accidents.

Continuation of analysis and full scale testing of passenger locomotives retrofitted with crashworthy components to improve performance and operator protection during train collisions.

Collaboration with other modes on alternative fuels, such as natural gas, for improved emissions and assured safety.

Continue research and support rulemaking in collaboration with PHMSA to assure the safety of containers and railcars intended to transport LNG.

Assess the safety of new tank cars intended for the transport of hazardous materials.

Expected Program Outcomes:

Fewer train derailments due to rolling stock equipment failures, better protection for passengers and train crews in accidents, and reduced release of hazardous materials.

FY 2018 Collaboration Partners (Internal DOT)

Program Name	Name of Collaboration Partner(s) (Internal DOT)
Rolling Stock Research	**Volpe National Transportation Systems Center**– engineers and scientists at the Volpe Center will continue to conduct R&D for FRA on topics such as train occupant protection and accident investigation.

Rolling Stock Research	**Pipelines and Hazardous Materials Safety Administration, Maritime Administration –** FRA, PHMSA and MARAD will continue to collaborate on R&D leading to new and improved regulations for hazardous materials shipped in tank cars.

How does the Program meet statutory requirements?

The program meets the annual funding appropriation act's requirement to conduct rolling stock research.

How will the Program incorporate public and stakeholder input into the research planning process?

The Rolling Stock Research program will be evaluated periodically by a special committee of the Transportation Research Board.

The program will be coordinated with the Association of American Railroads research program through the AAR's Locomotive Committee and Equipment Engineering Committee.

Program staff will be members of industry working groups such as the American Passenger Transportation Association committees.

Program staff will participate in the FRA's Railway Safety Advisory Committee meetings.

Program staff will present research results for peer review at various conferences and in technical journals.

Train Control and Communications Research Program

8,086
($000)

Program Description:

The Train Control and Communications Research program addresses:

Development and testing of train control and communication systems

Grade crossing safety technologies and pilot studies, including intelligent rail systems, blocked crossings, and trespass prevention

Program Objectives:

FRA's Train Control and Communications Research program is aimed at reducing train-to-train collisions and train collisions with objects on the line and at grade crossings.

Anticipated Program Activities:

A more effective and less costly prototype system for broken rail detection using fiber optic cables.

Testing of the enhanced freight PTC braking algorithm to reduce unintended PTC enforcements.

Development of the passenger braking algorithm.

Deployment of an intelligent transportation system-based prototype to warn vehicle drivers of the status of railroad crossings and enforce compliance.

Design and test of mitigating technology and techniques to prevent anticipated radio communication problems on the Northeast Corridor.

New locomotive-based technologies for long-range trespasser detection and warning systems.

Development and test of an advanced highway preemption system.

Publication of best practice countermeasures for trespass prevention.

Study of human factor issues related to pedestrian and drivers behavior around railroad tracks and grade crossing.

Expected Program Outcomes:

Fewer train-to-train collisions and train collisions with objects on the line and at grade crossings.

FY 2017 Collaboration Partners (Internal DOT)

Program Name	Name of Collaboration Partner(s) (Internal DOT)
Train Control and Communications	Volpe National Transportation Systems Center - engineers and scientists at the Volpe Center conduct R&D for FRA on grade crossing safety and trespass prevention.
Smart City Challenge	OST, FHWA, FTA, FMCSA, NHTSA, MARAD, work with the JPO to conduct the demonstration and evaluation of the Smart City winner to test, evaluate and demonstrate the benefits of connected city concepts.
Interoperability	NHTSA, FHWA, FTA, FMCSA, SLSDC, MARAD, PHMSA and ITS JPO to incorporate all modal stakeholder needs in developing and evolving the integrated National ITS Architecture and software tools to support large scale, interoperable deplomentof ITS, connected vehicle and connected automation technology.
Vehicle-to-Infrastructure	FHWA, FTA, and NHTSA work with the JPO to enable the V2I Deployment Coalition to work collaboratively with industry, state and local governments, academia and USDOT to achieve the goal of deploying and operating a functioning CV environment.

How does the Program meet statutory requirements?

The program meets the annual funding appropriation act's requirement to conduct train control and communications research.

The Train Control and Communications Research program meets the FAST Act Section 11404 requirement to evaluate the potential of Positive Train Control to improve safety at grade crossings.

How does the Program incorporate public and stakeholder input into the research planning process?

The Train Control and Communications Research program is evaluated periodically by a special committee of the Transportation Research Board.

The program is coordinated with the Association of American Railroads research program through the AAR's Train Control, Communications and Operations Committee.

Program staff participate in the FRA's Railway Safety Advisory Committee meetings.

Program staff present research results for peer review at various conferences and in technical journals.

Fiscal Year 2018
Train Control and Communications Research Program
DOT Goal - Safety

Program Description:

The Train Control and Communications Research program addresses:

Development and testing of train control and communication systems

Grade crossing safety technologies and pilot studies, including intelligent rail systems, blocked crossings, and trespass prevention

Program Objectives:

FRA's Train Control and Communications Research program is aimed at reducing train-to-train collisions and train collisions with objects on the line and at grade crossings.

Anticipated Program Activities:

Development of enhanced PTC communication security and authentication scheme to prevent potential hacking.

Development of a national wireless communication roadmap.

Testing and enhancing the passenger braking algorithm.

Developing more effective and less costly alternative sensing and detecting methods using fiber optic technology.

Enhancing the intelligent transportation system-based prototype to warn vehicle drivers of the status of railroad crossings and enforce compliance.

Testing mitigating technology to prevent anticipated radio communication problems on the Northeast Corridor.

Testing locomotive-based technologies for long-range trespasser detection and warning systems.

Testing of an advanced highway preemption system.

Study human factor issues related to pedestrian and driver behavior around railroad tracks and grade crossing

Expected Program Outcomes:

Fewer train-to-train collisions and train collisions with objects on the line and at grade crossings.

FY 2018 Collaboration Partners (Internal DOT)

Program Name	Name of Collaboration Partner(s) (Internal DOT)
Train Control and Communications	**Volpe National Transportation Systems Center -** engineers and scientists at the Volpe Center will continue to conduct R&D for FRA on grade crossing safety and trespass prevention.
Smart City Challenge	OST, FHWA, FTA, FMCSA, NHTSA, MARAD, work with the JPO to conduct the demonstration and evaluation of the Smart City winner to test, evaluate and demonstrate the benefits of connected city concepts.
Interoperability	NHTSA, FHWA, FTA, FMCSA, SLSDC, MARAD, PHMSA and ITS JPO to incorporate all modal stakeholder needs in developing and evolving the integrated National ITS Architecture and software tools to support large scale, interoperable deplomentof ITS, connected vehicle and connected automation technology.
Vehicle-to-Infrastructure	FHWA, FTA, and NHTSA work with the JPO to enable the V2I Deployment Coalition to work collaboratively with industry, state and local governments, academia and USDOT to achieve the goal of deploying and operating a functioning CV environment.

How does the Program meet statutory requirements?

The program meets the annual funding appropriation act's requirement to conduct train control and communications research.

How will the Program incorporate public and stakeholder input into the research planning process?

The Train Control and Communications Research program will be evaluated periodically by a special committee of the Transportation Research Board.

The program will be coordinated with the Association of American Railroads research program through the AAR's Train Control, Communications and Operations Committee.

Program staff will participate in the FRA's Railway Safety Advisory Committee meetings.

Program staff will present research results for peer review at various conferences and in technical journals.

Human Factors Research Program

5,542
($000)

Program Description:

The Human Factors Research program addresses:

Safety culture pilot programs

Research into fatigue distraction, attention and situational awareness, and ergonomics

Job and cognitive task analyses

Usability studies of automation and new technology

Trespass and suicide prevention

Stop signal violation research

Guidance for implementing safety management systems

Studies of motorist decision-making at grade crossings

Short Line Safety Institute support

Program Objectives:

FRA's Human Factors Research program is aimed at reducing accidents caused by human error.

Anticipated Program Activities:

Completion and distribution of a training program for sustaining attention in locomotive crews.

Development of safety culture and safety compliance measurement tools for the Short Line Safety Institute of the American Short Line and Regional Railroad Association. In addition, completion of training and education tools, an organizational structure for the Safety Institute, and an implementation process to help improve safety across the short line and regional railroad industry.

Completion of training materials and software for the Clear Signal for Action program to be tested at pilot sites.

Development of a new workstation for locomotive engineers that incorporates new command and control technology, while reducing operator workload and error.

A report on the safety of two-person locomotive crews compared to one-person crews.

Through the Global Railway Alliance for Suicide Prevention (GRASP) Working Group, completion and implementation of a strategic framework for international collaboration.

Grade crossing studies including data analysis and predictive modeling.

Studying the effects of fatigue due to work schedule and duty hours for the Maintenance of Way employees.

Testing the uses of wearable technology for track inspection.

Expected Program Outcomes:

Fewer accidents and incidents caused by human error.

FY 2017 Collaboration Partners (Internal DOT)

Program Name	Name of Collaboration Partner(s) (Internal DOT)
Human Factors	**Volpe National Transportation Systems Center -** engineers and scientists at the Volpe Center conduct R&D for FRA on human factors topics.
Human Factors	**Maritime Administration** – FRA and MARAD collaborate on safety culture, fatigue and distraction research.

How does the Program meet statutory requirements?

The program meets the annual funding appropriation act's requirement to conduct human factors research.

How does the Program incorporate public and stakeholder input into the research planning process?

The Human Factors Research program is evaluated periodically by a special committee of the Transportation Research Board.

Program staff are members of industry working groups such as the Transportation Research Board Human Factors sub-committee.

Program staff work closely with labor unions and the American Short Line and Regional Railroads Association.

Program staff participate in the FRA's Railway Safety Advisory Committee meetings.

Program staff present research results for peer review at various conferences and in technical journals.

Fiscal Year 2018
Human Factors Research Program
DOT Goal - Safety

Program Description:

The Human Factors Research program addresses:

Safety culture pilot programs

Research into fatigue distraction, attention and situational awareness, and ergonomics

Job and cognitive task analyses

Usability studies of automation and new technology

Trespass and suicide prevention

Stop signal violation research

Guidance for implementing safety management systems

Studies of motorist decision-making at grade crossings

Short Line Safety Institute support

Program Objectives:

FRA's Human Factors Research program is aimed at reducing accidents caused by human error.

Anticipated Program Activities:

Human reliability studies following full implementation of Positive Train Control technology in the Cab Technology Integration Laboratory (CTIL) to understand the challenges of human computer interaction and integration of multiple interfaces.

Completion of the Maintenance of Way (MOW) fatigue study to support the FRA Office of Railroad Safety's needs for issuing safety advisories and rulemaking.

Completion of safety culture and safety compliance measurement tools for the Short Line Safety Institute of the American Short Line and Regional Railroad Association. Continued support in standing up the Safety Institute to help improve safety across the short line and regional railroad industry.

Continued efforts in development and implementation of Clear Signal for Action program to improve safety culture by demonstration of CSA materials at pilot sites.

Developing a list of leading human factors causes in rail accidents from FRA and National Transportation Safety Board accident reports. The results will help align the focus of human factors research with the leading causes of accidents due to human error.

Use CTIL to study new moving map interface designs.

Continued study of drivers' behavior at grade crossings by introducing data from naturalistic settings and driving simulator.

Develop communication strategy to expand the use of "Railroaders' Guide to Healthy Sleep" website.

Expected Program Outcomes:

Fewer accidents and incidents caused by human error.

FY 2018 Collaboration Partners (Internal DOT)

Program Name	Name of Collaboration Partner(s) (Internal DOT)
Human Factors Research	**Volpe National Transportation Systems Center -** engineers and scientists at the Volpe Center will continue to conduct R&D for FRA on human factors topics.

Human Factors	**Maritime Administration** – FRA and MARAD will continue to collaborate on safety culture, fatigue and distraction research.

How does the Program meet statutory requirements?

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How will the Program incorporate public and stakeholder input into the research planning process?

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Program staff will participate in the FRA's Railway Safety Advisory Committee meetings.

Program staff will present research results for peer review at various conferences and in technical journals.

Railroad Systems Issues Research Program

3,721
($000)

Program Description:

The Railroad Systems Issues Research program addresses:

Safety risk analysis, performance-based regulations, railroad environmental issues, and locomotive efficiency research

Program evaluation, including the Transportation Research Board's independent review of FRA's R&D programs

R&D related travel and contractor support

Program Objectives:

FRA's Railroad Systems Issues Research program is aimed at prioritizing and evaluating R&D projects on the basis of relevance to safety risk reduction and other DOT goals

Anticipated Program Activities:

Updating the safety risk model for guiding future R&D.

Evaluating projects conducted by the four R&D divisions

Supporting the Workforce Development Program covering: Ladders of Opportunity, Council on Women and Girls, Transportation Career Pathway Model Development, Minority Serving Institutions Task Force, and the YES Mentoring Program.

Conducting a railroad industry workforce assessment to gather data on trends, skill demands, training opportunities, industry best practices, cross-modal efforts, etc.

Expected Program Outcomes:

Improved allocation of R&D funds and support to other programs in improving railroad safety.

FY 2017 Collaboration Partners (Internal DOT)

Program Name	Name of Collaboration Partner(s) (Internal DOT)
Railroad Systems Issues Research	**Volpe National Transportation Systems Center -** engineers and scientists at the Volpe Center provide project evaluation services to FRA.
Railroad Systems Issues Research	**OST-R Research, Development & Technology Planning Team –** FRA participates in the RD&T Planning Team meetings.

How does the Program meet statutory requirements?

The program meets the annual funding appropriation act's requirement to conduct railroad systems issues research.

How does the Program incorporate public and stakeholder input into the research planning process?

The Railroad Systems Issues Research program is evaluated periodically by a special committee of the Transportation Research Board.

The program is coordinated with the Association of American Railroads research program through the AAR's Railway Technology Working Committee.

Program staff participate in the FRA's Railway Safety Advisory Committee meetings.

Program staff present research results for peer review at various conferences and in technical journals.

Fiscal Year 2018
Railroad Systems Issues Research Program
DOT Goal - Safety

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FY 2018 Collaboration Partners (Internal DOT)

Program Name	Name of Collaboration Partner(s) (Internal DOT)
Railroad Systems Issues Research	**Volpe National Transportation Systems Center -** engineers and scientists at the Volpe Center will continue to provide project evaluation services to FRA.
Railroad Systems Issues Research	**OST-R Research, Development & Technology Planning Team –** FRA will continue to participate in the RD&T Planning Team meetings.

How does the Program meet statutory requirements?

The program meets the annual funding appropriation act's requirement to conduct railroad systems issues research.

How will the Program incorporate public and stakeholder input into the research planning process?

The Railroad Systems Issues Research program will be evaluated periodically by a special committee of the Transportation Research Board.

The program will be coordinated with the Association of American Railroads research program through the AAR's Railway Technical Working Committee.

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Program staff will present research results for peer review at various conferences and in technical journals.