FRA UPDATE

Rail Council Legislative Meeting
February 2019
### 2018 Administration Accomplishments

<table>
<thead>
<tr>
<th>Safety</th>
<th>Infrastructure</th>
<th>Innovation</th>
<th>Accountability</th>
</tr>
</thead>
<tbody>
<tr>
<td>• FRA hosted 3 PTC symposiums with rail stakeholders to assist in helping <strong>100% of the required railroads meet the PTC mandated deadline</strong>&lt;br&gt;• FRA coordinated with <strong>international rail authorities</strong> and partners to discuss best practices in safety&lt;br&gt;• FRA awarded <strong>$250 million for PTC implementation</strong> through the CRISI Grant Program</td>
<td>• FRA announced Notices of Funding Opportunity for more than <strong>$800 million</strong> in grant programs&lt;br&gt;• <strong>FRA streamlined the environmental review process</strong> by aligning NEPA procedures with FHWA and FTA&lt;br&gt;• Grantees <strong>leveraged $100 million in non-federal matching funds</strong></td>
<td>• FRA conducted research and held a conference in August 2018 to discuss interactions between future <strong>connected vehicles</strong> and grade crossings&lt;br&gt;• The “<strong>Stop. Trains Can’t</strong>” campaign targeted audiences in high grade crossing accident areas&lt;br&gt;• Grantees <strong>leveraged $100 million in non-federal matching funds</strong></td>
<td>• FRA provided <strong>transparency and accountability of environmental deliverables</strong> through the Permitting Dashboard&lt;br&gt;• FRA hosted more than 10 webinars to <strong>educate stakeholders on topics including environmental streamlining efforts and new grant programs</strong>&lt;br&gt;• FRA met regularly with <strong>at-risk railroads and held them accountable for PTC implementation</strong> through FRA’s PTC dashboard</td>
</tr>
</tbody>
</table>
FRA Office of Railroad Policy & Development Focus Areas

U.S. Department of Transportation Priorities
SAFETY   INFRASTRUCTURE   INNOVATION   ACCOUNTABILITY

Federal Railroad Administration’s Mission
“To enable the safe, reliable, and efficient movement of people and goods for a strong America, now and in the future.”

Focus Areas
SAFETY  INNOVATION
INFRASTRUCTURE INVESTMENTS
AMTRAK REFORM
PROJECT DELIVERY STREAMLINING
## FRA’s Budget

<table>
<thead>
<tr>
<th>Account/Program</th>
<th>FY17 ($M)</th>
<th>FY18 ($M)</th>
<th>FY19 ($M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety &amp; Operations</td>
<td>$218</td>
<td>$222</td>
<td>$222</td>
</tr>
<tr>
<td>Railroad Research &amp; Development</td>
<td>$40</td>
<td>$41</td>
<td>$41</td>
</tr>
<tr>
<td>Amtrak NEC</td>
<td>$328</td>
<td>$650</td>
<td>$650</td>
</tr>
<tr>
<td>Amtrak National Network</td>
<td>$1,167</td>
<td>$1,292</td>
<td>$1,292</td>
</tr>
<tr>
<td>Competitive Rail Grants (FAST Act Authorized)</td>
<td>$98</td>
<td>$863</td>
<td>$660</td>
</tr>
<tr>
<td>RRIF Subsidy</td>
<td>—</td>
<td>$25</td>
<td>—</td>
</tr>
<tr>
<td>Maglev Deployment</td>
<td>—</td>
<td>—</td>
<td>$10</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$1,851</strong></td>
<td><strong>$3,093</strong></td>
<td><strong>$2,875</strong></td>
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</tbody>
</table>
Project Delivery Streamlining
Environmental Streamlining Update

Legislative

• FAST Act (December 2015)
  o Section 106 exemption for railroad rights-of-way
  o New NEPA Procedures

Administrative

• EO 13807 (January 2017)
  o One Federal Decision
  o Major Infrastructure Projects

• Pre-NEPA Planning
Approved by the ACHP on August 17, 2018

Streamlines compliance with Section 106 of the National Historic Preservation Act

Applies to both railroads and rail transit systems

For use by any DOT mode or other federal agency that has an undertaking affecting rail properties located within rail ROW

Two approaches: Activities-Based Approach and Property-Based Approach
Appendix A – Exempted Activities List

- Encompasses maintenance, repair, and upgrades to existing rail infrastructure necessary to ensure the safe and efficient operation
- Does not apply to demolition, substantial alteration, or major construction activities
- Eliminates requirement for review by SHPOs
- Federal agency determines applicability
- Immediate applicability for projects for which the Section 106 process has not started or is underway
- Some activities require use of SOI-qualified professionals or following specific standards
Appendix A: Overview of Exempted Activities

- 95 Total Exempted Activities
- Broken into 13 Category Types
  - Track and Trackbed
  - Bridges and Tunnels
  - Railroad Buildings and Boarding Platforms
  - Signals, Communications, and Power Generation
  - Roadway At-Grade Crossing and Grade Separations
  - Safety and Security
  - Erosion Control, Rock Slopes, and Drainage
  - Environmental Abatement
  - Operations
  - Landscaping, Access Roads, and Laydown Areas
  - Utilities
  - Bicycle and Pedestrian Facilities, Share Use Paths, and Other Trails
  - Construction/Installation of New Railroad Infrastructure

### Section 106 Program Comment for Rail ROW
#### Appendix A: Exempted Activities List

<table>
<thead>
<tr>
<th>A. Track and Trackbed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Track and trackbed maintenance, repair, replacement, and upgrades within the existing footprint (i.e., existing subgrade, subballast, ballast, and rails and crossties [tracks]). These activities must not include alterations to the trackbed that would result in a substantial visual change (i.e., elevation or alignment) in the relationship between the trackbed and the surrounding landscape or built environment.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B. Bridges and Tunnels</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. In-kind maintenance and repair of bridges and tunnels.</td>
</tr>
<tr>
<td>2. In-kind replacement of bridge hardware and mechanical and electrical components (e.g., brackets, rivets, bearings, motors).</td>
</tr>
<tr>
<td>3. Maintenance or repair of tunnel ventilation structures and associated equipment (e.g., fans, ducting).</td>
</tr>
<tr>
<td>4. Replacement of tunnel ventilation structures that are not located within a previously identified historic district.</td>
</tr>
<tr>
<td>5. Replacement of tunnel ventilation structures that are located and publicly visible within a previously identified historic district, provided the replaced structures are substantially the same size as or smaller than the existing structures and are visually compatible with the surrounding built environment.</td>
</tr>
<tr>
<td>6. Maintenance, repair, or replacement of tunnel emergency egress hatchways.</td>
</tr>
<tr>
<td>7. Maintenance, installation, repair, or replacement of lighting, signal, and communications systems, railings, and other safety- and security-related equipment or elements located within the interiors of tunnels.</td>
</tr>
<tr>
<td>8. Removal or replacement of any bridge or tunnel material or added-on element that is not part of the original construction.</td>
</tr>
</tbody>
</table>
Overview: Property-Based Approach

Project Sponsors may choose to work with USDOT Operating Administrations and stakeholders to identify excluded historic rail properties.

The Project Sponsor:
- Defines portion of rail ROW (“study area”) within which to evaluate rail properties for historic importance
- May focus on all rail properties in study area, or particular type (e.g., bridges, stations)

- Requires outreach to stakeholders and the public
- Once approved by USDOT, list of excluded historic rail properties will be published on USDOT website
- Excluded historic rail properties remain subject to the applicability of the Appendix A: Exempted Activities list and/or Section 106 review; all other rail properties evaluated within study area do not require Section 106 review. (Regardless of future Project Sponsor or Federal agency.)
- USDOT is developing implementing guidance
The 2015 FAST Act directed the Secretary of Transportation to apply the project development procedures in 23 United States Code (USC) 139 to railroad projects to the greatest extent feasible.

FRA decided joining the Federal Highway Administration (FHWA) and the Federal Transit Administration’s (FTA) environmental NEPA regulations in 23 Code of Federal Regulations (CFR) 771, would best serve that direction.

FRA also decided to join the Section 4(f) Regulations in 23 CFR 774 at the same time.
New NEPA Procedures—Effective Date & Applicability

- On October 29, 2018, FHWA, FRA, and FTA issued a Final Rule, which became effective on November 28, 2018

- FRA will follow 23 CFR 771 and 774 for all new environmental reviews initiated after that date

- FRA’s 1999 Environmental Procedures will continue to apply to those project for which NEPA review had already started/were underway as of November 28, 2018.
New NEPA Procedures – Summary of Final Rule

• Amends 23 CFR 771 and 23 CFR 774

• Allows FRA to follow the same flexible environmental procedures as FHWA and FTA

• Adds references to FRA and railroad projects, where appropriate

• Includes 22 updated and more expansive categorical exclusions. Affords the use of FHWA and FTA categorical exclusions

• Requires 30-day public comment period for EAs
New NEPA Procedures – Summary of Final Rule

- Adds a new section addressing combined Final EIS and RODs, thus eliminating the 30-day public review period between the FEIS and ROD
- Adds programmatic approaches to streamline, including coordination with agencies and the public to accelerate project development
- All environmental reviews and requirements to be addressed as single process consistent with the FAST Act and One Federal Decision
- Incorporates new 4(f) exemptions consistent with the FAST Act
Benefits of New NEPA Procedures

- Harmonizes the NEPA implementing procedures for FRA, FTA, and FHWA
- Creates consistency among the FRA, FHWA and FTA environmental procedures
- Reduces the compliance burden for Project sponsors who will be able to rely on one consistent environmental review process
- Simplifies the NEPA review for multimodal projects
Executive Order 13807 – One Federal Decision

- Sets a government-wide goal of reducing average completion time for EIS to 2 years
- Applies to “Major Infrastructure Projects” (MIPs)
  - EIS-level projects
  - “Reasonable availability of funds”
  - Multiple Federal authorizations involved
- Calls for Permitting timetable, Single EIS, Single ROD, All Authorizations w/in 90 days from ROD
- Interagency MOU signed in April 2018
- OMB Accountability system for MIPs
- Additional guidance forthcoming
Pre-NEPA Planning/Preliminary Engineering

• FRA is exploring how to best utilize Pre-NEPA phase/before NOI

• Factors considered in advancing project planning earlier
  • Lessons learned and a more mature industry
  • Entering NEPA with better project definition will result in more efficient project development
  • Experience of other USDOT agencies
  • Aligns with Administration priority to expedite project delivery
• Primary components of proposed pre-NEPA planning phase
  • Preliminary Purpose and Need
  • Preliminary range of reasonable alternatives
  • Stakeholder outreach
• Pre-NEPA outputs subject to review, revision, and adoption after NEPA process is initiated (during Scoping)
Current vs. Streamlined Approach

**Pre-NEPA**
- **Current Practice**
  - Minimal project development
- **Streamlined Approach**
  - Preliminary P&N
  - Preliminary range of reasonable alternatives
  - Significant planning/PE & high-level enviro analysis
  - Structured public outreach

**NOI/Scoping**
- **Generic P&N**
- Significant planning/PE & high-level enviro analysis
- Range of alternatives
- Structured outreach

**NEPA**
- **Defined P&N**
- Confirmation of range of alternatives
- Supplemental planning/PE & enviro analysis

**Documentation (EA, EIS)**
- **Defined P&N**
- Continued planning/PE & enviro analysis
- Evaluation of range of alternatives
- Preferred alternative
Next Steps

- FRA will continue to refine initial thoughts on pre-NEPA planning
  - Will look for industry feedback
- Eventually incorporate process into project development
- Consider a variety updates to implement appropriate changes
Infrastructure Investments
Overview of FY17 – FY19 USDOT Rail Funding

**Federal-State Partnership for State of Good Repair**
- FY17: $25 M
- FY18: $250 M
- FY19: $400 M

**Restoration & Enhancement**
- FY17: $5 M
- FY18: $20 M
- FY19: $5 M

**Consolidated Rail Infrastructure & Safety Improvements**
- FY17: $68 M
- FY18: $592.5 M (PTC set-aside: $250 M)
- FY19: $255 M

**RRIF / TIFIA**
- FY17: $500 M
- FY18: $1,500 M
- FY19: $900 M

**INFRA**
- FY17: $787 M
- FY18: $825.3 M
- FY19: $855-902.5 M

**TIGER / BUILD**
- FY17: $5 M
- FY18: $20 M
- FY19: $5 M

**FRA Program**
- FY17: $25 M
- FY18: $250 M
- FY19: $400 M

**OST Program**
- FY17: $500 M
- FY18: $1,500 M
- FY19: $900 M
Federal-State Partnership for State of Good Repair

Program Overview

- Fund capital projects on certain assets owned/controlled by Amtrak or public entities
- Preference for joint applications
- Focus on repair, rehabilitation, or replacement of assets not in a State of Good Repair

Image Source: Amtrak
Partnership Application Information

- $272.25 million available from FY17-18 Appropriations; Published in the Federal Register 11/16/2018
  - Applications due by 5 pm EDT on Monday, March 18, 2019
  - Concurrent applications are allowed: Indicate other program(s) where application has been submitted

Eligible Applicants

- States *(including the District of Columbia)*
- Groups of states
- Interstate compacts
- Public agencies or publicly chartered authorities established by one or more states
- Political subdivisions of states
- Amtrak
- Any combination of the above

Selection preference for applications submitted by multiple eligible applicants

*Ineligible entities may be included as a partner on an application submitted by one or more eligible applicants*
Partnership Eligible Projects

Eligible Project Criteria

1. **Capital Project**
   - May include final design, but only in conjunction with an award for project construction
   - Planning, PE/NEPA are not eligible

2. **Meets the Qualified Railroad Asset definition**
   - Owned or controlled by an eligible applicant
   - Included in relevant planning and policy documents (e.g., State Rail Plan, NEC Commission 5-Year Capital Investment Plan)
   - Not in a state of good repair as of the FAST Act’s enactment (12/4/2015)

3. **Executes one or more of the following activities**
   - Replace existing assets in-kind, or with assets that increase capacity or provide a higher level of service
   - Ensure that service can be maintained while existing assets are brought to a state of good repair
   - Bring existing assets into a state of good repair
Partnership Non-Federal Match Requirements

Non-Federal Match

- Federal share of total costs shall not exceed 80 percent
- First 20 percent of non-Federal match is limited to cash contributions
- In-kind contributions will be accepted beyond the first 20 percent
- If Amtrak is an applicant, its ticket and other non-Federal revenues generated from its business operations may be used as matching funds

Selection Preferences for Matching Funds

- 50 percent or greater non-Federal match
- Non-Federal shares consisting of funding from multiple sources demonstrating broad participation and cost sharing from affected stakeholders
Partnership Evaluation & Selection Criteria

Evaluation Criteria

- **Technical Merit:** Readiness, private sector participation, consistency with planning documents

- **Project Benefits:** Effects on system performance, safety, integration with other modes, ability to meet demand

Selection Criteria

- **Preference** where Amtrak is not sole applicant, joint applications, 50 percent or greater non-Federal match from multiple sources (including private sector)

- **Key Departmental Objectives:**
  - Supporting Economic Vitality
  - Leveraging Federal Funding
  - Preparing for Future Operations/Maintenance Costs
  - Innovative Approaches to Safety and Project Delivery
  - Accountability
Application Best Practices

- Read the NOFO carefully and watch the webinar at https://www.fra.dot.gov/grants
- Determine what a "successful" project will look like
- Register in SAM.gov and Grants.gov early
- Apply early enough to meet the application deadline
- When applying through Grants.gov, use the “Track My Application” function
- Use the checklist with the application requirements in the NOFO as you complete your application
- Check to see that all budget figures match corresponding figures on the forms, cover sheet, SOW, and in the Project Narrative
  - Numbers in columns and rows should add up properly in budget tables
If You Have Questions

• **General Program/Project:**
  - Bryan Rodda
  [bryan.rodda@dot.gov](mailto:bryan.rodda@dot.gov)

• **Benefit-Cost Analysis:**
  - Nathan Vomocil
  [nathan.vomocil@dot.gov](mailto:nathan.vomocil@dot.gov)

• **Grant Application Process:**
  - Amy Houser
  [amy.houser@dot.gov](mailto:amy.houser@dot.gov)

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Key Resources

• **FRA Competitive Grant Programs Website**
  [https://www.fra.dot.gov/grants](https://www.fra.dot.gov/grants)

• **Partnership Program Webinar**  
  *Recorded December 12, 2018*
  [https://www.fra.dot.gov/Page/P1137](https://www.fra.dot.gov/Page/P1137)
Nationally Significant Freight and Highway Projects (INFRA Grants)

- $855-902.5 million available from FY19 Appropriations; Published in the Federal Register 12/21/2018
  - Applications due by 8 pm EST on Monday, March 4, 2019
- TIFIA and RRIF allowed as non-federal source of funds

Program Overview

- Fund highway and freight projects of national or regional significance that will rebuild infrastructure
- Preference for applications that leverage non-Federal funds or innovative financing
- $200M remains available for freight rail projects
Eligible Applicants

- States *(including the District of Columbia)*
- Groups of states
- Metropolitan planning organizations that serve urbanized areas with a population of more than 200,000 individuals
- Local governments or groups of local governments
- Political subdivisions of a State or local government
- Special purpose district or public authorities with a transportation function, including a port authorities
- Federal land management agencies that apply jointly with a State or group of States
- Tribal governments or a consortium of tribal governments
- Multi-state or multijurisdictional group of public entities

*Each eligible applicant is limited to three applications.*
INFRA Eligible Projects

Eligible Rail Projects

• Railway-highway grade crossing or grade separation projects
• Freight projects that are (1) an intermodal or rail project, or (2) within the boundaries of a public or private freight rail, water (including ports), or intermodal facility that provide public benefits.

Eligible Project Costs

• Construction
• Reconstruction
• Rehabilitation
• Environmental mitigation
• Construction contingencies
• Equipment acquisition
• Operational improvements directly related to system performance
• Acquisition of property (including land related to the project and improvements to the land)
FRA Active Grant Program Snapshot

<table>
<thead>
<tr>
<th>Rail Program</th>
<th>Total Number of Grants</th>
<th>Percent Obligated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amtrak Programs</td>
<td>18</td>
<td>99%</td>
</tr>
<tr>
<td>OST Programs</td>
<td>42</td>
<td>48%</td>
</tr>
<tr>
<td>FASTLANE / INFRA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fast Act Programs</td>
<td>30</td>
<td>0%</td>
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<tr>
<td>Special Transportation Circumstances</td>
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<td></td>
</tr>
<tr>
<td>CRISI-PTC (2018)</td>
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<td></td>
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<tr>
<td>Safety / Research Programs</td>
<td>83</td>
<td>90%</td>
</tr>
<tr>
<td>Legacy / Modal Transfer Programs</td>
<td>67</td>
<td>100%</td>
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<tr>
<td>TOTAL</td>
<td>240</td>
<td>96%</td>
</tr>
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</table>

Federal Funding ($M), Percentage of Total Funding

- $4,992M, 37%
- $582M, 4%
- $205M, 2%
- $86M, 1%

TOTAL $7,467M, 56%
### Safety Investments | Funding Overview

**117**

**$564M**

**$446M**

<table>
<thead>
<tr>
<th>Recent Investment Programs by Fiscal Year</th>
<th>Funds</th>
<th>Impact</th>
</tr>
</thead>
</table>
| Safe Transportation of Energy Products by Rail Grant Program (STEP 2015) | $10 Million | • 9 projects across 8 states  
• Funds to upgrade and increase the safety of railroad crossings along energy routes |
| Railroad Safety Infrastructure Improvement Grant Program (SiIP 2016) | $25 Million | • 23 projects across 14 states  
• Funds to increase safety at railroad crossings, train stations, and tracks |
| Railroad Safety Technology Grant Program (RSTG 2016) | $25 Million | • 11 projects across 6 states  
• Funds installation of PTC systems to prevent collisions and over-speed derailments |
| Positive Train Control Grant Program (PTC 2017) *FTA funding | $197 Million | • 17 projects in 13 states  
• Funds installation of PTC systems to prevent collisions and over-speed derailments |
| Consolidated Rail Infrastructure and Safety Improvements Program (CRISI 2017) | $57 Million | • 18 projects across 16 states  
• Funds needed repairs and upgrades to rail infrastructure to strengthen safety and increase service |
| PTC Systems Grants under Consolidated Rail Infrastructure and Safety Improvements Program (CRISI-PTC 2018) | $250 Million | • 39 projects across 21 states  
• Funds installation of PTC systems to prevent collisions and over-speed derailments |

*Does not include contributions from CRISI 2017 and CRISI-PTC 2018 programs*
**REGION 8**
- 12 projects
- $22.6M FRA funds
- $3.9M FTA funds

**REGION 7**
- 15 projects
- $65.7M FRA funds
- $28.4M FTA funds

**REGION 6**
- 12 projects
- $33.7M FRA funds
- $30.9M FTA funds

**REGION 5**
- 17 projects
- $67.6M FRA funds
- $13.4M FTA funds

**REGION 4**
- 19 projects
- $63.5M FRA funds
- $20.2M FTA funds

**REGION 3**
- 10 projects
- $31.1M FRA funds
- $33.5M FTA funds

**REGION 2**
- 12 projects
- $19.0M FRA funds
- $15.2M FTA funds

**REGION 1**
- 20 projects
- $62.4M FRA funds
- $51.4M FTA funds
Privately Financed Rail Projects

Brightline/All Aboard Florida

Miami – West Palm Beach Intercity Rail service launched in 2018 and attracted 500,000 riders by end of year

Image Source: Brightline

Texas Central Railway (TCR)

Planned Dallas-Houston High Speed Train Service on dedicated Right-of-Way, using Japanese Shinkansen high-speed trainsets

Image Source: TCR
Bureau-financed rail projects underway

$2.45B RRIF Loan
28 new Amtrak Acela Trainsets for additional speed and capacity on the NEC
Image Source: Amtrak/Alstom

$526M TIFIA Loan
New Moynihan Train hall at NY Penn Station for improved passenger flow
Image Source: Amtrak

<table>
<thead>
<tr>
<th>Project</th>
<th>Project Location</th>
<th>Financing Type</th>
<th>Financing Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>DART Rapid Transit Cotton Belt</td>
<td>Dallas, TX</td>
<td>RRIF Loan</td>
<td>$908M</td>
</tr>
<tr>
<td>Port of Everett</td>
<td>Everett, WA</td>
<td>RRIF Loan</td>
<td>$5.9M</td>
</tr>
<tr>
<td>MBTA Positive Train Control</td>
<td>Boston, MA</td>
<td>RRIF Loan</td>
<td>$220M</td>
</tr>
<tr>
<td>MTA Positive Train Control</td>
<td>New York, NY</td>
<td>RRIF Loan</td>
<td>$967M</td>
</tr>
</tbody>
</table>
Credit Program Initiatives

TIFIA Rural Project Initiative

Funds the improvement of transportation infrastructure in America’s rural communities and helps expand and modernize America’s Rural Transportation

- Below-market rate loans for intercity passenger bus and rail facilities and vehicles; publicly owned freight rail facilities; intermodal freight transfer facilities

RRIF Initiative for Short Line and Regional RR

A targeted opportunity for small loans to Short Line and Regional railroads

- Reduced origination fees
- Support for credit risk premium

New TIFIA/RRIF Letter of Credit and Application Form: https://www.transportation.gov/build-america
FRA Technical Assistance for Grantees

• FRA hosted or participated in more than 10 webinars to provide technical assistance to more than 500 grantees and other rail stakeholders.

• Topics included:
  • Grant programs and application requirements
  • Application assistance
  • How to prepare Benefit-Cost Analyses

Recordings of some of the recent webinars can also be found at: https://www.fra.dot.gov/Page/P1137
Safety Innovation
FRA Research Development & Technology

FRA works to advance the safety, efficiency, and competitiveness of our nation’s rail network by:

- **Funding** research provided to universities, railroads, labor organizations, and others to promote rail innovation
- **Testing** new equipment, technologies, and practices in real-world conditions at FRA’s Transportation Technology Center (TTC) and through pilot programs
- **Publishing** research results and technical reports to document FRA and external research for use by stakeholders and the public
- **Collaborating** with industry partners at FRA’s TTC facility, and via the annual Broad Agency Announcement that solicits proposals on research topics to improve safety and efficiency of freight and passenger rail operations

**Transportation Technology Center**
FRA’s specialized TTC facility in Pueblo, CO is used to test and research new rolling stock, track, and signal technologies

$41 M
Total FY19 Research and Development Budget

97
Number of research results and technical reports published by FRA since January 2017
FRA’s Connected Autonomous Vehicle (CAV) Goals

- Engage rail industry stakeholders
- Advocate rail safety within Intelligent Transportation Systems Joint Program Office
- Support standards development
- Facilitate highway-rail industry collaboration
- Data collection
- Evaluate emerging technologies
FRA Research and Development

- Grade Crossing Crash Taxonomy Research
  - FRA & NHTSA Crash Data
  - CV-preventable accidents?
  - Economic Costs?

![Incidents/Injuries/Fatalities per Traffic Moment Graph](chart.png)
**FRA Research and Development**

- **Dedicated Short Range Communication (DSRC)**
  - Performance Evaluation for Rail
  - Can DSRC support V2V rail communications?
  - Antenna configurations?
  - Locomotive EMI impacts?
Rail Crossing Violation Warning (RCVW) Overview

• Reference connected vehicle app for grade crossing warning
• Warn drivers of imminent violation of a rail crossing protection system
• Jointly funded by FRA and FHWA
• Phase 1 (2015-2017)
  • Developed Architecture and Design specifications
  • Developed a prototype V2I RCVW system with roadside and vehicle-based components
  • Conducted lab and field testing
  • Reported project and testing findings (https://rosap.ntl.bts.gov/view/dot/34852)
RCVW Phase II

• 18-month project phase began in October 2018
• Support from CTC Inc., Transportation Research Center, Inc., and Honda R&D Americas
• Objectives:
  • Improve RCVW performance and reliability
  • Implement new data streams
  • Revise RCVW hardware and software to be deployable for pilots and demos
  • Field test and validate requirements
• Stakeholder engagement and communicating progress to the rail industry is priority. Participation in the following outreach opportunities are scheduled:

<table>
<thead>
<tr>
<th>Conference</th>
<th>Sponsoring Entity</th>
<th>Location</th>
<th>When</th>
</tr>
</thead>
<tbody>
<tr>
<td>Joint Rail Conference on Railroad Engineering</td>
<td>ASME</td>
<td>Snowbird, Utah</td>
<td>April 9-12, 2019</td>
</tr>
<tr>
<td>Rail Crossing Committee Meeting</td>
<td>AAR</td>
<td>Columbus, Ohio</td>
<td>June 19-21, 2019</td>
</tr>
<tr>
<td>Rail Conference</td>
<td>APTA</td>
<td>Toronto, Ontario (Canada)</td>
<td>June 23-26, 2019</td>
</tr>
<tr>
<td>Railway Interchange</td>
<td>AREMA</td>
<td>Minneapolis, Minnesota</td>
<td>September 22-25, 2019</td>
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QUESTIONS?
CONTACT US

Federal Railroad Administration
1200 New Jersey Avenue, SE
Washington, DC 20590

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