FY 2021 PERFORMANCE PLAN

FY 2019 PERFORMANCE REPORT

APPENDIX 2:
MAJOR MANAGEMENT AND PERFORMANCE CHALLENGES

U.S. Department of Transportation

APPENDIX 2

MAJOR MANAGEMENT AND PERFORMANCE CHALLENGES

The U.S. Department of Transportation continues to demonstrate a strong commitment to improving the safety and performance of our Nation's airspace, roads, pipelines, railways, and transit. However, a number of challenges remain that may affect the Department's ability to carry out its duties. Major management challenges are defined as programmatic or management functions that have greater vulnerability to waste, fraud, abuse, and mismanagement or where failure to perform well could seriously impair the ability of DOT achieve its mission or goals. This document serves as the Department's annual update on the top management challenges identified by the Office of Inspector General (OIG).[1] The Department considers such challenges when developing performance goals, measures, and milestones and when identifying areas of high priority or need.

The OIG has identified the following major management challenges for DOT fiscal year (FY) 2021:

> Restoring Confidence in FAA's Aircraft Certification Process

> Effectively Leveraging Collaboration and Enforcement in FAA's Evolving Air Carrier Safety Oversight Approach

> Maximizing FAA's Airspace Modernization Investments and Ensuring New Capabilities Achieve Expected Benefits

> Enhancing Oversight and Internal Controls to Address Longstanding Cybersecurity Vulnerabilities

> Maintaining and Enforcing Pipeline and Hazardous Materials Safety

> Enhancing Enforcement and Data Analysis to Reduce Commercial Vehicle-Related Fatalities

> Continuing National Efforts to Improve Railroad Safety

> Effectively Overseeing Billions in Surface Infrastructure Investments

> Preparing for the Future of Transportation

This report summarizes each management challenge, analyzes progress made towards addressing the challenge, and describes the planned action items for mitigating the challenge.

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1   [1]The FY 2020 OIG report is available at https://www.oig.dot.gov/library-item/37530. The DOT response to these OIG-identified challenges can be found on page 47 of the report.

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ACRONYMS

ACRONYM	TERM
Restoring Confidence in FAA's Aircraft Certification Process	
AIR	Aircraft Certification
AVS	Office of Aviation Safety
CMT	Certification Management Team
FAA	Federal Aviation Administration
JATR	Joint Authorities Technical Review
MCAS	Maneuvering Characteristics Augmentation System
NTSB	National Transportation Safety Board
ODA	Organization Designation Authorization
OIG	Office of Inspector General
OST	Office of the Secretary of Transportation
PAH	Production approval holder
SSA	System safety assessments
TAB	Technical Advisory Board
Effectively Leveraging Collaboration and Enforcement in FAA's Evolving Air Carrier Safety Oversight Approach	
AFS	Flight Standards
AIR	Aircraft Certification
AVS	Office of Aviation Safety
CEA	Compliance and Enforcement Action
CPFT	Compliance Program Focus Team
FAA	Federal Aviation Administration
OIG	Office of Inspector General

Maximizing FAA's Airspace Modernization Investments and Ensuring New Capabilities Achieve Expected Benefits	
ADAPT	ADS-B Deviation Authorization Pre-Flight Tool
ADS-B	Automatic Dependent Surveillance-Broadcast
AJV-P	Mission Support Systems Policy Directorate
ARO	Airport Reservation Office
ARTCC	Air route traffic control center
ATC	Air Traffic Controller
CEO	Community Engagement Officers
Data Comm	Data Communications
ECINA	Environmental, Community Involvement, and National Airspace System Analytics
ERAM	En Route Automation Modernization
FAA	Federal Aviation Administration
FCC	Federal Communications Commission
FIM	Flight Interval Management
IFP	Integrated Flight Procedure
IOC	Initial Operating Capability
iTBO	Trajectory-Based Operations
JPO	Joint Program Office
NAS	National Airspace System
NMS	Nautical Mile Separations
NextGen	Next Generation Air Transportation System
NPI	New Program Integration
NTIA	National Telecommunications and Information Administration
OMB	Office of Management and Budget
PMO	Program Management Office
RFI	Request for Information
SENSR	Spectrum Efficient National Surveillance Radar

SIR	Screening Information Request
SRF	Spectrum Relocation Fund
TBDM	Track-Based Display Mode
TBFM	Time-Based Flow Management
TPC/IP	Transmission Control Protocol/Internet Protocol

Enhancing Oversight and Internal Controls to Address Longstanding Cybersecurity Vulnerabilities

ARAC	Aviation Rulemaking Committee
ASISP	Aircraft Systems Information Security Protection
ATO	Authority to operate
AVS	Office of Aviation Safety
CDM	Continuous Diagnostics and Mitigation
CISO	Chief Information Security Officer
CSC	Cybersecurity Steering Committee
CyRM	Cybersecurity Risk Model
DHS	Department of Homeland Security
FAA	Federal Aviation Administration
FISMA	Federal Information Security Management Act
FITARA	Federal Information Technology Acquisition Reform
GAO	Government Accountability Office
GRC	Governance, risk, and compliance
IT	Information Technology
NAS	National Airspace System
OCIO	Office of the Chief Information Officer
OIG	Office of Inspector General
OA	Operating Administration
OST	Office of the Secretary of Transportation
POAM	Plan of Action and Milestones
R&D	Research & Development

Maintaining and Enforcing Pipeline and Hazardous Materials Safety	
Hazmat	Hazardous materials
LNG	Liquefied natural gas
OIG	Office of Inspector General
OST	Office of the Secretary of Transportation
PHMSA	Pipeline and Hazardous Materials Safety Administration
UNGS	Underground Natural Gas Storage
Enhancing Enforcement and Data Analysis to Reduce Commercial Vehicle-Related Fatalities	
APG	Agency Priority Goal
CDL	Commercial Driver's License
CSA	Compliance, Safety, and Accountability
ELD	Electronic Logging Device
FAST Act	Fixing America's Surface Transportation Act of 2015
FMCSA	Federal Motor Carrier Safety Administration
IRP	International Registration Plan
IRT	Item Response Theory
MCMIS	Motor Carrier Management Information System
NAS	National Academy of Sciences
NAS	National Airspace System
NHTSA	National Highway Traffic Safety Administration
OIG	Office of Inspector General
SMS	Safety Measurement System
VMT	Vehicle miles traveled
Continuing National Efforts to Improve Railroad Safety	
FRA	Federal Railroad Administration
PTC	Positive train control

Effectively Overseeing Billions in Surface Infrastructure Investments	
CMAQ	Congestion Mitigation and Air Quality
DRAA	Disaster Relief Appropriations Act of 2013
ERM	Enterprise Risk Management
FAHP	Federal Aid Highway Program
FAST Act	Fixing America's Surface Transportation Act of 2015
FHWA	Federal Highway Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
GAO	Government Accountability Office
MAP-21	Moving Ahead for Progress in the 21st Century Act
MPO	Metropolitan Planning Organization
MTAC	Monitoring and technical assistance contractor
NEPA	National Environmental Policy Act
NHFP	National Highway Freight Program
NHS	National Highway System
OIG	Office of Inspector General
NAS	National Airspace System
NHTSA	National Highway Traffic Safety Administration
OIG	Office of Inspector General
OST-P	Office of the Undersecretary for Policy
SHRP	Strategic Highway Research Program
TSMO	Transportation Systems Management and Operations
TTI	Travel Time Index
TTTR	Truck Travel Time Reliability
VMT	Vehicle miles traveled
Volpe	John A. Volpe National Transportation Systems Center

Preparing for the Future of Transportation	
ACC	Adaptive Cruise Control
ADS	Automated Driving Systems
AEB	Airman Examination Board
AID	Accelerated Innovation Deployment
AMR	Accelerated Market Readiness
AMS	Analysis, modeling, and simulation
APG	Agency Priority Goal
ASRS	Aviation Safety Reporting System
ATO	Air Traffic Organization
AU	Assessable Unit
AVS	Office of Aviation Safety
CAV	Connected and automated vehicle
COE	Center of Excellence
Conops	Concept of operations
CRADA	Cooperative Research and Development Agreements
CTIP	Coordinated Technology Implementation Program
EDC	Every Day Counts
ERM	Enterprise Risk Management
GASA	General Aviation Safety Assurance
FAA	Federal Aviation Administration
FAST Act	Fixing America's Surface Transportation Act of 2015
FHWA	Federal Highway Administration
FLMA	Federal Land Management Agency
FMCSA	Federal Motor Carrier Safety Administration
FMVSS	Federal Motor Vehicle Safety Standards
FTIC	Federal Transportation Innovation Council
IPP	Integrated Pilot Program

ITS JPO	Intelligent Transportation Systems Joint Program Office
JSpOG	Joint Space Operations Group
LAANC	Low Altitude Authorization and Notification Capability
LPA	Local Public Agency
MUTCD	Manual on Uniform Traffic Control Devices
MVP	Minimum viable product
NAS	National Airspace System
NASA	National Aeronautics and Space Administration
NHTSA	National Highway Traffic Safety Administration
NOTAM	Notice to airmen
NPRM	Notice of Proposed Rulemaking
ODI	Office of Defects Investigations
OTA	Other Transactions Agreement
OST-R	Office of the Assistant Secretary for Research and Technology
PMR	Project Management Review
PSP	Partnership for Safety
R&D	Research and Development
RFI	Request for Information
STIC	State Transportation Innovation Council
TREAD Act	Transportation Recall Enhancement, Accountability, and Documentation Act
UAS	Unmanned Aircraft Systems
UAST	Unmanned Aircraft Safety Team
UTM	UAS traffic management
Volpe	John A. Volpe National Transportation Systems Center
VMT	Vehicle miles traveled
V2I	Vehicle-to-Infrastructure
V2V	Vehicle-to-Vehicle

OIG CHALLENGE:
RESTORING CONFIDENCE IN FAA'S AIRCRAFT CERTIFICATION PROCESS

OIG CHALLENGE SUMMARY

The Federal Aviation Administration (FAA) is charged with overseeing the safety and certification of all civilian aircraft manufactured and operated in the United States. This is a considerable undertaking given that the U.S. civil aviation industry encompasses more than 230,000 aircraft, 1,600 approved manufacturers, and 5,200 aircraft operators, among others. While FAA has historically maintained an excellent safety record, two fatal accidents in October 2018 and March 2019 and the subsequent grounding of Boeing 737 MAX aircraft have raised significant concerns about the certification of the 737 MAX and FAA's use of delegation authority to certify new aircraft designs.

KEY CHALLENGE COMPONENTS

› Resolving certification issues related to the Boeing 737 MAX aircraft

› Enhancing FAA's oversight of aircraft certification processes

Source: OIG's FY 2020 report.

DOT PROGRESS UPDATES FOR FY 2020

Resolving certification issues related to the Boeing 737 MAX aircraft

The FAA's decision on return to service (RTS) will be based on the agency's assessment of the sufficiency of Boeing's proposed software updates and pilot training to address the known issues for which the FAA grounded the aircraft. When the FAA decides to return the Boeing 737 MAX to service, that action will be applicable only to U.S. carriers operating in U.S. airspace. Other Civil Aviation Authorities (CAA) must take their own actions to return the Boeing 737 MAX to service for their air carriers and allow the operation of the Boeing 737 MAX in their airspace. The FAA is conducting outreach activities with

our international counterparts to make sure they have the information they will need to make a timely, safety-focused decision.

Enhancing FAA's oversight of aircraft certification processes

The expert reviews of the 737 MAX certification and the FAA's internal analysis have highlighted a need to enhance the FAA's oversight of the aircraft certification process and FAA's workforce, particularly human factors technical specialists. Advancements in aircraft automation have contributed to an unprecedented level of safety in our domestic aviation system. However, those advancements reaffirm the importance of considering human factors and the interface between aircraft pilots and systems during certification. This moves us toward an integrated approach to aircraft certification that brings with it another level of safety. The FAA is cognizant that enhancing our current and future workforce will require investment, and that is reflected in the President's budget for fiscal year 2021.

DOT PLANNED ACTIONS TO ADDRESS THIS CHALLENGE

Resolving certification issues related to the Boeing 737 MAX aircraft

The FAA is carefully considering the recommendations from the Technical Advisory Board (TAB), Joint Authorities Technical Review (JATR), National Transportation Safety Board (NTSB), and the Special Committee's Review of the FAA's Aircraft Certification Process (Special Committee), as well as the Lion Air 610 Final Accident Report published by the Indonesia Komite Nasional Keselamatan Transportasi. Some recommendations have near-term significance, while others may have more broad-based implications for our approach to safety.

The FAA is awaiting the results of the Department of Transportation Office of the Inspector General (DOT OIG) audit to compile an objective and detailed factual history of the activities that resulted in the certification of the 737 MAX.

Any recommendations associated with RTS will be addressed prior to ungrounding the aircraft and return to revenue service. The FAA is committed to considering regulations and policies that can be improved, as they relate to flight crew training and operational suitability of aircraft design.

Enhancing FAA's oversight of aircraft certification processes

The use of delegation has long been a key part of the FAA's safety system. Organization Designation Authorization (ODA) is a form of delegation. The FAA grants ODA authority based on the needs of the agency. The FAA may issue an ODA once it determines that a company or organization meets stringent eligibility requirements, including professional integrity, technical competency, and a history of compliance assurance.

As part of our delegation oversight program we conduct supervision and inspection. In addition to our review of audits and an annual assessment, the FAA conducts an on-site detailed inspection every two years to ensure compliance. Substandard performance can result in increased FAA involvement, suspension, or termination of ODA granted by FAA.

The FAA Reauthorization Act of 2018 [Sec 212(b)] mandates establishment of a centralized office to be known as the ODA Office, within the Office of Aviation Safety (AVS). Among other functions, this office will oversee and ensure the consistency of the FAA's audit functions under the ODA program across the FAA. The FAA's FY 2021 Budget Request establishes a new ODA Office, which will be responsible for providing guidance and promoting standardization and enhanced coordination for all AVS ODA holder activities.

DOT Associated Performance Goals/ Measures/Milestones

Enhancing FAA's oversight of aircraft certification processes
The new AVS ODA Office is another progression in the FAA's continuous improvement process. In addition to ensuring a cross-organizational focus on oversight, this office will further facilitate decision-making based on issues that pose the highest risks to safety.

With respect to evolving safety oversight in AIR, FAA published the FAA Integrated Oversight Philosophy (IOP) in June 2017, which provides foundational principles that each FAA oversight program must adopt to evolve safety oversight. It also established the Air Integrated Oversight team to manage the implementation of the IOP within AIR and support AIR's strategic plan for a system oversight approach.

FAA will measure progress based on the implementation of FAA IOP activities and AIR Evolving Safety Oversight activities, which are tracked as part of AVS business planning and the AIR Integrated Implementation, respectively.

Responsible Agency Official(s)

Implement Effective Air Carrier Oversight
 › Earl Lawrence, Executive Director, AIR-1

Support R&D and Reshape the Workplace to Meet Future Needs
 › Earl Lawrence, Executive Director, AIR-1

 › Michael Romanowski, Director, AIR-600

 › Jeff Duven, Director, AIR-800

 › Van Kerns, Deputy Director, AFS-2A

OIG CHALLENGE:

EFFECTIVELY LEVERAGING COLLABORATION AND ENFORCEMENT IN FAA'S EVOLVING AIR CARRIER SAFETY OVERSIGHT APPROACH

OIG CHALLENGE SUMMARY

The Federal Aviation Administration (FAA) is responsible for maintaining the safety of a diverse, complex, and rapidly evolving aviation industry. Despite the Nation's air carrier safety record, recent events have highlighted challenges that FAA faces in its safety oversight and garnered both public interest and congressional attention. These include the April 2018 Southwest Airlines engine failure—which resulted in the first fatality at a U.S. commercial passenger air carrier in over nine years—and several safety incidents at airports, such as the near miss of an Air Canada Flight in San Francisco in July 2017. In recent years, FAA's systems and strategies for safety oversight have evolved, with air carriers taking on a larger role in identifying and mitigating safety risks. However, to maintain the highest level of safety, FAA must strike an effective balance between collaboration and enforcement when overseeing critical air carrier safety programs.

Source: OIG's FY 2020 report.

KEY CHALLENGE COMPONENTS

› Resolving certification issues related to the Boeing 737 MAX aircraft

› Enhancing FAA's oversight of aircraft certification processes

Source: OIG's FY 2020 report.

DOT PROGRESS UPDATE FOR FY 2020

Balance Collaboration and Enforcement through the Compliance Program

FAA provided published guidance concerning this challenge in several public documents, as outlined by the following:

FAA-WIDE GUIDANCE

FAA Order 8000.373A, Paragraph 4	Provides an overview of the Compliance Program.
FAA Order 2150.3C, Chapter 5	Describes the "Responsibilities of Program Offices When Selecting Among Compliance, Administrative, and Legal Enforcement Actions."

In addition, program offices within AVS have developed guidance specific to their safety oversight responsibilities, as outlined below.

FLIGHT STANDARDS (AFS) SERVICE GUIDANCE

Order 8900.1, Volume 14, Chapter 1, Section 1, Paragraph 14-1-1-7	Provides guidance to AFS personnel on addressing safety deviations, including specific instances when enforcement is required.
Order 8900.1, Volume 14, Chapter 1, Section 1, Paragraph 14-1-1-11	Provides guidance to AFS personnel on expectations when investigating a safety deviation.
Order 8900.1, Volume 14, Chapter 1, Section 2	Provides AFS personnel a process to determine if a compliance action (e.g., a non-enforcement response to a deviation) is appropriate.

AIRCRAFT CERTIFICATION (AIR) SERVICE GUIDANCE

Technical Business Process AIR-002-035, Section 7	Provides guidance to AIR personnel on how to determine the appropriate type of compliance or enforcement action based on the criticality, complexity, and attitude of the regulated entity (including safety concerns).
Technical Business Process AIR-002-035, Section 9	Provides guidance to AIR personnel on how to initiate and process compliance actions, including a requirement to verify whether corrective action was implemented and effective in mitigating the noncompliance identified prior to closure. This section also provides guidance on elevating actions to enforcement if the noncompliance persists.
Technical Business Process AIR-002-035, Section 10	Provides supplemental guidance to AIR personnel on how to initiate and process enforcement actions and supports FAA Order 2150.3 in determining the sanction warranted for specific types of noncompliance. This section also includes guidance on verifying that corrective action was implemented and effective.

Training Updates

FAA provided training courses to its employees during the initial implementation of the Compliance Program. One such course, the FAA Compliance Philosophy Briefing, introduced the FAA's new Compliance Philosophy as the overarching guidance for implementing the FAA's strategic safety oversight approach to meeting the challenges of today's rapidly changing aerospace system.

In addition, each program office is responsible for developing training material specific to their employees, as outlined below.

AFS SERVICE TRAINING	
Compliance Philosophy Supplemental Briefing (FAA 27100253)	Provides foundational information on the Compliance Program and includes a video from the former AFS Executive Director. The video discusses focusing on the underlying precursors, and willingness and ability of the subject of the investigation, when determining action. The video also stresses interdependence and critical thinking when determining FAA's responses to a safety deviation.
Safety and Compliance Course (FAA 27100259)	Provides newly hired AFS personnel who are responsible for investigative duties with information on "just culture." The course notes that there is a difference between unsafe acts that can be effectively addressed through the use of compliance tools and unacceptable behavior that requires the use of enforcement action. This course also reinforces the need for individuals to be both willing and able to resolve regulatory deviations with compliance actions.
Safety and Compliance Practical Application Workshop (FAA 21000136)	Offers multiple compliance-related exercises designed to educate participants on investigative procedures and determining what actions are appropriate in response to deviations.
Enforcement Procedures Course (FAA 21000148)	Provides further training on circumstances in which enforcement action is necessary and required.
AIR SERVICE TRAINING	
Aircraft Certification Compliance and Enforcement Course (FAA 22000084)	Provides AIR personnel information on the FAA Compliance Program and the AIR Compliance and Enforcement Program. This includes detailed lessons on identifying types of non-compliances, tying non-compliances back to regulatory requirements, determining the type of compliance or enforcement action needed (including identifying safety issues, and reckless or intentional behavior), processing actions, and determining if corrective action is acceptable and verifying corrective action to ensure it is implemented and effective in mitigating the cause.
2016 Air Roadshow	Provided field offices with information on the Compliance Program during roll-out. This training session included an explanation of the intent of the Compliance Philosophy and an outline of the guidance, including initiating actions, reviewing root cause and corrective action, and verifying the effectiveness of corrective action.

Additional Progress Updates

The Flight Standards Compliance Program Focus Team (CPFT) continues to provide support by conducting site visits to over sixty Safety Assurance offices (i.e., Flight Standards District Offices and Certificate Management Offices) to provide briefings on the Compliance Program.

AIR completed an assessment and analysis of data collected over the last three years and is creating a report with opportunities for improvement with respect to the compliance and enforcement process. It also is in the early stages of deployment for its Compliance and Enforcement Action (CEA) tool, an automated system that supports the standardization of the compliance and enforcement process.

Oversee New Air Carrier Systems for Managing Safety Risks

The DOT's Office of Inspector General (OIG) has audited FAA on this subject (Project #18A3007A000, *FAA Has Not Effectively Overseen Southwest Airlines' Systems for Managing Safety Risks),* and publication of the final audit report is expected in early calendar year 2020.

DOT Planned Actions to Address this Challenge

Balance Collaboration and Enforcement through the Compliance Program

FAA continues to discuss and promote the Compliance Program through a variety of executive engagements with the aviation industry. The Office of Aviation Safety (AVS) program office actions are outlined below. Additional planned actions within affected program offices continue as needed.

› Continue ongoing Safety Assurance Office site visits by the CPFT.

› Initiate a comprehensive revision to the FAA Safety and Compliance courses and the Enforcement Procedures course. The updated AFS training materials will incorporate collected feedback to aid in balancing the appropriate response from FAA.

› Initiate development of an AFS Recurrent Safety

and Compliance course that will be required for all personnel with investigative duties and responsibilities.

› Continue ongoing assessments and feedback sessions between AIR and field offices to determine the continued effectiveness of the Compliance Program.

› Initiate development of a Recurrent Compliance and Enforcement course, which will be required for all AIR personnel with oversight duties and responsibilities.

› Continue deployment of CEA, which will support standardization and the ability to better track issues to ensure effective corrective actions.

Oversee New Air Carrier Systems for Managing Safety Risks

AVS is awaiting issuance of the OIG's final audit report and will produce action plans to respond to the recommendations in the report.

DOT Associated Performance Goals/Measures/Milestones

Balance Collaboration and Enforcement through the Compliance Program

FAA continues to develop measures and seek feedback from the workforce to inform any needed changes or additions to the guidance, training, and messaging described above. This is predominately accomplished at the program office level. AFS and AIR use the metrics listed below:

› Volume of compliance and enforcement actions

› Timeliness in processing actions

› Measure voluntary safety reporting rates

› Accident and incident data

› Recidivism rates

› Assess the documentation data quality of FAA actions for validity, reliability, and consistency

› Feedback to gauge opinions on safety impact and effectiveness

› Quality and in-service data

Oversee New Air Carrier Systems for Managing Safety Risks

AVS is awaiting the issuance of the OIG's final report and will produce action plans with performance goals, measures, and/or milestones to respond to the recommendations in the report.

RESPONSIBLE AGENCY OFFICIAL(S)

Balance Collaboration and Enforcement through the Compliance Program
> Michael Romanoswki, Director, AIR-600
> Lance Gant, Director, AIR-700
> Jeff Duven, Director, AIR-800
> Hillary Heintz, Compliance and Enforcement Program Manager, AIR-600
> Tim Shaver, Director, AFS-1
> Jeffrey Smith, FS, CPFT Lead

Oversee New Air Carrier Systems for Managing Safety Risks
> Jodi Baker, Deputy Director, Air Carrier Safety Assurance

OIG CHALLENGE:
MAXIMIZING FAA'S AIRSPACE MODERNIZATION INVESTMENTS AND ENSURING NEW CAPABILITIES ACHIEVE EXPECTED BENEFITS

OIG CHALLENGE SUMMARY

The Federal Aviation Administration (FAA) continues to modernize the National Airspace System (NAS) through the multibillion-dollar Next Generation Air Transportation System (NextGen) program. As envisioned, NextGen investments will continue to provide safer, more efficient air traffic management. While it has implemented new capabilities, FAA still faces challenges in upgrading aging infrastructure, continuing NextGen's deployment, and achieving intended benefits in a cost-effective manner.

KEY CHALLENGE COMPONENTS

› Sustaining and modernizing the En Route Automation Modernization (ERAM) system while integrating new capabilities

› Realizing the anticipated benefits of Automatic Dependent Surveillance-Broadcast (ADS-B) investments

› Resolving obstacles to implementing new flight procedures and delivering benefits to airspace users

› Auctioning off electromagnetic spectrum to finance and deploy new radars

Source: OIG's FY 2020 report.

DOT PROGRESS UPDATES FOR FY 2020

Sustain and Modernize the ERAM System

FAA has been integrating new capabilities and external programs such as Data Communications (Data Comm) into the ERAM platform using the New Program Integration (NPI) process. The NPI process incorporates all activities from receipt of request for integration (e.g., a new program requesting a change in ERAM hardware, interface, and/or software requirements) to establishing ERAM commitments for the schedule and lifecycle cost estimates of the requesting program.

This information is fed into the ERAM strategic release planning process where it assists in coordinating ERAM sustainment, Data Comm deployment, and software upgrades in the proper order. This process has ensured that ERAM sustainment and Data Comm deployment proceeds smoothly.

Data Comm has released supporting software to enable planned deployment of initial en route services at two air route traffic control center (ARTCC) key sites. Initial operating capability at both sites occurred in November 2019.

FAA continues to replace obsolete ERAM system equipment with modern, sustainable hardware platforms. In April 2019, FAA completed the Early D portion of ERAM Sustainment 2 equipment refresh at all 20 ARTCCs, including the deployment of new processors in the ERAM Radar Assistance Controller D Position consoles. In July of that same year, FAA deployed adaptation enhancements software for ERAM Enhancements 2, a program which allows the introduction of new controller functionality in cost efficient intervals that do not overload current software/test capabilities or conflict with other airspace programs. In December 2019, FAA began full deployment of the ERAM Sustainment 2 at three key sites (Fort Worth, Minneapolis, and Cleveland). Phase 2 of this full deployment, which includes limited installation of new radar position processors and monitors on the operational floor, was completed at these key sites. FAA also completed baselining of the ERAM Sustainment 3 program, which replaces the balance of original ERAM equipment. It is scheduled to be completed in September 2026.

Realize Anticipated Benefits of ADS-B Investments

FAA completed notices to FAA Orders 7110.65 (Air Traffic Control) and 7210.3 (Facility Operation and Administration) authorizing ADS-B for 3NM separation in the Enterprise Architecture System and working on signatures/approvals. It also determined waterfall schedule and began key site activities and outreach.

With respect to ADS-B, FAA initiated modeling analyses to conduct an airline-specific 'ADS-B In' benefits study of the Northeast Corridor. It also began planning for flight inspection at the Miami air route traffic control center and is on schedule to deploy an ADS-B Deviation Authorization Pre-Flight Tool (ADAPT) to support the 'ADS-B Out' mandate. Finally, FAA initiated the development of a Safety Management Plan and established a bi-weekly meeting cadence with respect to radar divestiture.

Resolve Obstacles to Implementing New Flight Procedures

COMMUNITY CONCERNS ABOUT AIRCRAFT NOISE

To ensure communities receive accurate information and the Agency receives constituent and local official/ State government feedback, FAA is providing appropriate representation at community meetings, noise committees, airport roundtables, and other forums.

FAA also initiates public workshops and community outreach events on an as-needed basis in accordance with FAA community involvement strategy to present information to the public and gain public comment to proposed airspace actions.

Thirty-five regional-level Airport Reservation Office (ARO) employees, including newly assigned Community Engagement Officers (CEOs), work on community outreach with support from the FAA Office of Communications. These employees are dedicated to regional offices and service centers to address aviation noise concerns and community engagement activities. The CEOs and other employees designated by the corresponding Regional Administrator also manage responses. Five headquarters-level employees work on community outreach, mainly providing guidance and developing policy.

Each Service Center Environmental, Community Involvement, and National Airspace System Analytics (ECINA) team has also begun to restructure, align, and increase staffing to ensure the appropriate level of personnel are available to respond to inquiries tracked in the noise complaint initiative, Noise Portal. This additional staffing among ECINA Teams will also manage congressional-level noise inquiries and concerns as the direct response provider.

AUTOMATED DECISION SUPPORT TOOLS FOR CONTROLLERS

The FAA is coordinating with industry partners to evaluate various tools and technologies that will make automated spacing, sequencing, and separation of air traffic possible while also increasing airspace capacity and adding additional safety protocols to the national airspace. Examples of these efforts include Terminal Sequencing and Spacing, Time-Based Flow Management (TBFM), and initial Trajectory-Based Operations (iTBO).

In 2019, the TBFM Operations Team and the TBFM Program Management Office (PMO), in support of the Field Automation Support Teams, implemented more adjacent metering efforts along with the remaining Metroplex projects. Significant progress has been made in expanding effective use of TBFM in the iTBO operating areas providing better training, education, and change management initiatives.

TERMINOLOGY USED BY PILOTS AND CONTROLLERS

The air traffic control handbook revision project was established to address identified concerns by various users of the national airspace pertaining to phraseology and procedures as described in FAA Order JO 7110.65, "Air Traffic Control." The following are some of the associated phraseology and procedure issues that were addressed:

› Reduction of Diagonal Separation for Parallel Dependent Approaches

› Treat Go-Around/Missed Approach Ops as a Normal Departure

› Expanding the Definition of Radar (Radar Contact/ Contact Lost)

› Reorganize Approach Clearance Differentiations

› Tower Applied/Pilot Applied Visual Separation

Procedure Amendment Processes

FAA established a working group to evaluate and help resolve the issue of lengthy procedure amendment processes. The working group reviewed and rewrote the "Flight Procedure Management Program" Order 8260.43 to strengthen the Instrument Flight Procedure (IFP) request validation and prioritization processes.

› *Validation:* The goal of the new validation process is to eliminate invalid requests from consideration and reduce FAA workload.

› *Prioritization:* The goal of the prioritization process is to enforce national IFP strategies and priorities in order to provide the national airspace with timely procedures. The prioritization team schedules IFPs based on real-time national IFP system capacity and ensures that they do not exceed IFP production limitations.

Auction off Electromagnetic Spectrum to Finance and Deploy New Radars

During FY 2019, FAA, serving as the Lead Acquisition Agency for the Spectrum Efficient National Surveillance Radar (SENSR) program, continued to manage the unique challenges associated with a cross-agency team and the Spectrum Relocation Fund (SRF) funding mechanism. This required strategic communication and engagement with various government stakeholders, including the National Telecommunications and Information Administration (NTIA), Office of Management and Budget (OMB), and the Federal Communications Commission (FCC).

During the feasibility phase of the program (to culminate in a Final Investment Decision and Contract Award), FAA is working diligently to determine the scope of the program and establish the program management infrastructure required to support the functional cross-agency program team.

Throughout FY 2019, engagement with industry partners continued. To that end, the SENSR team released multiple requests for information (RFIs) to seek industry input on the program's overall approach, requirements, and acquisition strategy. In addition, the team held one-on-one meetings with vendors in the Spring of 2019 and additional vendor meetings later in Summer 2019.

The RFIs and vendor engagement events with industry partners facilitated an exchange of information that was vital to ongoing feasibility assessments, the refinement of the program's scope and requirements, and the development of the draft Screening Information Request (SIR) (referred to as a request for proposal).

Milestones completed in FY 2019 include:

› October 2018: Submitted acquisition strategy for approval to Joint Resources Council

› December 2018: Drafted cost estimating plan and submitted to Office of Budget and Programs, Investment Planning and Analysis

› March 2019: Held one-on-one meetings with vendors about RFI 2.1

› April 2019: Submitted Phase I Extension SENSR Pipeline Plan to Tech Panel

› May 2019: Completed RFI 2.1 Synopsis Report

› August 2019: Conducted Industry Week with vendors

DOT Planned Actions to Address this Challenge

Sustain and Modernize ERAM System

FAA will continue to integrate new capabilities and external programs such as Data Comm and ADS-B into the ERAM platform using the New Program Integration (NPI) process.

FAA will also continue to utilize the ERAM strategic release planning process to ensure that both ERAM sustainment and Data Comm deployment schedules remain de-conflicted.

Specific goals and milestones for FY 2020 include:

› ERAM Sustainment 2 (S2): Complete Installation of "Full" Equipment Components at three key ARTCCs.

› ERAM Sustainment 2 (S2): Complete In-Service Decision for the "Full" deployment waterfall.

› ERAM Sustainment 3 (S3): Complete handoff to Integration and Test of extension of Gigabit ports for monitor and control LAN capability in EAF200 (software build) to form the foundation for planned ERAM Sustainment 3 equipment deployments.

› ERAM Enhancement 2 (E2): Deliver to key sites direct Transmission Control Protocol/Internet Protocol (TCP/IP) interface with NAVCanada capability in EAE400 (software build) to progress toward the Acquisition Program Baseline milestone for delivery of NAVCanada Automated Radar Handoff Capabilities in 2022.

› Space-Based ADS-B: Software release build to support operational evaluation at Miami Center.

Realize Anticipated Benefits of ADS-B Investments

During FY 2020, FAA plans to enable three Nautical Mile Separations (NMS) using ADS-B within En Route Airspace for the ERAM system at an air route traffic control center. It will also continue radar divesture analysis, safety risk management activities, and site outreach activities to potential candidates for radar divestiture with the goal of identifying two radar locations as sites for discontinuance.

FAA also plans to achieve Initial Operating Capability (IOC) of space-based ADS-B data within ERAM, while enhancing ADS-B In benefits by conducting Flight Interval Management (FIM) Northeast Corridor benefits study. Finally, FAA will deploy ADAPT to support Air Traffic Controller (ATC) authorizations for operator equipment exceptions.

Resolve Obstacles to Implementing New Flight Procedures

COMMUNITY CONCERNS ABOUT AIRCRAFT NOISE

FAA's goal for FY 2020 is to continue ongoing community involvement efforts and pursue more open dialogue in collaboration with local airports and communities. FAA has developed continuous and scalable community outreach programs to aid in this undertaking. These programs establish a basis of communication with local communities, to work effectively with airports to address our mutual challenges. These challenges include identifying and avoiding environmentally sensitive areas and designing instrument flight procedures that ensure safe and environmentally friendly routes in the national airspace.

The community engagement officers and regional ombudsman have been established to help accurately document Agency and public interactions. Metrics gathered will be used to more effectively and efficiently tailor

future responses to noise concerns and improve support of community outreach events and activities.

Additional ECINA staffing has been requested and approved among Service Centers. Western and Eastern ECINA teams have each been approved for 10 additional positions. Some positions have been filled, with the remaining positions to be filled throughout FY 2020 and FY 2021. Additional staffing will enable more efficient and timely responses to both congressional-level inquiries and aircraft noise complaints received through the Noise Portal (upon its release), and will provide support for inquiries received by community engagement officers and regional noise ombudsman.

AUTOMATED DECISION SUPPORT TOOLS FOR CONTROLLERS

FAA will continue the deployment and implementation of traffic sequencing, metering, and/or merging and spacing automation tools to decrease controller workload and promote the use of performance-based navigation procedures.

TBFM Standards, Procedures, and Policy are being incorporated throughout the national airspace. TBFM is deployed at 20 En Route centers, 30 terminal radar approach control facilities, and 41 towers. FAA will continue implementing Integrated Departure and Arrival Capability (IDAC), with installation at Denver Tower by September 30, 2020. The IDAC system prevents departure conflicts by monitoring departure demand and identifying slots in the overhead stream of traffic.

The terminal sequencing and spacing tool will be expanded to extend the metering and sequencing capability of TBFM into terminal airspace. FAA continues to move forward with implementation of this suite of traffic sequencing, metering, and/or merging and spacing capabilities. Due to the dynamic nature of implementing complex technical solutions, it is anticipated this will be an ongoing process for the near future.

TERMINOLOGY USED BY PILOTS AND CONTROLLERS

The Mission Support Systems Policy Directorate (AJV-P) is tracking the processing and implementation of terminological revisions identified by the Air Traffic Control Handbook Project Steering Committee.

Procedure Amendment Processes

Revised FAA Order 8260.43 was fully implemented in October 2019. Metrics have been established to track and monitor the health of the new process, which will assist in identifying inefficiencies and ensuring that cross-agency perspectives are considered when making the decision to invest in a given procedure. Focusing resources on high-priority procedures should reduce the time needed to initiate a project-related procedure development and the time to deploy the procedure.

Upgrades to FAA's design, evaluation, periodic review, and workflow tracking software systems will increasingly automate manual tasks, greatly reducing procedure development and maintenance costs by September 30, 2020.

Auction off Electromagnetic Spectrum to Finance and Deploy New Radars

During the beginning of FY 2020, FAA has continued to manage the unique challenges associated with a cross-agency team and the Spectrum Relocation Fund (SRF) funding mechanism, including the required strategic communications and engagement with various government stakeholders (e.g., NTIA, OMB, and FCC).

While FAA continues to work with various government stakeholders to determine feasibility, FAA has plans to:

› Diligently work to mature the scope of the program and develop a course of action based on feasibility and program/acquisition constraints.

› Sustain the program management infrastructure required to support a functional cross-agency program team.

› Continue engagement between the Joint Program Office (JPO) and industry partners on SENSR requirements, as appropriate, and other program planning activities.

DOT Associated Performance Goals/ Measures/Milestones

Sustain and Modernize the ERAM System

FAA measures the performance of ERAM sustainment and enhancements programs, and other programs dependent on ERAM (such as Data Comm), using programmatic

and yearly milestones with progress reported monthly. In addition, the NPI and strategic release planning process working groups meet regularly and keep scorecards of progress toward completion of process activities.

Realize the Anticipated Benefits of ADS-B Investments

FAA plans to realize the anticipated benefits of ADS-B investments through the following activities:

› Deploy ADAPT through the successful submission of an operator request for an ATC authorization. ADAPT was deployed on December 31, but use by operators was required starting January 2.

› *March 31, 2020:* Achieve IOC of Space-based ADS-B data within ERAM.

› *April 30, 2020:* Enable 3 NMS using ADS-B within En Route Airspace for the ERAM system at an ARTCC. ERAM will be adapted to utilize Track-Based Display Mode (TBDM) with ADS-B at a key site for use in 3NMS below Flight Level.

› *June 30, 2020:* Enhance ADS-B In benefits by conducting a FIM Northeast Corridor benefits study.

› *September 30, 2020:* Continue radar divesture analysis, safety risk management activities, and site outreach activities for the first two initial sites.

Resolve Obstacles to Implementing New Flight Procedures

Initial measures include tracking the volume of complaints, trends in geographical noise complaints, and complaint response time. Additional metrics may be identified as work continues.

Auction Off Electromagnetic Spectrum to Finance and Deploy New Radars

Key milestones for FY 2020 include:

› Achieve feasibility determination (Initial Investment Decision and Draft SIR)

› Obtain SENSR Spectrum Pipeline Plan approval from the Tech Panel (FCC, NTIA, and OMB) to move on to Phase 2

RESPONSIBLE AGENCY OFFICIAL(S)

Sustain and Modernize the ERAM System
> James Benjamin, ERAM Program Manager (AJM-213)

Realize the Anticipated Benefits of ADS-B Investments
> Ammyanna Williams Acting Group Manager, Surveillance and Broadcast Services (AJM-42)

Resolve Obstacles to Implementing New Flight Procedures
> Angela McCullough, Vice President, Mission Support Services

> Steve Ryan, Acting Strategy Director, Mission Support Services

> Robert Novia, Acting Group Manager, Airspace Modernization

Auction Off Electromagnetic Spectrum to Finance and Deploy New Radars
> Michael Freie, SENSR Group Manager (AJM-43)

OIG CHALLENGE:

ENHANCING OVERSIGHT AND INTERNAL CONTROLS TO ADDRESS LONGSTANDING CYBERSECURITY VULNERABILITIES

OIG Challenge Summary

The Department's cybersecurity program is critical to protecting the vast network of information technology (IT) systems from malicious attacks or other breaches that may inhibit the Department's ability to carry out its mission. However, the Department faces challenges in strengthening its oversight and internal controls to resolve longstanding cybersecurity vulnerabilities, some of which have been reported for more than 10 years. In addition, the Federal Aviation Administration (FAA) must work to implement congressionally mandated initiatives aimed at protecting critical systems within the National Airspace System (NAS).

Key Challenge Components

› Addressing longstanding cybersecurity vulnerabilities and strengthening internal controls

› Implementing congressionally mandated aviation cybersecurity initiatives to protect flight-critical systems

Source: OIG's FY 2020 report.

DOT Progress Updates for FY 2020

Address Cybersecurity Vulnerabilities and Strengthen Internal Controls

FAA participated in the Department's Office of the Chief Information Officer (OCIO) program performance oversight and reviews of Operating Administrations' (OAs) cybersecurity programs in February 2019. As part of the performance oversight review, FAA provided the OCIO with risk acceptance memos for FAA systems with expired authority to operate (ATO) and updates to the Plan of Action and Milestones (POAMs) reviewed for inaccurate data, missing information, and timely updates.

FAA enforces the policy mandates within FAA Order 1370.121 FAA Information Security and Privacy Program & Policy to ensure that security awareness and role-based training are completed annually. Progress updates are monitored regularly and reported to FAA and DOT management to ensure that compliance requirements are achieved.

FAA and DOT previously reported that neither Federal nor DOT/FAA policies require the creation of technical vulnerabilities, such as individual POAM, as such a process would be highly inefficient and burdensome.

Instead, DOT proposed to address OIG's findings by focusing on the effectiveness of OAs' vulnerability management programs and any associated control-level weaknesses. The FAA Cybersecurity Steering Committee (CSC) continuously monitors and reports progress on the status of remediation that addresses the 2015 Government Accountability Office (GAO) audit recommendations.

FAA implemented the additional technical recommendations received from GAO in February 2019. The DOT Cybersecurity Committee established a risk management practice working group to assess the current debt of weaknesses, evaluate options for addressing the open weaknesses, and provide recommendations to the DOT cybersecurity community and DOT Chief Information Security Officer (CISO) on rationalizing the population of weaknesses to have them accurately reflect current issues for action and remediation.

Throughout FY 2019, DOT OCIO continued to work with FAA, an integration partner, and the Department of

Homeland Security (DHS) to implement the agency-wide Continuous Diagnostics and Mitigation (CDM) dashboard and provide data to the Federal Enterprise CDM dashboard as required by the Chief Financial Officers Act. These dashboards serve to collect detail-level vulnerability and weakness information, prioritize vulnerabilities for mitigation, and provide operators and management with actionable information to mitigate the vulnerabilities. The Department began attributing the automatically collected data and their vulnerabilities to DOT systems, and subsequently to DOT investments, in order to support an integrated approach to the assessment of risk, prioritization, and allocation of resources via the DOT IT Spend Review process.

Implement Congressionally Mandated Aviation

Cybersecurity Initiatives

FAA took multiple steps taken to address the recommendations provided by the Office of Inspector General (OIG) within the report, *FAA Has Made Progress but Additional Actions Remain to Implement Congressionally Mandated Cyber Initiative.*

The Office of Aviation Safety (AVS) identified target dates to address the four deferred recommendations made by the Aviation Rulemaking Advisory Committee (ARAC) Aircraft Systems Information Security Protection (ASISP) Working Group. These target dates were included in the AVS Strategic ASISP Plan to address the working group's four deferred recommendations to enhance aircraft systems cybersecurity.

The Cyber Security Risk Model (CyRM) Strategy and Plan was updated to outline a four-year approach for a fully integrated lifecycle methodology to effectively defend against cybersecurity threats and manage its cybersecurity risk on a continual basis.

The Next Generation Air Transportation System (NextGen) updated FAA's Cyber Research & Development (R&D) Plan. The strategy identifies the research required to support the detection, response, and resilience to cyber-attacks on FAA and aviation infrastructure. The plan also outlines the research strategy (i.e., ongoing and prospective R&D activities relative to the goals and objectives specified in the Cybersecurity Strategy) across budget types for the

next five years, whether identified directly as cyber product or as part of a larger effort.

FAA has submitted closure requests to OIG for all three recommendations. Currently, two of the recommendations have been closed by OIG.

DOT Planned Actions to Address this Challenge

Address Cybersecurity Vulnerabilities and Strengthen Internal Controls

FAA will continue to report on expired ATOs and POAMs as part of the performance oversight and review. It will also continue to regularly monitor and report on security awareness and role-based training progress.

DOT OCIO will continue working with the OAs to prioritize system authorizations to improve DOT's cybersecurity. DOT OCIO will leverage the DOT IT Spend Review to identify the level of resourcing being directed to these efforts. In line with DHS and OMB metrics, OAs will be scored on progress towards authorizing all DOT systems in accordance with Federal requirements.

DOT OCIO will update internal policy and guidance, and modernize its use of its primary governance, risk, and compliance (GRC) system to improve process, data quality, risk management, and reporting. As part of those efforts, DOT OCIO will also coordinate with all OAs to implement the rationalization guidance for control weaknesses and seek to coordinate reporting with the Department's enterprise risk management program as recommended by GAO.

Standardization of Processes to Manage Enterprise-Wide Cybersecurity Risks

DOT OCIO will continue to realign commodity IT to provide greater consistency in implementing common controls and services; award several enterprise contracts, including one for cybersecurity, to standardize contractual language, oversight, and execution for improved outcomes and reduced risks; and update its policies and implementation guidance to more effectively execute the authorities and responsibilities established through the Federal Information Technology Acquisition Reform

Act (FITARA) and the Federal Information Security Management Act (FISMA).

Network Visibility—Proactively Preventing and Responding to Security Incidents

DOT OCIO will work towards the completion of the network modernization for the headquarters and field networks that service the non-FAA OAs and Office of the Secretary of Transportation (OST) offices. The modernized network, combined with the Department's CDM capability, provides detailed insight into network infrastructure and endpoints operating on the DOT network, configurations, deviations, and vulnerabilities. That information is shared between the IT Shared Services operational staff and the DOT CISO's cybersecurity team for the identification of vulnerabilities for mitigation or anomalous or malicious activity that requires agency response.

Resolving Longstanding Security Weaknesses to Strengthen Information Technology Infrastructure

As a result of the transformational changes to be undertaken by the DOT OCIO in FY 2019 and FY 2020, a number of longstanding weaknesses will be directly addressed, particularly with respect to the consistency of policy, guidance, and the implementation of controls. Additional efficiencies that are achieved will be applied to address many of the other weaknesses in implementation.

Implement Congressionally Mandated Aviation Cybersecurity Initiatives

FAA will continue to work with OIG to ensure closure of the final recommendation of establishing priorities for FAA-led research and development activities and incorporating these priorities into the budget process.

DOT Associated Performance Goals/Measures/Milestones

Address Cybersecurity Vulnerabilities and Strengthen Internal Controls

FAA has set a target date of August 15, 2020 to achieve compliance requirements for security awareness and role-based training.

The Department set a target for 99% of information systems to be properly authorized in FY 2019. At the end of FY 2019, it achieved 100% of systems authorized, with an inventory reduction from 459 to 436 systems through additional planning and oversight of security assessment and authorization activities.

The Department set a goal of achieving 50% of its information systems converted to an ongoing authorization process in FY 2019. At the end of FY 2019, only 25% of agency systems had been converted to an ongoing authorization process, due in part to delays resulting from the lapse in appropriations, contract award challenges, and contention with other OA and Departmental IT priorities.

Implement Congressionally Mandated Aviation Cybersecurity Initiatives

OIG has updated the revised target action date to the end of February 2020 to allow for completion of its review and follow-up questions to the updated FAA's Cyber R&D Plans submitted for closure.

Responsible Agency Official(s)

Address Cybersecurity Vulnerabilities and Strengthen Internal Controls
> Melanie Boteler, AT

Implement Congressionally Mandated Aviation Cybersecurity Initiatives
> Melanie Boteler, AIT

> Michael Romanoswki, Office of Aviation Safety

> Joseph Post, ANG

> Shelley Yak, ANG

Office of the Chief Information Officer
> Ryan Cote, Chief Information Officer

> Andrew R. Orndorff, Chief Information Security Officer

OIG CHALLENGE:
MAINTAINING AND ENFORCING PIPELINE AND HAZARDOUS MATERIALS SAFETY

OIG Challenge Summary

The Pipeline and Hazardous Materials Safety Administration (PHMSA) regulates a vast network of facilities, including nearly 3,500 companies that operate 2.8 million miles of pipelines, 157 liquefied natural gas (LNG) plants, 403 underground gas storage facilities, and 8,240 hazardous liquid breakout tanks. PHMSA also oversees the companies that send more than one million daily shipments of hazardous materials (hazmat) via land, sea, and air.

Pipeline incidents can have far-reaching consequences, resulting in fatalities and injuries and causing property and environmental damage. For example, in September 2018, natural gas explosions in Massachusetts's Merrimack Valley resulted in one fatality and 21 serious injuries, and the destruction of 131 structures. The natural gas distribution system involved in this incident was installed in the early 1900's and partially upgraded after the 1940's.

Safety oversight of the Nation's aging pipeline infrastructure is an ongoing public concern, and PHMSA recognizes the need for repair and replacement efforts. An overall challenge for PHMSA is targeting management and inspection resources to ensure its State, local, and private counterparts comply with safety-related laws
and requirements. PHMSA can further protect the public by referring allegations of criminal violations of pipeline and hazmat laws and regulations to the Office of Inspector General (OIG) for investigation in a more consistent manner.

Key Challenge Components

> Hiring and retaining staff to oversee the safety of pipelines facilities, including LNG plants

> Referring allegations of violations of Federal laws that regulate pipeline safety and hazardous materials to OIG for investigation

DOT Progress Updates for FY 2020

Hire and Retain Staff to Oversee the Safety of Pipeline Facilities

PHMSA has taken a series of steps to address hiring and retention needs. In December 2018, PHMSA developed a five-year comparative workforce plan that assesses its ability to hire and retain employees in mission-critical occupations. The plan recognizes the importance of succession planning for strategic hiring, using hiring and retention incentives, hiring trends, and general workforce statistics. To complement this five-year plan, PHMSA also developed a pipeline workforce assessment to specifically gauge the near-term adequacy of the Federal pipeline safety inspector workforce to meet the demand for safety oversight. The assessment considers the number of PHMSA pipeline inspectors, as well as the adequacy of inspector skill sets and competencies to perform necessary inspections.

The assessment covers the five-year period from 2020-2024 and compares the anticipated inspection demand with the current and projected inspector workforce capacity. It focuses on PHMSA's pipeline safety inspection program for both intrastate and interstate pipeline facilities. Inspection demand assessment is based on current inspection needs, expected new programs for the study

period, and recent past level of effort for different types of inspections. The workforce planning assessment finds that the currently authorized PHMSA Federal inspector force is adequate to perform safety oversight of the regulated pipeline industry.

PHMSA continues to use several innovative hiring techniques, including:

> Recruiting under titles that tend to attract larger candidate pools

> Increasing outreach to colleges and universities

> Placing veterans that, with added training, can become qualified inspectors faster

> Leveraging Direct-Hire Authority

Leveraging Direct-Hire Authority allows PHMSA to quickly employ qualified candidates, fill any existing staffing gaps, and automatically transform the government hiring process to a more efficient form of recruiting. Direct-Hire Authority also provides PHMSA the opportunity to reach highly qualified candidates with no other means to earn a Federal position. This gives PHMSA the ability to hire individuals such as recent engineering graduates from some of the top universities in the country.

As of January 2020, PHMSA has seven full-time engineers dedicated to developing compliance determinations and, as needed, conducting inspection activities for pipeline systems. PHMSA currently has two full-time engineers dedicated to conducting LNG safety design reviews and is in the process of hiring three additional full-time engineers. Additionally, PHMSA onboarded two detailees in November 2019, to support the LNG program efforts.

In FY 2019, PHMSA also completed program implementation for Underground Natural Gas Storage (UNGS). PHMSA operationalized the UNGS Division in the Eastern Region, transitioning natural gas storage inspections to the field.

Refer Allegations of Violations to OIG for Investigation

PHMSA recognizes the important role OIG plays in pursuing criminal enforcement of its statutes and regulations. For OIG to fulfill this role, it must be notified whenever circumstances appear to indicate a potential

criminal violation. PHMSA regulations and procedures currently provide for the referral of possible criminal activity to the PHMSA Office of Chief Counsel, OIG, and Department of Justice.

DOT Planned Actions to Address this Challenge

Hire and Retain Staff to Oversee the Safety of Pipeline Facilities

PHMSA will continue to leverage the hiring techniques mentioned above. With respect to retention strategies, PHMSA is working to establish incentives and develop a college recruitment program that will target science, technology, engineering, and math graduates in hopes of encouraging them to explore Federal careers in pipeline safety.

Further, PHMSA is developing a LNG division to establish a team of specialized inspectors that will focus on LNG facilities. This division will maintain oversight of all national LNG inspection requirements. Program realignment will help ensure the spatial concentration of specialized inspectors and increase the efficiency of personnel.

For the 2020 inspection cycle, PHMSA is realigning the assignment of pipeline systems to the regions by major operator rather than by geographical location. This change simplifies pipeline system inspection coordination, eliminating the redundancies associated with multiple regions inspecting different pipeline segments managed by the same operator. In addition, the more streamlined process is less burdensome on operators. The new system will be used for inspections beginning in January 2020.

Refer Allegations of Violations to OIG for Investigation

PHMSA has conferred with the Office of the Secretary of Transportation (OST) and will be updating PHMSA procedures to ensure a more consistent manner of referring criminal allegations. As OST is presently working on an updated DOT Order relevant to criminal referrals in consultation with OIG, the timing of PHMSA's procedural revisions will follow shortly after that process is concluded to ensure Departmental consistency.

DOT ASSOCIATED PERFORMANCE GOALS/MEASURES/MILESTONES

Hire and Retain Staff to Oversee the Safety of Pipeline Facilities

As mentioned above, PHMSA completed a workforce assessment to evaluate the near-term adequacy of the Federal pipeline safety inspector workforce. By 2023, PHMSA plans to complete another assessment to determine how the formulation of the UNGS and LNG Divisions, as well as the realignment of operators by pipeline region, have improved the efficiency of the pipeline inspector workforce.

Refer Allegations of Violations to OIG for Investigation

PHMSA has conferred with OST on the matter of criminal referrals and will be updating PHMSA's procedures.

RESPONSIBLE AGENCY OFFICIAL(S)

Pipeline and Hazardous Materials Safety Administration
› Alan Mayberry, Associate Administrator
› Paul Roberti, Chief Counsel

OIG CHALLENGE:

ENHANCING ENFORCEMENT AND DATA ANALYSIS TO REDUCE COMMERCIAL VEHICLE-RELATED FATALITIES

OIG CHALLENGE SUMMARY

To enhance the safety of our Nation's roadways, the Federal Motor Carrier Safety Administration (FMCSA) must address the increase in fatalities involving large trucks and buses. According to FMCSA, these fatalities have consistently risen in recent years, from 4,455 fatalities in 2013 to 4,949 in 2018, representing an 11 percent increase. Enhanced enforcement and data analysis are important tools for improving the safety performance of commercial motor carriers and their drivers.

KEY CHALLENGE COMPONENTS

› Ensuring commercial drivers are qualified to operate large trucks and buses

› Prioritizing motor carriers for interventions

› Estimating the impact of driver detention on the motor carrier industry

Source: OIG's FY 2020 report.

DOT PROGRESS UPDATES FOR FY 2020

Ensure Commercial Drivers are Qualified to Operate Large Trucks and Buses

The Drug and Alcohol Clearinghouse Final Rule, which established central database requirements for Commercial Driver's License (CDL) holders who have verified positive test results for controlled substances and/or alcohol or have refused to submit to testing, is in the process of being implemented. This rule will ensure that such CDL holders complete the return-to-duty process before driving a truck.

FMCSA is conducting more research regarding CDL holders and possible driver disqualifications. Prior research suggests that some CDL holders are not being properly disqualified for serious offenses. FMCSA began a study in July 2018, *Assessment of Commercial Driver's License (CDL) Holders' Traffic Violations, Convictions, and Suspensions,* to gain a better understanding of the nature of violations. The study will track the issuance of violations for serious offenses or other major traffic offenses that have been issued to CDL drivers. The final report is projected to be completed by September 2020.

Prioritize Motor Carriers for Interventions

FMCSA utilizes a data-driven safety compliance and enforcement system called the Compliance, Safety, and Accountability (CSA) program. This program consists of the Safety Measurement System (SMS), an interventions process, and safety fitness determinations that identify carriers that are not fit to operate commercial motor vehicles. SMS is a prioritization tool that allows FMCSA to identify motor carriers that warrant intervention due to safety compliance problems. FMCSA maintains the data for SMS in its Motor Carrier Management Information System (MCMIS). Carriers with percentile ranks above FMCSA thresholds may receive interventions, ranging from warning letters to onsite investigations.

In FY 2018, FMCSA issued 30,476 warning letters, performed 14,375 investigations, and conducted 3,533,192 total truck and bus driver and vehicle inspections. In FY 2019, FMCSA issued 26,379 warning letters and performed 13,066 investigations. FMCSA conducted 2,559,035 truck and bus driver and vehicle inspections throughout the entirety of FY 2019.

On June 27, 2017, the National Academy of Sciences (NAS) issued its study, *Improving Motor Carrier Safety Measurement,* and made recommendations to help FMCSA update its carrier prioritization methodology; improve the accuracy, completeness, and scope of its data; and enhance transparency. NAS recommended that FMCSA develop an Item Response Theory (IRT) model by June 2019, and if it

performs well in identifying and prioritizing motor carriers for intervention, use the IRT model to replace SMS.

FMCSA reached out to the industry to discuss other data for improving exposure estimates; however, much of the data was not readily available. The Agency analyzed additional data sources, including the International Registration Plan (IRP). Based on this analysis, FMCSA determined that IRP would not be a feasible source for the NAS–recommended data, as the IRT data would improve only two percent of the MCMIS data. FMCSA will continue the IRT modeling in FY 2020.

Estimate the Impact of Driver Detention on the Motor Carrier Industry

The Fixing America's Surface Transportation (FAST) Act of 2015 requires FMCSA to issue regulations that cover the collection of data on delays experienced by commercial drivers. In 2018, the Office of Inspector General (OIG) discovered that accurate data on driver detention does not exist. In June 2019, FMCSA published a Federal Register Notice (FMCSA-2019-0054) requesting information concerning commercial vehicle driver detention times during loading and unloading. The goal of the request for information was to better understand the impact of driver detention time on roadway safety and hours of service and out-of-service violations and crashes. Questions included: What should FMCSA use as an estimate of reasonable loading/unloading time? What actions by FMCSA, within its current statutory authority, would help to reduce loading, unloading, and delay times? Comments were accepted through September 9, 2019, and 581 comments were received.[2]

DOT Planned Actions to Address this Challenge

Ensure Commercial Drivers are Qualified to Operate Large Trucks and Buses

The Drug and Alcohol Clearinghouse final rule established requirements for a central database for verified positive controlled substances and alcohol test results for CDL holders and refusals by such drivers to submit to

testing. The compliance date was January 6, 2020. As of January 21, approximately 2,300 drivers who tested positive have been reported to the Clearinghouse. Drug and Alcohol Clearinghouse Registration was made available October 2019.

FMCSA is completing its study, *Assessment of Commercial Driver's License (CDL) Holders' Traffic Violations, Convictions, and Suspensions,* to gain a better understanding of the process by which CDL drivers who have received disqualifying violations are removed from the roadway. FMCSA completed much of the data collection from the States by December 2019. The final report is projected to be completed by September 2020.

Prioritize Motor Carriers for Interventions

The NAS study, *Improving Motor Carrier Safety Measurement,* made recommendations to help FMCSA update its carrier prioritization methodology; improve the accuracy, completeness, and scope of its data; and enhance transparency. FMCSA provided a corrective action plan to address these recommendations. Due to the frequency of data entry errors on online biennial registration forms, FMCSA plans to update its system by adding edit checks to further improve the accuracy of exposure data. The corrective action plan states that introducing edit checks to the reporting system will identify suspect data entries and validate exposure data. FMCSA also plans to encourage motor carriers to voluntarily provide updated information and to identify ways to recognize motor carriers that work proactively with the Agency.

NAS recommended FMCSA develop an IRT model. IRT models help flag questionable data and measure the impact of data errors on safety scores. If the model is validated, FMCSA will be able to use it to quantify the impact. FMCSA is conducting a full review of the IRT model and will decide how to move forward with its prioritization methodology once the review is complete. FMCSA will also include estimates and benchmarks for the remaining open NAS recommendations. This work is projected to be completed by September 2020.

FMCSA also plans to partner with the National Highway Traffic Safety Administration (NHTSA) to encourage States to participate in a national crash data repository. Over a longer timeframe, FMCSA aims to upgrade its inspection software to improve data uniformity.

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2   https://www.federalregister.gov/documents/2019/06/10/2019-12167/request-for-information-concerning-commercial-motor-vehicle-driver-detention-times-during-loading.

Estimate the Impact of Driver Detention on the Motor Carrier Industry

FMCSA is currently analyzing the 581 comments received from the Request for Information Federal Register Notice published in June 2019. This analysis may provide more insight into driver detention issues, as well as help to determine reasonable loading/unloading times and what actions FMCSA may be able to take within its operating authority to reduce loading, unloading, and delay times.

The ELD rule is intended to help create a safer work environment for drivers, and make it easier to accurately track, manage, and share records of duty status data. The ELD Final Rule is estimated to save 26 lives and prevent 562 injuries, resulting from crashes involving large commercial motor vehicles, annually. Motor carriers had to be in full compliance by December 16, 2019.

DOT Associated Performance Goals/ Measures/Milestones

FMCSA shares the Agency Priority Goal (APG) of reducing surface transportation related fatalities with FHWA and NHTSA. Performance measures related to this management challenge include:

> *Large truck and bus fatalities per 100 million vehicle miles traveled (VMT):* FMCSA's target for FY 2020 is a fatality rate of 0.114 fatalities per 100 million vehicle miles traveled. The fatality rate for 2017 was 0.160. The estimated 2018 rate is 0.160 fatalities.

> *Number of large truck and bus fatal crashes:* FMCSA has set of target of 3,943 fatal crashes involving large trucks or buses traveling on a traffic-way customarily open to the public within the 50 States, the District of Columbia, and Puerto Rico.

> *Average number of days from identification as "high-risk" to investigation conclusion:* FMCSA has set a target for conducting these investigations with 45 days, as compared to the current policy of investigation within 90 days.

Responsible Agency Official(s)

Federal Motor Carrier Safety Administration
> Jim Mullen, Acting Administrator

> John Van Steenburg, Chief Safety Officer and Assistant Administrator

> Larry Minor, Associate Administrator, Office of Policy

> Anne Collins, Associate Administrator, Field Operations

OIG CHALLENGE:
CONTINUING NATIONAL EFFORTS TO IMPROVE RAILROAD SAFETY

OIG Challenge Summary

Reducing railroad incidents and fatalities, many resulting from motor vehicle collisions with trains at grade crossings or trespassers on the railroad right-of-way, remain a top safety challenge for the Department. Although the Federal Railroad Administration (FRA) has taken steps to address these fatalities, our work continues to identify improvements that FRA can make to enhance railroad safety. This includes overseeing industry's ongoing efforts to implement positive train control (PTC), which are advanced systems that can help prevent train-to-train collisions, overspeed derailments, and other incidents.

Key Challenge Components

> Reducing highway-railroad grade crossing and trespassing fatalities

> Overseeing railroads' implementation of PTC systems

Source: OIG's FY 2020 report.

DOT Progress Updates for FY 2020

Reduce Highway-Railroad Grade Crossing and Trespassing Fatalities

FRA's 2018 *National Strategy to Prevent Trespassing on Railroad Property* focuses on four strategic areas: (1) data gathering and analysis; (2) community site trespass prevention assessments; (3) funding; and (4) partnerships with affected stakeholders. Data analysis of trespass incidents and close-calls enables FRA to target resources to trespassing hot spots. Community site visits help FRA learn about local circumstances and improve our ability to help partners implement and evaluate mitigations. Funding supports community-based efforts. Finally, building strong and enduring partnerships with communities, law enforcement, railroads, and organizations allows FRA to leverage resources, expertise, and local knowledge.

FRA has a comprehensive approach to grade crossing safety. Following FRA's 2018 *Grade Crossing Fatality Prevention Summit* to gather stakeholder perspectives, FRA conducted listening sessions in FY 2019 on grade crossing safety technology. FRA convened a symposium in FY 2020 to review findings from the listening sessions and develop a three- to five-year strategy to implement and demonstrate promising technologies.

FRA also partners with Operation Lifesaver, Inc., a national non-profit organization dedicated to reducing grade crossing and trespassing incidents through public outreach, education, and law enforcement partnerships. FRA consistently evaluates program partnerships to ensure funds are being used most efficiently to meet program goals.   In addition, FRA provides funding to enable active and retired law enforcement officers to raise awareness and enforce traffic laws at grade crossings and on railroad rights-of-way.

Oversee Railroads' Implementation of PTC Systems

As of September 30, 2019, railroads were operating PTC systems on more than 53,000 of the nearly 58,000 route miles subject to the statutory mandate. Continuing challenges for the railroads include completing testing, achieving interoperability between all tenant and host railroads (including operation across PTC boundaries), and preparing and obtaining FRA approval of each host's PTC safety plan, which provides detailed safety analysis to show that its PTC system is safe.

Since the 2008 enactment of the statutory PTC mandate, FRA's role has been to monitor the railroads' timely implementation, safe operation, and proper maintenance of PTC systems and enforce compliance with applicable statutes and regulations (including assessing penalties). FRA has actively facilitated and supported the railroads' PTC implementation, providing guidance, technical assistance, and approval of required documentation, including test requests, alternative schedules, and safety

plans. PTC supports two of DOT's strategic goals, safety and innovation, using industry-designed emerging technologies to monitor speed and automatically stop trains to prevent accidents due to some types of human error.

DOT PLANNED ACTIONS TO ADDRESS THIS CHALLENGE

Reduce Railroad Grade Crossing and Trespassing Fatalities

In addition to executing its trespass strategy, FRA will: maintain and upgrade its risk model and acquire leading indicator data; fund mitigations, such as engineering solutions, law enforcement overtime, community and school resource officers, and outreach; and work with community leaders, law enforcement, railroads, and the public to identify hotspots and develop local mitigation strategies.

FRA will continue refining its comprehensive approach to grade crossing and expects to begin audits of Federally-funded grade crossings safety projects. FRA also plans to undertake a concept study on whether PTC-equipped locomotives could transmit crossing equipment status in real time in lieu of the periodic physical inspections Federal regulations currently require. If viable, this concept would enable railroads to deploy personnel to fix malfunctions, rather than conduct scheduled inspections of all equipment.

Oversee Railroads' Implementation of PTC Systems

FRA will continue to monitor the status of railroads subject to the PTC mandate, provide technical assistance, and review and approve PTC safety plans in FY 2020. To review and approve these documents, FRA relies on safety engineering contractor support, including firms with specialized knowledge in advanced railroad signal technology and hazard analysis. FRA technical assistance will focus on supporting and overseeing the railroads' interoperability testing between the 42 hosts and 101 tenants. FRA's contractor-supported task force will continue to track implementation and prepare quarterly data releases.

Advancements of PTC technology will begin to go into service as the railroads use it to support automation of additional functions, such as system capacity management

and scheduling. Railroads, with their vendors and suppliers, will increase diagnostic capabilities through PTC systems. FRA will closely monitor these changes and advancements to ensure their implementation occurs without degrading system performance and reliability.

Reduce Railroad Grade Crossing and Trespassing Fatalities

FRA tracks both trespassing and grade-crossing incident rates per million train-miles. As FRA increases its community engagement on trespassing hot spots, FRA will evaluate outcomes at the local level in addition to national trends. FRA is also monitoring the number of suicides on railroad rights-of-way.

Oversee Railroads' Implementation of PTC Systems

By setting safety goals and tracking accidents, the FRA measures how effectively it is maintaining focus on the railroad industry's implementation of PTC. The train accident rate per million train miles is a new performance measure, and the accident rate exceeded the agency target in FY 2019. FRA is increasing its analytical capabilities and working with participating railroads through the Confidential Close Call Reporting System to understand and mitigate root causes.[3] As railroads implement PTC systems and adopt risk reduction programs, FRA expects to see improvement in this measure.[4]

RESPONSIBLE AGENCY OFFICIAL(S)

Federal Railroad Administration
› Karl Alexy, Associate Administrator for Railroad Safety

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3   The Confidential Close Call Reporting System is a partnership among the National Aeronautics and Space Administration (NASA), FRA, and participating railroad carriers and labor organizations. The program is designed to improve railroad safety by collecting and analyzing reports which describe unsafe conditions and events in the railroad industry. Employees may report safety issues or close calls voluntarily and confidentially.

4   A related performance metric table may be found in *DOT's FY 2021 Annual Performance Plan/FY 2019 Annual Performance Report*.

OIG CHALLENGE:
EFFECTIVELY OVERSEEING BILLIONS IN SURFACE INFRASTRUCTURE INVESTMENTS

OIG CHALLENGE SUMMARY

The Department oversees the more than $50 billion it provides each year for building and maintaining the Nation's surface infrastructure, including millions of miles of roads, bridges, tunnels, and tracks. DOT also oversees additional funding to address the impact of natural disasters. To ensure these Federal dollars are used effectively, the Department must focus its oversight on the areas of greatest national impact and safety, such as protection of major infrastructure investments and improvements in project delivery and quality.

KEY CHALLENGE COMPONENTS

› Targeting oversight resources and managing risks to investments

› Capitalizing on oversight support

› Improving project delivery, quality, and impact

Source: OIG's FY 2020 report.

DOT PROGRESS UPDATES FOR FY 2020

Target Oversight Resources and Manage Risks to Investments

FHWA is committed to investing in infrastructure to ensure mobility and accessibility and to stimulate economic growth, productivity, and competitiveness for American workers and businesses. The Federal Aid Highway Program (FAHP) is transitioning to a more performance-based approach, and our partners are implementing multiple data-driven practices, including asset and performance management processes, to support their investment decision-making. In 2017, FHWA established national performance measures and a framework to carry

out a performance-based Federal highway program. Absent future changes in legislation, FAHP will continue to monitor program performance through the tracking of specific performance targets and measures. FHWA will continue to raise awareness of proven strategies, such as performance-based practical design, and the use of preservation techniques to cost-effectively extend the service life of transportation assets that could further improve investment decision-making.

FHWA has developed and implemented an Agency-wide Enterprise Risk Management (ERM) approach that will extend the current risk management activities and integrate all unit planning and related planning and execution processes. As part of this effort, FHWA leadership set priorities among program objectives and activities across the Agency, and use a risk-based approach to focus staff efforts and resources on the most critical areas of performance, stewardship, oversight, and accountability.

FRA, with monitoring and technical assistance contractor (MTAC) support through the John A. Volpe National Transportation Systems Center (Volpe), has administered High-Speed Intercity Passenger Rail grants. FRA has overseen the completion of 66 grant projects. Because of FRA's effective oversight, grantees have returned almost $100 million to the U.S. Treasury from projects completed under budget. FRA and Volpe continue to collaborate and have initiated or completed the following actions to further improve how oversight contactors are acquired and used:

› Updated and issued Volpe's contractor invoice review, approval, and payment authorization processes policy to improve verification of indirect rates.

› Initiated an FRA acquisition process, including improved reporting and tracking of oversight deliverables and recommendations, to directly contract with MTACs.

› Strengthened FRA standard operating procedures for critical project and grant compliance oversight.

The Department has addressed outstanding Government Accountability Office (GAO) and Office of Inspector General (OIG) audit recommendations and continues to implement and improve procedures for documenting decision-making and ensuring consistent evaluation practices for the INFRA and BUILD grant programs.

Improve Project Delivery, Quality, and Impact

FHWA has improved program and project decision-making that has led to better conditions, more efficient operations, and improved the ability of Divisions, States, and transportation partners to deliver projects that meet expectations for timeliness, quality, and cost. In addition to improving its data collection, analysis, and reporting processes, FHWA enhanced its program policies through early engagement with Federal Land Highway Divisions to better address the needs of Federal-aid partners.

FHWA also encouraged targeted investments through the support of its partners to enhance performance management of freight reliability and the Congestion Mitigation and Air Quality (CMAQ) Program. To this end, FHWA published State Truck Travel Time Reliability (TTTR) performance targets and submitted baseline performance reports, and issued the Freight Bottleneck Reporting Guidebook with guidance and training on travel time performance measures. FHWA also provided the Strategic Highway Research Program (SHRP) TIM (Traffic Incident Management) training to over 40,000 responders through August 2019.

Over the last decade, FTA has provided aid to transit agencies after weather events have destroyed transit assets and property. Hurricane Sandy presented an especially demonstrable need for FTA assistance to transit. As a result, FTA was heavily involved in administering aid and assistance to transit agencies affected by Hurricane Sandy. In May 2019, FTA supplemented existing guidance for protecting transit rolling stock by developing and implementing additional procedures to promote lessons learned from Hurricane Sandy. Additionally, FTA provided transit agencies with a centralized source for lessons learned and encourages them to regularly refer to it when updating their processes to protect rolling stock. Currently, FTA is developing new questions to add to the Triennial

Reviews of grantees to include flood insurance requirement compliance reviews, as well as new procedures for reviewing integrity monitor plans.

The Department has implemented all Moving Ahead for Progress in the 21st Century Act (MAP-21) streamlining provisions and all but one Fixing America's Surface Transportation (FAST) Act provisions to ensure efficient and timely environmental reviews. The remaining FAST Act provision is a pilot program and awaiting final clearances before publishing in the Federal Register for public comment. This pilot would allow for the substitution of State environmental laws for Federal National Environmental Policy Act (NEPA) requirements where the State law is as stringent.

DOT has embraced the One Federal Decision process and was one of the first agencies to issue agency-specific policy on how to implement One Federal Decision. The DOT interim One Federal Decision Policy was issued on August 23, 2019 for public comment.[5]

The Office of the Undersecretary of Policy (OST-P) has identified seven major infrastructure projects, all of which are related to the One Federal Decision process, that it will continue to monitor to ensure they remain on schedule. DOT will continue to identify future major infrastructure projects.

DOT also tracks all environmental assessments and environmental impact statements on the Federal Permitting Dashboard.[6] Since 2017, DOT has prepared several guidance documents to help make the environmental process more efficient. These guidance documents helped to further the FAST Act and the One Federal Decision Executive Order. These include guidance on using other Operating Administrations' Categorical Exclusions when there was a multi-modal project, adoption of NEPA documents, and using a Combined Final Environmental Impact Statement / Record of Decision document. This guidance also includes Section 106 Program Guidance for Rail Right of Way, the One Federal Decision Policy, and the DOT Page Limit Policy.[7,8]

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5   A final DOT One Federal Decision policy is anticipated in Q3 FY 2020.

6   DOT is working with the Operating Administrations to ensure that published schedules are updated, accurate, and remain on time. As of September 30, 2019, 82% of DOT in-progress EISs tracked on the Permitting Dashboard were on schedule.

7   https://www.federalregister.gov/documents/2019/08/23/2019-18204/interim-policies-on-page-limits-for-national-environmental-policy-act-documents-and-the-application.

8   Available at https://permits.performance.gov.

DOT Planned Actions to Address this Challenge

Target Oversight Resources and Manage Risks to Investments

FHWA will encourage and help State DOTs and Metropolitan Planning Organizations (MPOs) implement the Transportation Performance and Asset Management approach to strengthen their investment decision-making, which will enhance program accountability to Congress and the public for the expenditure of tax dollars. Through this program, FHWA will:

› Help raise transportation agency proficiency levels in the core competencies of performance management

› Work with partner agencies on site to implement new requirements

› Develop new capabilities to support improvements in data quality, data analysis, and investment planning

› Communicate progress, outcomes, and national stories to the public on transportation performance

By continuing efforts to ensure that the public and private sectors are collaborating on planning and investment, FHWA will encourage solutions that are more relevant and will leverage the capabilities of the public and private sectors to solve efficiency, reliability, and safety challenges.

FHWA will seek to improve the institutional capability and business processes of public agency partners by enabling them to achieve more effective system management. Enhancing operational roles and responsibilities leads to greater ability to utilize resources effectively and enable long-term commitment to addressing both recurring traffic problems and system disruptions (e.g., incidents, work zones, and adverse weather).

States are required to complete statewide freight plans before they can obligate National Highway Freight Program (NHFP) funding on the National Highway Freight Network and designate critical urban and rural freight corridors. Many State DOTs, in coordination with FHWA, industry, and other stakeholders, have established State Freight Advisory Committees to discuss these important issues, coordinate efforts, and identify freight infrastructure needs and investments.

FHWA will also continue to update policy documents to improve its risk-based approach to overseeing force account use and oversight of the bid process through engineer's estimates.

FRA's risk-based oversight across our grantee and project portfolios enables us to focus limited resources on efforts that will yield the largest programmatic benefits. FRA continuously reviews and improves its monitoring and oversight of Federal funds. It expects to continue strengthening critical project and grant compliance policies and procedures by revising its Deliverables Review Guidebook, project management tool, and monitoring procedures.

OST-P, supported by the modal administrations, uses a risk-based oversight process to focus scarce resources on the projects with the greatest risk to ensure successful outcomes. As part of that process, OST-P and the modal administrations will identify grant projects with the highest level of risk at the outset of the process to ensure that site visits, technical assistance, and monitoring are tailored to projects with the greatest need.

Capitalize on Oversight Support

FTA continues to work towards implementing lessons learned from Hurricane Sandy. In FY 2020, FTA will complete the following activities and guidance in response to lessons learned from disaster relief efforts:

› Develop and implement procedures for consistently reviewing, approving, and periodically updating grantee integrity monitor plans.

› Develop and implement integrity monitoring procedures. Participants involved in grantee integrity monitoring are required to promptly notify the grantee and FTA when they have knowledge of legal matters relating to FTA-funded Hurricane Sandy projects. This includes:

• Defaults, breaches, major disputes, or litigation, and prompt notification to the grantee, FTA, and DOT-OIG if they have knowledge about potential fraud, waste, or abuse occurring on FTA-funded projects;

- Knowledge of a criminal or civil investigation by a Federal, State, or local law enforcement or other investigative agency, a criminal indictment or civil complaint;

- Probable cause that could support a criminal indictment; or

- Any other credible information.

❯ Develop and implement guidance for identifying threats and impediments to independence. The guidance will address criteria for independence, including the use of internal grantee staff and actions required if independence issues cannot be resolved.

❯ Provide guidance or training on Master Agreement notification requirements for grantees and integrity monitors, such as defining what is meant by providing "prompt" notification.

❯ Develop and implement procedures for periodically assessing whether integrity monitors are meeting plan expectations, and for taking appropriate corrective actions when integrity monitors are not meeting expectations.

❯ Inform integrity monitors about best practices for targeting new risk areas, such as procedures for contractor responsibility determinations, and updating plans accordingly.

❯ Develop procedures to track grantee allocation plan implementation for expenditures solely funded with insurance proceeds.

❯ Revise the Emergency Relief Program (ERP) Toolkit checklist to include a step for FTA Regional staff to crosscheck against the approved insurance allocation plan.

Improve Project Delivery, Quality, and Impact

OST-P will continue to convene its environmental working group to discuss environmental streamlining and permitting reforms, as well as track ongoing projects to identify projects early, address any concerns, and share best practices. It will also continue to update the Permitting Dashboard to ensure that milestones and project schedules can be tracked. OST-P will track ongoing DOT projects to ensure that they remain on schedule and that new project schedules are efficient and timely.

DOT Associated Performance Goals/ Measures/Milestones

Target Oversight Resources and Manage Risks to Investment

FHWA shares the Department Agency Priority Goal (APG) percentage of National Highway System (NHS) bridges in Poor Condition and the percentage of vehicle miles traveled (VMT) on the NHS in Good Condition. Leading measures or indicators include:

❯ Number of States with FHWA-certified processes to develop and use State Asset Management plans for the NHS

❯ Number of States that have incorporated asset management into their planning documents and have transitioned to a performance-based planning process

FHWA will measure Travel Time Index (TTI) in urban areas and on the interstate and non-interstate portions of the NHS and TTTR Index on the interstate portion of the NHS. Leading measures or indicators include:

❯ Percentage of authorized NHFP funding obligated for projects identified in State freight plans

❯ Number of States and MPOs that have a plan and/or process in place to strategically guide investments for Transportation Systems Management and Operations (TSMO)

FRA tracks a range of metrics on project performance, including cost, schedule, and scope. FRA also incorporates performance measures into its grant agreements for individual projects. Moreover, FRA is working to refine its oversight approach with Amtrak to focus more directly on higher risk programs such as capital improvement projects, new locomotives and passenger rail cars, and station projects to increase compliance with the Americans with Disabilities Act.

The BUILD program has continually updated the Performance Reporting that occurs following project completion to ensure that awarded projects are delivering outcomes that advance programmatic and overall transportation goals. The Department will continue to ensure that performance reporting is conducted and that results are shared publicly to improve transparency and project outcomes.

Improve Project Delivery, Quality, and Impact

To better address FTA's stated policy priority of regional resilience and to minimize fragmentation of Federal efforts, FTA examined the projects funded under the Disaster Relief Appropriations Act of 2013 (DRAA) discretionary transit resilience grant program for potential duplication with other resilience efforts. It also assessed whether it is appropriate to realign funds for FTA-supported projects for other purposes authorized under the DRAA, or request a rescission of funds for any of the FTA-supported projects.

We will continue to monitor ongoing Environmental Impact Statements, including those for major infrastructure projects to ensure projects remain on schedule and are completed within the 24-month average Department goal.

RESPONSIBLE AGENCY OFFICIAL(S)

Federal Highway Administration
> Hari Kalla, Associate Administrator for Infrastructure
> Gloria Shepherd, Associate Administrator for Planning, Environment, and Realty

Federal Transit Administration
> Bruce Robinson, Associate Administrator, FTA's Office of Transit Program Management
> Henrika Buchanan, Associate Administrator, FTA's Office of Transit Safety and Oversight
> Cem Hatipoglu, Associate Administrator, Vehicle Safety Research
> Jeffrey Giuseppe, Associate Administrator, Enforcement

Federal Railroad Administration
> Paul Nissenbaum, Associate Administrator for Railroad Policy and Development

Office for the Undersecretary of Policy
> John Augustine, Director, Office of Infrastructure, Finance, and Innovation
> April Marchese, Director, Infrastructure Permitting Improvement Center

OIG CHALLENGE:
PREPARING FOR THE FUTURE OF TRANSPORTATION

OIG Challenge Summary

The Department has several initiatives currently underway to address the future transportation environment. As the Fixing America's Surface Transportation (FAST) Act of 2015 concludes and a new authorization begins, the Department's challenge will be to address the impact of emerging technologies and industries.[9] The Department must also respond to increasing and evolving demands on the Nation's transportation system, such as by leveraging innovative financing, supporting research and development (R&D), and reshaping its workplaces.

Key Challenge Components

› Preparing for emerging vehicle automation technologies

› Safely integrating the Unmanned Aircraft Systems (UAS) and the commercial space industry into the National Airspace System (NAS)

› Leveraging limited Federal funds through innovative financing

› Supporting research and development and reshaping the workplace to meet future needs

Source: OIG's FY 2020 report.

DOT Progress Updates for FY 2020

Prepare for Emerging Vehicle Automation Technologies

Oversight of emerging technologies continues to be a priority of NHTSA, as the Agency conducts many oversight-related activities in furtherance of its safety mission. Some of these activities include conducting research, evaluating current regulations for modernization opportunities, developing rulemakings to enhance safety and remove barriers to safety innovation, and pursuing investigations and enforcement activities. NHTSA's position is that research should inform the agency's decision-making, especially with regard to technologies that are still in the testing and development stages. NHTSA continues to perform significant research to support the safe testing, development, and eventual deployment of emerging technologies through myriad projects and extensive and ongoing engagement with stakeholders. NHTSA is building upon the work of industry and standard-setting organizations and is focusing on bridging research gaps with leveraged resources.

The Agency's goal is to align research activities to support and maintain the Nation's global leadership in the safe testing, development, and deployment of Automated Driving Systems (ADS) through technological innovation and open market access. The program prioritizes new innovative test tools and methods, both from a crash avoidance and crashworthiness (occupant protection) perspective. Such tools include advanced simulation methods, surrogate vehicles that can be used in closed course test track testing, and adaptations to existing crash test dummies and associated crash tests. These innovative tools and evaluation methods will lay a solid foundation for developing system safety performance tests for ADS; addressing occupant protection safety needs for ADS that employ alternative seating designs; assessing individual component and sub-function safety of ADS; and adapting existing safety standards for compatibility with future ADS.

In November 2019, NHTSA held a Research Public Meeting highlighting projects from both the vehicle and behavioral safety research program offices, including driving automation research. The objectives were to highlight projects either recently completed or that will be completed in the next 12-18 months and seek feedback to include gaps and emerging issues for further consideration. More than 200 stakeholders registered to attend. The public docket is open through February 20, 2020. Comments will be considered in current and future research planning efforts.

NHTSA is also working on modernizing safety regulations

to account for emerging technologies, such as vehicles equipped with ADS that lack manual controls, while also reducing regulatory barriers to technological innovation.

This work is occurring in tandem with, and is supported by, NHTSA's research activities.

ADVANCE NOTICE OF PROPOSED RULEMAKINGS (ANPRM)—PRE-RULEMAKING STAGE

Pilot Program for ADS-equipped vehicles (2127-AL99)	The proposed rule was published on October 10, 2018, with request for comments on a National pilot program for collaborative research in the development and testing of vehicles with high or full driving automation (ADS - SAE Automation Levels 4/5). NHTSA requested comments on creating and structuring a pilot program and the types of regulatory relief (e.g., exceptions and exemptions) that might be needed to facilitate efforts to conduct on-road research and testing involving ADS-equipped vehicles, especially those that lack controls for human drivers. NHTSA is currently analyzing the public comments received for this ANPRM and will determine next steps.
Removing Regulatory Barriers for Automated Driving Systems (2127-AM00)	The proposed rule was published on May 28, 2019, with request for comments on barriers and amendments to crash avoidance standards to enable ADS-equipped vehicles. NHTSA requested comments on the appropriate analysis of requirements that are necessary to maintain the Agency's continued focus on safety, while enabling innovative vehicle designs. NHTSA is currently analyzing the public comments received for this ANPRM and will determine next steps.

Research and rulemaking are the primary mechanisms through which NHTSA conducts its preparatory work on emerging vehicle technologies. But until NHTSA can develop appropriate and science-based regulatory requirements for such technologies, it relies heavily on its investigation and enforcement authorities to help protect the public from defects in the design, construction, or performance of vehicles that may pose an unreasonable risk to safety.

FHWA is committed to lead in the development and deployment of innovative practices and technologies to improve the safety and performance of the Nation's transportation system. Moving innovations from research into adoption and deployment continually advances the state of practice. FHWA seeks to feed the innovation pipeline through strategic investments in research and increase the speed at which innovations are integrated into how State DOTs and Local Public Agencies (LPAs) build, maintain, and operate their systems. Accelerated development and deployment of proven, market-ready technologies and practices will help to improve safety, expedite project delivery, improve

infrastructure durability and resiliency, and increase mobility. Key activities included:

> Completed research to define and develop Transportation Systems Management & Operations strategies to increase performance in the areas of arterial operations, managed lanes, Active Transportation and Demand Management, Integrated Corridor Management, and other strategies to support partners.

> Continued to develop a variety of infrastructure technologies (e.g., additional applications of Ultra-High Performance Concrete, advanced geotechnical features, tests of asphalt and concrete mixtures, and reducing impact of corrosion on steel and concrete structures).

> Federal Land Management Agencies (FLMAs) submitted 17 problem statements for the Coordinated Technology Implementation Program (CTIP). Three problem statements were selected for technology deployment projects: unmanned aerial systems for bridge inspection; unmanned aerial systems for rock slope inspections; and ultra-high performance concrete deck overlays.

› Submitted the U.S. National Summary Report to World Road Association, which provides an update on progress made nationwide to support Road Safety Management.

FHWA also improved safety, mobility, and performance by assisting transportation system owners in planning for and enabling the deployment of ADS. Key activities included:

› Published final report on existing analysis, modeling, and simulation (AMS) tools for analyzing connected and automated vehicle (CAV) applications.

› In conjunction with the Federal Motor Carrier Safety Administration (FMCSA) and the Intelligent Transportation Systems Joint Program Office (ITS JPO), conducted Cooperative Automated Driving Systems Truck Platooning development and assessment integrating Vehicle-to-Vehicle (V2V) and Vehicle-to-Infrastructure (V2I) capabilities already equipped with Adaptive Cruise Control (ACC) systems.

The Office of the Assistant Secretary for Research and Technology (OST-R) has been working closely with and providing programmatic guidance to the ITS JPO, which leads collaborative and innovative research, development, and implementation of intelligent transportation systems technologies to improve safety and mobility for all. ITS JPO's portfolio of research and demonstration projects cut across all the modes of transportation, including emerging vehicle automation technologies.

Among other initiatives, ITS JPO has been leading a working group focused on emerging and enabling technologies to perform the following:

› Define terms such as "emerging" in regards to transportation technologies to help ensure the research is scoped concisely to address critical challenges.

› Identify and assess such technologies to better understand how they can be adopted and implemented in vehicle automation.

› Partner, educate, and invest in emerging technologies across different transportation modes to better address challenges with emerging technologies.

Integrate UAS and Commercial Space Industry into the NAS

Over the past year, FAA has achieved several successes through its Integrated Pilot Program (IPP) and Partnership for Safety (PSP) program:

› First commercial delivery under Part 135 by United Parcel Service.

› Over 2,300 miles of electrical transmission lines inspected by Xcel Energy.

› Increased interest from industry to engage in concerted efforts to develop safe operations, infrastructure, and management solutions.

In October 2019, FAA published FAA Order 8040.6, *Unmanned Aircraft Systems Safety Risk Management,* which established a structured approach to conducting safety risk assessments for specific operations.

FAA also increased its outreach efforts to raise UAS awareness among Federal, local, and private entities through meetings and events such as the General Aviation Safety Assurance (GASA) outreach, 2019 UAS Symposium, and attendance both nationally and internationally at numerous UAS Conventions.

FAA is implementing provisions for recreational flyers, including:

› Implemented functions in Low Altitude Authorization and Notification Capability (LAANC) and DroneZone to allow recreational flyers to obtain airspace authorizations more quickly.

› Issued authorizations for fixed sites to fly in controlled airspace at altitudes below the UAS Facility Maps.

› Participated in an industry roundtable to gather perspectives and positions on the required knowledge test.

› Issued a Request for Information (RFI) to develop a relationship between FAA and third party entities (commercial, non-profit, academic, or other) who could provide recommendations on test design and administration, as well as support initial deployment of the knowledge test.

> Formally selected and announced the third-party entities (referred to as the cohorts).

> Assembled an Airman Examination Board (AEB) that has written the testing content and questions.

> Drafted an Advisory Circular with guidance on compliance with section 44809 of the 2018 FAA reauthorization concerning recreational drones.

> Begin issuing Letter of Agreements for fixed sites in controlled airspace.

> Conducted a safety risk management panel for UAS operations over 400 feet above the ground.

FAA is collaborating with the Unmanned Aircraft Safety Team (UAST) and the National Aeronautics and Space Administration (NASA) to expand the Aviation Safety Reporting System (ASRS) for use on UAS issues. UAST submitted a proposed form for data collection to FAA, and NASA has put a placeholder in the Paperwork Reduction Act justification for the expansion to UAS. FAA has also drafted updates to the advisory circular to expand protections to UAS.

FAA has also taken the following actions to resolve technological and regulatory challenges:

> Drafted the notice of proposed rulemaking (currently in interagency coordination).

> Launched the remote ID implementation team in October 2019 and developed an initial breakdown of work activities.

> Drafted UAS traffic management (UTM) Concept of Operations 2.0 (currently in interagency coordination).

> Issued a request for proposal for industry members to partner with FAA to complete Phase II of the UTM pilot program. Phase II will capture requirements from the 2018 reauthorization act not in Phase I efforts.

The Air Traffic Organization (ATO) implemented enhanced procedures for the safe and efficient integration of launch and reentry operations in to the NAS. These procedures were deemed appropriate and are approved by FAA as an acceptable level of risk in fall 2019.

Leverage Limited Federal Funds through Innovative Financing

The Build America Bureau continues to pursue its mission of leveraging Federal credit to deliver new and upgraded transportation infrastructure through new products that attract a broader range of prospective project sponsors. These new products as well as additional staff on the Outreach and Project Development (OPD) team have allowed the Bureau to enhance the pipeline of eligible projects and diversify that pipeline by geography (i.e., urban and rural, new States, etc.) size, and type (i.e., highway, transit, rail, port, etc.), to ensure an equitable distribution of program benefits.

One of the efforts that is contributing to diversification of the portfolio is the focused outreach to States that have never utilized the Bureau's credit programs. In particular, Bureau leadership is visiting States that have not previously utilized Bureau products and services and to date have visited 10 new States, which has resulted in the addition of nearly two dozen new projects in the Bureau pipeline.

In the past year, the Bureau has nearly doubled its OPD team, which has been instrumental in performing more up-front planning with project sponsors and providing more technical assistance to projects earlier in the development cycle. This earlier and more active engagement will facilitate a faster credit process with less re-work and inefficiency, especially for smaller, first-time borrowers. This engagement helps project sponsors avoid inadvertently taking actions that would make project ineligible for a loan, such as initiating non-qualified procurements, missing critical environmental review requirements, or not sourcing materials in the U.S. In addition to allowing the Bureau to support more projects earlier in their development, a fully staffed OPD team allows the Bureau to educate more prospective project sponsors about the Bureau's products and services.

While the Bureau continues to represent itself at the larger, main-stream infrastructure and public-private-partnership (P3) conferences and events, the team has also targeted events catering to smaller jurisdictions, rural communities, towns, and counties. For example,

the Bureau was represented at the 4th National Technical Assistance Conference of the Rural Transit Assistance Program in October of 2019. The Bureau also participated in regional meetings sponsored by the U.S. Department of Commerce's Economic Development Administration, including sessions in West Virginia and southeastern Massachusetts, where the EDA convenes planners from distressed communities seeking technical assistance to develop the infrastructure needed for economic growth.

In addition to the State visits and stepped-up outreach and education efforts, the Bureau has created new products that will lead to a more diverse pipeline of projects and a new audience of project sponsors.

Historically, the TIFIA loan program has financed, large, complex highway, bridge, and transit projects that primarily serve urbanized and suburban communities, and the Bureau has the capacity to continue supporting these projects. However, the TIFIA and RRIF credit programs can also be tailored within statutory authority to focus on helping other geographic areas and asset classes that have, until now, not benefited from Bureau assistance.

The first of these is the TIFIA Rural Projects Initiative (RPI). Qualified rural borrowers receive a 50 percent interest rate reduction. As of mid-January 2020, a rural project could receive a loan at a fixed interest rate of slightly over one percent for 35 or more years. Qualifying RPI projects under this initiative are also eligible for relief from the fees associated with the application process. This represents a potential savings of a few hundred thousand dollars. DOT can lend up to 49 percent of eligible project costs for these borrowers, the maximum amount allowed by statute.

Currently, the Bureau is developing 13 projects under the Rural Projects Initiative in 7 States. This represents approximately 10 percent of the projects in the Bureau's pipeline.

The Department's Railroad Rehabilitation and Improvement Financing—or RRIF—program is significantly undersubscribed by smaller railroads. About 80 percent of the track operated by these short line and regional freight railroads is in Rural America and serves as an economic engine for agriculture, mining, energy, manufacturing, and other industries.

The Bureau has developed a pilot program, called RRIF Express, that focuses on improving the borrower experience for these railroads. A qualifying RRIF Express borrower is a short line or regional freight railroad, seeking a loan for a project up to $50 million. RRIF Express offers these borrowers relief from fees associated with the Bureau's advisor costs and covers a substantial portion –if not all– of the Credit Risk Premium that poses a significant obstacle for small railroads. RRIF Express also expedites the application and review process, making the program more attractive to prospective project sponsors.

Support R&D and Reshape the Workplace to Meet Future Needs

FHWA policies and procedures have been updated to specifically address all recommendations stated in the OIG reports, including the issuance of policies for signing and administering Cooperative Research and Development Agreements (CRADA), issuance of procedures for the review and approval of sub-recipients and contractors under assistance agreements, and updates to the agreement files checklist.

Reshaping the workplace to meet future needs included transforming the workforce and resource management approach to ensure FHWA is properly structured, skilled, and equipped to deliver outstanding customer service to our partners and the traveling public. Key activities included:

› Increased the skill level and knowledge of FHWA employees to achieve Agency goals.

› Improved Agency decision-making and resource management by implementing an Enterprise Risk Management (ERM) framework.

› Headquarter Assessable Units (AUs) and Division Offices are reviewing their processes to identify ways to implement risk-based processes in an ERM environment.

OST-R plays a lead role in research coordination within the Department and with a wide range of national and international stakeholders. It focuses on coordination, facilitation, and review of DOT's research portfolio. OST-R will continue to:

> Coordinate and support the DOT R&D community to create a common ground for all research and identify synergies across transportation research topics. This effort will help align research terminology to improve reporting. It will also help to identify and eliminate research duplication that is not complementary to one another.

> Facilitate the widest possible awareness and coordination of DOT research among the research personnel across DOT and others throughout the Federal government, the States, and major independent research organizations.

> Review DOT-wide research plans to ensure that they align with Secretarial policy priorities, comply with statutory mandates, and make good use of research investments. The review includes supporting new research activities for all modes of transportation to identify about future needs and potential challenges.

DOT PLANNED ACTIONS TO ADDRESS THIS CHALLENGE

Prepare for Emerging Vehicle Automation Technologies

NHTSA plans to continue to conduct research to support regulatory actions that: (1) modernize NHTSA's Federal Motor Vehicle Safety Standards (FMVSS) to account for emerging technologies, such as ADS; and (2) update NHTSA's regulations pertaining to administrative processes for petitioning the agency for exemption, rulemaking, and reconsideration.

NHTSA's vehicle safety research identifies four general categories of research activity areas:

> *Supporting regulatory decisions on the removal of unnecessary and unintended barriers:* Identifies potential FMVSS compliance challenges associated with alternative vehicle designs.

> *ADS system safety performance:* Focuses on the methods, metrics, and capabilities needed to assess system-level ADS safety performance.

> *ADS subsystems and functional safety:* Seeks to establish the capability to assess the functional safety of components and subsystems of ADS, which can augment the system level safety assessment.

> *Occupant protection in vehicles equipped with ADS:* Even in a best-case scenario whereby ADS-equipped vehicles rarely crash themselves, not all crashes can be avoided. As mixed driving environments with ADS in control of some vehicles and humans in control of others represent safety threats, occupant protection remains a priority. Further, alternative seating and cabin designs enabled by ADS pose new challenges in testing, validating, and ensuring occupant safety.

NHTSA's regulatory priorities for FY 2020 include continuing to modernize safety regulations to account for emerging technologies while also reducing regulatory barriers to technological innovation. Planned actions for FY 2020-2021:

ADVANCE NOTICE OF PROPOSED RULEMAKINGS—PRE-RULEMAKING STAGE

Considerations for Telltales, Indicators and Warnings in ADS Vehicles (2127-AM07)	Seeks comments on amending the FMVSS to address the applicability and appropriateness of safety messaging (telltales, indicators, and warnings) in vehicles without conventional driver controls.
Safety Principles for Automated Driving Systems (2127-AM15)	Seeks comment on regulatory approaches to motor vehicles equipped with ADS. NHTSA will also ask for comments on the creation of a safety framework for objectively and transparently assessing and validating the success of each ADS vehicles or developers in designing safety into its vehicles.
Occupant-less Delivery Vehicles Equipped with Automated Driving Systems (2127-AM18)	Seeks comment on amending regulations that may be necessary to facilitate the certification of ADS-equipped motor vehicles without a passenger compartment.
Specialized Motor Vehicles with Automated Driving Systems (2127-AM19)	Seeks comment on establishing regulatory requirements specific to classes of specialized motor vehicles equipped with ADS. NHTSA plans to ask for comment on new standards for driverless vehicles, such as low-speed shuttles.

NOTICE OF PROPOSED RULEMAKINGS—PROPOSED RULE STAGE

Occupant Protection for Automated Driving Systems (2127-AM06)	Proposes changes to occupant protection FMVSS in vehicles equipped with ADS that lack manually operated driving controls.
Expansion of Temporary Exemption Program to Domestic Manufacturers for Research, Demonstrations, and Other Purposes (2127-AM14)	Proposes a new exemption for domestic manufacturers to operate nonconforming vehicles—including ADS-equipped vehicles—on public roads for purposes of research, investigations, demonstrations, training, show, or display, but not for sale or lease.
Updating the Process for Temporary Exemptions (2127-AM11)	Proposes updates to the temporary exemption process to make it more streamlined and efficient for innovative motor vehicle technologies that may not comply with all FMVSS, including ADS-equipped vehicles. This action also seeks comment on new strategies to support the temporary exemption process, including information necessary to demonstrate equivalent safety between a compliant and non-compliant vehicle.

In addition to rulemaking and research related to ADS, NHTSA seeks to ensure that its defects investigations program keeps pace with emerging technologies. NHTSA's Office of Defects Investigations (ODI) has taken a proactive approach to monitoring potential safety defects in emerging vehicle technologies. ODI regularly engages with industry to learn about new technologies to better oversee their implementation and operation. The Office has a general process for staff to evaluate and assess consumer complaints that allege concerns with the performance of advanced driver assistance systems. As new technology becomes available in the fleet, ODI intends to expand the list of technologies in its consumer-facing tool so that a consumer can provide the Agency with more precise complaint categorization information.

In 2015, NHTSA amended the Early Warning Reporting elements required by the Transportation Recall

Enhancement, Accountability, and Documentation (TREAD) Act to add five new component categories for reporting on light vehicles: electronic stability control, forward collision avoidance, lane departure and backover prevention, foundation brakes, and automatic brake controls. ODI analyzes this new information from manufacturers on a quarterly basis for trends and issues that may arise from the more prevalent equipment of these new technologies on motor vehicles.

OST-R and ITS JPO will continue to identify and assess emerging technologies in vehicle automation by selecting and asking questions that will help with strategic planning efforts. To determine where a Federal investment or research project may be helpful, the ITS JPO first seeks to identify critical needs and challenges in the transportation system and find technologies or approaches to address them. This may involve the following activities:

› Continuing to lead a working group that addresses emerging and enabling technologies and sharing their findings across the modes.

› Collaborating with industry, transportation authorities, academic, State, regional, and local government leaders, and emergency first responders.

› Assessing the feasibility, potential risks, and preliminary costs and benefits of emerging technologies for transportation uses.

› Supporting research on connected data systems, including pilot deployments of infrastructure and vehicle connectivity, as well as mobile device data to enable enhanced performance-based systems management.

Integrate UAS and the Commercial Space Industry into the NAS

With respect to UAS, FAA will implement provisions for recreational flyers in early 2020, including:

› Finalize knowledge test administration requirements and Memoranda of Agreement

› Develop policy for fixed sites and sanctioned events that are above the current authorized altitudes

› Publish AC for comment and finalize guidance

› Implement the knowledge test

FAA will create a robust system for safety data related to UAS through the following actions:

› Issue updated advisory circular on ASRS and fund an update to the ASRS.

› Collaborate with NASA to establish data sharing mechanisms for UAST, including de-identification and protection requirements.

› Collaborate with UAST to promote ASRS to the UAS community.

› Work with partners in the IPP and PSP to develop a robust system for obtaining, tracking, and analyzing UAS safety data. The data are divided into two components: program data, which is regularly submitted to FAA, and operational data or reports as required by the operational provisions of waivers granted. The

reports are used to determine the appropriate level of safety demonstrated by the operation.

FAA will resolve technological and regulatory challenges related to UAS, such as remote ID, through the following actions:

› Issue notice of proposed rulemaking (completed in December 2019)

› Execute items on the remote ID implementation schedule

› Issue final rule for Operations Over People

› Issue the 2209 Notice of Proposed Rulemaking (NPRM) Safety and Security Over Military Installations by December 31, 2020 as scheduled

With respect to the commercial space industry, FAA has a number of planned actions to address this challenge:

› FAA is conducting industry outreach with airline stakeholders to educate them on time-based launch/reentry procedures and notices to airmen (NOTAMs) that are used to notify the aviation community of launch and reentry operations.

› *June 30, 2020:* Complete implementation of time-based launch/reentry procedures (already in development) to more efficiently manage air traffic affected by and in the vicinity of launch/reentry activity.

› *September 30, 2020:* Release software related to dynamic launch/reentry windows based on time-based launch/reentry procedures. The operational triggers will provide greater efficiencies for NAS users.

› *September 30, 2020:* Deploy space data integrator Phase 1 Build 1 minimum viable product (MVP) to the Joint Space Operations Group (JSpOG).

Leverage Limited Federal Funds through Innovative Financing

The Build America Bureau will continue pursuing its goal of leveraging limited Federal funds through innovative financing, increasing utilization of the Department's credit programs, and diversification of the Bureau project pipeline by:

❯ Continuing outreach and education efforts, with a particular emphasis on underserved communities and borrower groups that have not previously availed themselves of the Bureau's products and services. For example, in early March 2020, the Bureau will address the membership of the National Association of Towns and Townships.

❯ Launching a Regional Infrastructure Accelerator demonstration program. Regional accelerators can assist local governments in developing improved infrastructure priorities and financing strategies for the accelerated development of projects, many of which would be eligible for TIFIA, RRIF and other innovative programs. Accelerators will act as multipliers of the Bureau's existing staff and resources, helping develop infrastructure planning and delivery capacity in rural communities and elsewhere.

❯ Developing more new credit products and processes tailored to the needs of specific borrowers, including small, non-urban jurisdictions.

❯ Implementing an expedited outside advisor procurement process that subsequently speeds up the creditworthiness assessment and loan underwriting processes.

❯ Continuing to refine the Bureau's Key Performance Indicators and revising the Bureau's Standard Operating Procedures to keep pace with the dynamics of infrastructure financing.

Support R&D and Reshape the Workplace to Meet Future Needs

FAA plans to address this challenge through a number of initiatives, including conducting an assessment on R&D Other Transaction Agreement (OTA) needs and developing and implementing OTA guidance for R&D and Prototype Project.

FHWA plans to address this challenge through the following actions:

❯ Continue research on automated vehicles to understand the implications, challenges, and impacts to roadway infrastructure and operations that are needed to facilitate ADS integration into transportation systems that enhance safety and user mobility.

❯ Feed the innovation pipeline through research focused on improving the safety, structural integrity, longevity, resilience, construction, and management of highway infrastructure.

❯ Continue to promote Every Day Counts (EDC), a State-based model that identifies and rapidly deploys proven, underutilized innovations to shorten the project delivery process, enhance roadway safety, and reduce traffic congestion. Proven innovations promoted through EDC facilitate greater efficiency at the State and local levels, saving time, money, and resources that can be used to deliver more projects.

❯ Support State Transportation Innovation Councils (STIC), a forum intended to bring together public and private transportation stakeholders to evaluate innovations and spearhead their deployment in each State. The STIC or an equivalent group puts the highway community in the driver's seat to comprehensively and strategically consider sources of innovation, select those innovations that best fit its unique program needs, and quickly put those innovations into practice.

❯ Ensure the Manual on Uniform Traffic Control Devices (MUTCD) is relevant to the needs of today's users (e.g., human and automated driving systems), as well as for the emerging innovations of tomorrow.

❯ Promote the Accelerated Market Readiness (AMR) program to support emerging, transformative innovations that are not yet market ready by providing resources for rapid assessment and development of objective-written findings.

❯ Implement the Accelerated Innovation Deployment (AID) program, which provides funding as an incentive for eligible entities to accelerate the implementation and adoption of innovation in highway transportation and offset the risk of testing an innovation.

❯ Create opportunities to strengthen learning and development, redefine skills to keep pace with change, and emphasize the use of data analytics and customer focus across the Agency.

❯ Develop and implement an Agency-wide ERM approach that will extend the current risk management activities and integrate all unit planning and related planning and execution processes. As part of this effort, FHWA leadership will set priorities among program objectives

and activities across the Agency, and use a risk-based approach to focus staff effort and resources on the most critical areas of performance, stewardship, oversight, and accountability.

OST-R will continue to identify ways to increase its effectiveness in coordinating research activities across the Department through the following actions:

❯ Continue to review its processes that support research to improve its coordination function.

❯ Stand up a Highly Automated Systems Safety Center of Excellence (COE) to review, assess, and validate highly automated systems to ensure their safety. To help ensure appropriate collaboration with the John A. Volpe National Transportation Systems Center (Volpe), OST-R will lead the COE in coordination with OST and all the DOT modes, with Volpe technical leadership.

❯ Execute FY 2020 appropriations authorization of new Tier 1 University Transportation Centers targeting these initiatives to critical research issues.

❯ Initiate a program to provide visiting interns/scholars from the University research community to support DOT research needs while providing learning opportunities for the next generation workforce. Seek insights from research to identify ways to support the workplace for future needs, and coordinate with the modes to help create a mechanism to obtain information on Volpe's performance. The information will be shared with modal representatives across DOT.

❯ Continue to build a platform for DOT research and include Volpe in the DOT research planning phase.

DOT ASSOCIATED PERFORMANCE GOALS/MEASURES/MILESTONES

Prepare for Emerging Vehicle Automation Technologies

The ultimate aim of NHTSA's efforts, including those regarding vehicle automation technologies, is to save more lives by reducing both the number and severity of motor vehicle crashes. NHTSA tracks progress toward this goal through several performance measures, including

reducing the number of motor vehicle fatalities per 100 million vehicle miles traveled (VMT), passenger fatalities, non-occupant fatalities, and motorcycle fatalities. Another relevant NHTSA performance measure is reducing the number of occupants ejected in motor vehicle crashes, which can cause serious injuries.

Safely Integrate UAS and the Commercial Space Industry into the NAS

FAA is using numerous associated performance goals, measures, and metrics to address this challenge:

❯ *Early Spring 2020:* Submit an RFI with respect to how manned aviators can partake in remote ID efforts.

❯ *Late Spring 2020:* Provide guidance to examination providers for the UAS knowledge test. FAA's legislative implementation plan for recreational flyers addresses Section 349 of the 2018 FAA reauthorization. This section, which replaces Section 336, levels the playing field by allowing the establishment of rules for all UAS. It requires even recreational operators to register their drones and to successfully complete a knowledge test.

❯ *Summer 2020:* Develop and publish standards for the recognition of UAS community-based organizations.

❯ *Early Fall 2020:* Submit annual PSP Project Management Review (PMR) report to the Office of Aviation Safety (AVS). The first FY 2020 quarterly PMR was conducted in December 2019 and several actions were taken to increase communications and data-sharing capabilities between the ATO and AVS organizations.

❯ Flight Standards will provide a comprehensive safety review at the end of each fiscal year showing UAS operations are not inadvertently introducing risk into the NAS.

❯ Provide regularly scheduled updates to executives regarding development of the UTM program with NASA and FAA executives.

❯ The UAS Program & Data Management Branch has taken on the responsibility of re-designing their PSP program, with the goal of developing a quality management system process, with schedule, reporting, risk management plans, and templates in place by the end of the third quarter of 2020.

❯ Track and report ASRS updates by UAST during quarterly meetings.

❯ Report remote ID implementation to the UAS Executive Working Group monthly. As of January 2020, this information will be reported out bi-weekly.

❯ Remote ID rule is captured in FAA's strategic rulemaking plan and reported out to FAA executives bi-weekly.

❯ Remote ID implementation is reported to the UAS Executive Working Group monthly and as of January 2020 will be reported out bi-weekly.

❯ Submit UTM implementation plan to Congress one year after completion of IPP Phase II. UTM research and concept of operations (Conops) are part of FAA's implementation plan and reported out monthly.

With respect to the commercial space industry, the planned action in the Office of Management and Budget's (OMB) FAA FY 2020-FY 2021 Agency Priority Goal (APG) on integrating space launches into the national airspace will use time-based launch/reentry procedures to improve national airspace efficiency. FAA reports its progress on the APG monthly to the FAA Performance Committee and quarterly to DOT and OMB.

Leverage Limited Federal Funds through Innovative Financing

The Bureau tracks the following items to ensure effective leveraging of Federal funds through innovative financing:

❯ Number of projects added to the Bureau pipeline

❯ Number of loans underwritten and closed

❯ Number of new States seeking Bureau assistance

❯ Percentage of new projects in the pipeline representing underserved communities and modes of transportation

❯ Amount of the Bureau's annual credit subsidy appropriation used

❯ Amount of non-Federal capital leveraged by Bureau credit instruments

FHWA tracks the following innovative finance actions and activities as performance measures:

❯ Percentage of State and Federal Transportation Innovation Councils (STIC/FTIC) that have a

Functioning-to-Sustained maturity level for a formal innovation process and a communication plan

❯ Number of States and local agencies that have used a Federal innovative finance tool in the current year

❯ Percentage of EDC innovations that met their goal in the two-year cycle

❯ Number of research projects completed

❯ Number of research projects published

RESPONSIBLE AGENCY OFFICIAL(S)

Safely Integrate UAS and the Commercial Space Industry into the NAS

❯ Jay Merkle, Executive Director, UAS

❯ Duane Freer, Manager, Space Operations, UAS, and Central Altitude Reservation Function (CARF), ATO, AJOR

Support R&D and Reshape the Workplace to Meet Future Needs

❯ Pamela Whitley, Assistant Administrator for NextGen (A), ANG-1

Federal Highway Administration

❯ Tony Furst, Chief Innovation Officer

❯ Mark Sullivan, Director, Center for Innovative Finance Support

National Highway Traffic Safety Administration

❯ James Owens, Acting Administrator

❯ Ryan Posten, Associate Administrator, Rulemaking

❯ Cem Hatipoglu, Associate Administrator, Vehicle Safety Research

❯ Jeffrey Giuseppe, Associate Administrator, Enforcement

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❯ Ted Boll, Senior Advisor

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