



U.S. DEPARTMENT OF TRANSPORTATION
OFFICE OF INSPECTOR GENERAL

**DOT's Fiscal Year 2018 Top Management
Challenges**

OST

Report No. PT2018005

November 15, 2017





DOT's Fiscal Year 2018 Top Management Challenges

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Office of the Secretary of Transportation | PT2018005 | November 15, 2017

What We Looked At

As required by law, we report annually on the Department of Transportation's (DOT) most significant challenges to meeting its mission. We considered several criteria in identifying DOT's top management challenges for fiscal year 2018, including their impact on safety, documented vulnerabilities, large dollar implications, and the ability of the Department to effect change.

What We Found

We identified the following top management challenge areas for fiscal year 2018:

- **Aviation safety.** Key focus areas: cockpit safety and security, the regional airline industry, suspected unapproved parts, and runway safety.
- **Surface transportation infrastructure safety.** Key focus areas: transit safety oversight, highway bridges and tunnels, and hazardous materials and pipelines.
- **Highway and rail safety.** Key focus areas: data collection and analysis, high-risk motor carriers, and safety-enhancing technology.
- **National Airspace System modernization.** Key focus areas: implementing high-priority NextGen capabilities, advancing air traffic infrastructure, and strengthening resiliency.
- **Unmanned Aircraft Systems (UAS) integration.** Key focus areas: UAS regulatory challenges, oversight and enforcement, and commercial space launch oversight.
- **Surface infrastructure investments.** Key focus areas: overseeing alternative financing arrangements, accelerating project delivery, and enhancing stewardship.
- **Cybersecurity.** Key focus areas: DOT's cybersecurity workforce, cloud service providers, the Internet of Things, and coordination with the Federal Aviation Administration (FAA).
- **Acquisitions and management.** Key focus areas: FAA acquisition oversight, multiple-award contracts, and the Department's small business programs.
- **Fraud, waste, and abuse.** Key focus areas: criminal referrals, suspensions and debarments, and Disadvantaged Business Enterprise fraud.
- **Disaster recovery and response.** Key focus areas: fostering infrastructure resiliency and applying lessons learned from prior relief efforts.

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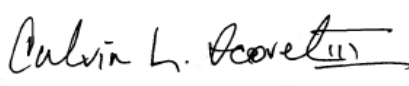
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Memorandum

Date: November 15, 2017

Subject: INFORMATION: DOT's Fiscal Year 2018 Top Management Challenges
Report No. PT2018005

From: Calvin L. Scovel III
Inspector General 

To: The Secretary
Deputy Secretary

Our Nation's businesses, public services, communities, and citizens depend on a safe and efficient transportation system. The Department of Transportation (DOT) invests nearly \$80 billion each year to build, maintain, and enhance this system to support both domestic and global interests and improve our quality of life. Our office helps support the Department's mission through audits and investigations that identify improvements to the management and execution of its diverse transportation programs. As required by law, we report annually on the Department's most significant challenges to meeting its mission. Our report aims to provide a forward-looking assessment for the coming fiscal year to aid DOT's agencies in focusing attention on the most serious management and performance issues. This year, in addition to focusing on DOT-wide management issues, the Department faces the unique challenge of planning multiple recovery efforts to restore vital transportation services in communities devastated by major hurricanes.

As Secretary Elaine L. Chao has affirmed, safety remains the Department's top priority. Although DOT continues to demonstrate a strong commitment to improving the safety of our airspace, roads, pipelines, railways, and transit, key challenges remain. For example, while overseeing the safe operation of about 45,000 commercial flights a day, DOT must enhance its collaboration with industry and other stakeholders to address safety vulnerabilities such as cockpit security, the reliability of aircraft parts, and the movement of aircraft and other vehicles on airport runways. The growing use of Unmanned Aircraft Systems (UAS) and their integration into the National Airspace System (NAS) also present some of the most significant safety challenges faced by DOT and the Federal Aviation Administration (FAA) in decades.

At the same time, the Department must continue to target oversight to the greatest safety risks to our transit systems, network of highway bridges and tunnels, and pipelines. In particular, the Department faces challenges in taking on an enhanced oversight role for State or regional transit agencies while working to address numerous pipeline and hazardous materials safety recommendations and mandates from Congress, our office, and others. Effectively using data to identify and mitigate risks is also a key challenge in DOT's efforts to improve highway and vehicle safety. Important focus areas include removing unsafe vehicles and high-risk drivers from roads and harnessing new technologies, such as Positive Train Control, to improve safety.

Meeting our Nation's transportation needs both now and in the future also requires adapting to evolving challenges and risks. A key watch area remains the Department's efforts to modernize the NAS to prepare for the anticipated growth in air travel. In particular, FAA will need to mitigate risks as it implements new, complex capabilities while also enhancing existing infrastructure that air traffic controllers rely on to manage traffic. In addition, rising demands on the surface transportation system and constraints on public resources have prompted DOT to identify new sources to fund needed improvements to surface infrastructure projects. The Department has sought greater private sector involvement through public-private partnerships and will be challenged to ensure private partners conform to Federal requirements and meet project delivery goals. As DOT works to address growing infrastructure needs, it must also develop plans to restore damaged transportation systems in Texas, Florida, and Puerto Rico in the wake of catastrophic hurricanes. It will be important for the Department to draw from lessons learned from prior disaster recovery efforts to carry out effective recovery projects, build in resiliency improvements, and protect taxpayer funds.

The Department also faces the challenge of reshaping the programs and policies that protect all its transportation systems in the face of increasing cyberattacks and security breaches. To minimize threats against DOT's more than 450 information systems and resolve existing vulnerabilities, DOT must ensure it can recruit and maintain a skilled workforce that can adapt to evolving threats and plan effective cybersecurity strategies.

Finally, the Department must work diligently to maximize and protect the billions of dollars it invests in reaching these and other transportation goals. DOT has multiple opportunities to better manage and oversee its major acquisitions and grants, especially those of FAA, its largest buyer, with over \$5.5 billion in annual obligations for goods and services. Ensuring stewardship of taxpayer dollars also depends on strengthening its protections against fraud, waste, and abuse—including better leveraging the fraud defense mechanisms it has at hand.

We considered several criteria in identifying the Department's top management challenges for fiscal year 2018, including their impact on safety, documented

vulnerabilities, large dollar implications, and the ability of the Department to effect change. In the enclosed report, we identify and discuss the following challenges:

- Maintaining Safety and Oversight of a Diverse and Complex Aviation Industry
- Ensuring the Safety and Reliability of Surface Transportation Infrastructure
- Using Data-Driven Approaches and Technology To Reduce Highway and Rail Safety Risks
- Keeping Modernization on Track and Increasing User Benefits While Fostering Resiliency in the National Airspace System
- Integrating Unmanned Aircraft Systems and Other New Airspace Users Into the National Airspace System
- Maximizing Surface Infrastructure Investments Through Innovative Financing, Improved Project Delivery, and Effective Oversight
- Recalibrating DOT's Cybersecurity Posture To Mitigate Evolving Cybersecurity Threats and Uncertainties
- Enhancing the Department's Management and Oversight of Acquisitions To Achieve Results and Save Taxpayer Dollars
- Improving Mechanisms for Deterring Fraud, Waste, and Abuse
- Managing Response, Recovery, and Rebuilding Efforts for National Disasters and Emergencies

As always, we will continue to work closely with DOT officials to support the Department's efforts to improve safety, enhance efficiency, and protect its resources. We appreciate the Department's commitment to taking prompt actions in response to the challenges we have identified. The final report and the Department's response will be included in the Department's Annual Financial Report, as required by law.

If you have any questions regarding this report, please contact me at (202) 366-1959. You may also contact Joseph W. Com  , Principal Assistant Inspector General for Auditing and Evaluation, at (202) 366-0377.

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cc: DOT Audit Liaison, M-1

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Chapter 1

Maintaining Safety and Oversight of a Diverse and Complex Aviation Industry



DOT, the Federal Aviation Administration (FAA), Congress, and industry maintain one of the world's safest aviation systems, which carries over 2.5 million people on approximately 45,000 flights every day. However, as DOT continues to seek ways to ensure safety efforts keep pace with a rapidly evolving airline industry, new and longstanding oversight needs present several challenges.

Key Challenges

- Enhancing interagency communication and working with stakeholders to improve cockpit safety and security
- Keeping pace with a dynamic and evolving regional airline industry
- Strengthening the investigative process and proactively removing suspected unapproved parts from the aviation supply chain
- Addressing reports of increased runway safety incidents

Enhancing Interagency Communication and Working With Stakeholders To Improve Cockpit Safety and Security

Incidents in 2012 and 2015 in the United States and abroad¹ have drawn attention to flight deck safety and security, including securing cockpit doors. FAA has improved its intelligence analysis capability, analysis of potential vulnerabilities, and process to notify manufacturers and air carriers of unsafe aircraft conditions that could be exploited by terrorists. However, our work has found that FAA may be missing collaboration opportunities that could enhance cockpit safety and security. For example, FAA does not coordinate with the Transportation Security Administration (TSA) at the field office level to identify emerging flight deck security vulnerabilities because FAA has not clarified inspectors' roles in areas where FAA and TSA regulations converge. In addition, while FAA has identified access to the cockpit as a security vulnerability, it has not, for example, reached out to industry to address crew complacency in performing cockpit door transitions (i.e., when the cockpit door is opened in flight). FAA could also do more, in our view, to provide air carriers with all information necessary to select and implement security procedures that may protect the cockpit more effectively. Enhanced communication with key industry stakeholders will be critical to FAA's efforts to ensure the safety of the traveling public.

Keeping Pace With a Dynamic and Evolving Regional Airline Industry

Regional air carriers have been a growing industry segment over the last several years and now operate over 10,000 flights a day and serve approximately 20 percent of all airline passengers.² These carriers operate in a unique and competitive environment and present a multifaceted oversight challenge for FAA. While they must meet the same safety standards as mainline carriers, they operate under a business model that requires them to keep costs low, yet they do not benefit from upward trends in ticket prices, additional revenue from baggage fees, or passenger enplanements. Therefore, their operations are strongly impacted by changes such as service expansion, airline consolidations,³ or new pilot requirements—all of which have taken place in recent years. Moreover, preliminary results from our ongoing work show that FAA has not

¹ On March 24, 2015, Germanwings Flight 9525 crashed in the Alps, killing all 150 people onboard. The crash was determined to have been caused by the deliberate and planned action of the co-pilot. In March 2012, JetBlue Airways Flight 191 was diverted after the first officer locked the captain out of the cockpit due to the captain's erratic behavior.

² According to the Regional Airline Association, the average plane size flown by regional carriers grew from 24 seats in 1990 to 61 in 2015, and the average trip increased from 194 miles in 1990 to 478 miles in 2015.

³ Regional airlines have purchased other airlines to expand operations. For example, SkyWest Inc. purchased ExpressJet in 2011. Airlines also merge their operating certificates to streamline operations. For example, in 2014, Republic Airways Holdings merged its Chautauqua Airlines certificate with Shuttle America's certificate.

provided inspectors with the tools and guidance necessary to proactively identify and mitigate operational risks at regional carriers. For example, FAA inspectors did not recognize the multiple indicators of financial distress, as defined in FAA guidance, at one carrier before that carrier filed for bankruptcy. Furthermore, even when inspectors are able to identify areas of risk, FAA guidance is vague regarding how inspectors should adjust surveillance. As a result, FAA may not be well positioned to respond to key changes in the regional carrier industry that could have important safety implications. We expect to make recommendations for improvement in our final report.

A recent significant change that this industry has experienced is the increase in required hours of flight experience to 1,500 hours for new pilot hires.⁴ FAA issued this rule in 2013 in response to congressionally mandated changes regarding pilot training and experience requirements.⁵ Regional carrier officials state that these requirements have reduced the pool of qualified pilots available to hire and affected the experience levels of new hires. However, FAA has not analyzed the impact of the 1,500-hour rule on the pilot population or reviewed industry's concerns regarding a pilot shortage, and it has no plans for such a study. We believe this will be an important safety watch item for the Agency going forward.

Strengthening the Investigative Process and Proactively Removing Suspected Unapproved Parts From the Aviation Supply Chain

The traveling public depends on FAA and the aviation industry to ensure that U.S. aircraft are properly maintained and airworthy. Part of this responsibility is to detect and monitor for Suspected Unapproved Parts (SUP)—aircraft parts that may have been manufactured without FAA approval, including counterfeit parts. Yet FAA's process for monitoring and investigating SUPs is not as effective as it could be because of recordkeeping weaknesses and the lack of management controls to capture and accurately report the number of SUP cases. For example, our recent analysis of all 265 SUP entries in FAA's database revealed 16 duplicate, 86 incomplete, and 28 invalid entries. Furthermore, FAA's oversight of industry actions to remove unapproved parts is ineffective because FAA does not confirm that operators take appropriate action to remove unapproved parts from their inventories. For example, an FAA inspector investigated a case to determine whether tens of thousands of privately owned commercial aircraft parts, which were for sale online, were unapproved. However, the inspector did not physically account for the location and quantities of the parts but instead accepted a letter from the owner stating that he had removed the ad from his eBay site and had

⁴ This rule requires each commercial airline pilot to obtain an Airline Transport Pilot license, which requires 1,500 hours of flight experience (unless applicants have qualifying educational or military experience).

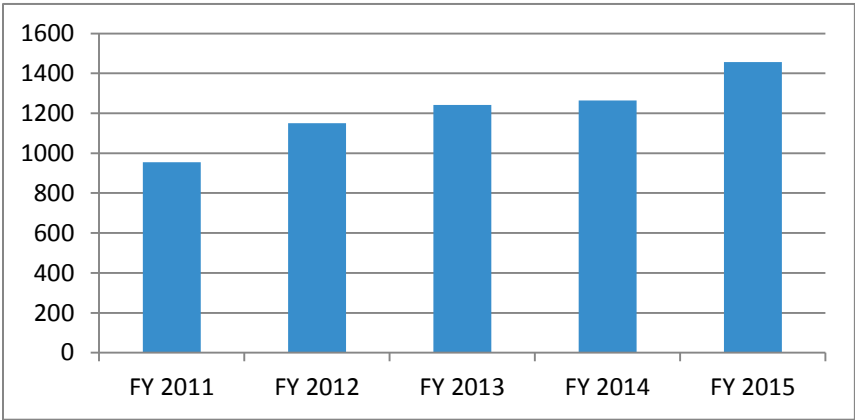
⁵ Pub. L. No. 111-216.

not sold any parts. FAA is taking corrective actions in response to our 2017 recommendations to strengthen its management controls and ensure consistent investigations of SUPs. However, ensuring that the hundreds of thousands of aircraft parts installed on airplanes are manufactured or repaired according to standards continues to be a challenge for FAA and the aviation industry.

Addressing Reports of Increased Runway Safety Incidents

Reducing runway incursions—incidents involving unauthorized aircraft, vehicles, or people on a runway—has been a longstanding challenge for FAA. FAA has undertaken a number of safety initiatives since 2007, but reported incursions have increased over the last several years, with a 53-percent rise in total incursions between fiscal years 2011 and 2015 (see figure). While the number of serious incidents is relatively low, there was a 114-percent rise in the rate of serious incidents reported over the same timeframe. To help mitigate runway incursions, FAA initiated a Call to Action forum in 2015 that focused on developing short-, medium-, and long-term efforts.

Figure. Total Number of Runway Incursions, Fiscal Years 2011–2015



Source: OIG analysis

However, addressing runway incidents remains a significant safety challenge for FAA, as the total number of incursions still increased in fiscal year 2016 by 7 percent compared to the previous year. There have been several close calls at major airports where aircraft have come within a few feet of colliding with each

other.⁶ We have repeatedly reported on FAA's efforts to address this issue and are currently evaluating the Agency's progress in implementing the 2015 Call to Action initiatives.

Related Documents

The following related documents can be found on the OIG website at <http://www.oig.dot.gov>.

- *FAA Has Taken Steps To Identify Flight Deck Vulnerabilities but Needs To Enhance Its Mitigation Efforts*, June 26, 2017
- *Enhancements Are Needed to FAA's Oversight of the Suspected Unapproved Parts Program*, May 30, 2017
- *Letter to Ranking Member Peter DeFazio and Ranking Member Rick Larsen regarding Regional Air Carrier Pilot Pay and Qualifications*, March 2, 2017
- *Management Limitations May Hinder FAA's Ability To Fully Implement and Assess the Effectiveness of Its Runway Safety Initiatives*, September 25, 2014
- *FAA Operational and Programmatic Deficiencies Impede Integration of Runway Safety Technologies*, June 26, 2014

For more information on the issues identified in this chapter, please contact Matthew Hampton, Assistant Inspector General for Aviation Audits, at (202) 366-0500.

⁶ For example, in February 2016 at the Dallas/Fort Worth International Airport, a commercial plane crossed a runway while a regional jet was departing, causing the regional jet's pilot to take evasive action. In July 2017 at the San Francisco International Airport, instead of landing on a runway, a commercial airplane pilot attempted to land on a taxiway where four other aircraft were awaiting takeoff. This incident has not been officially classified and is currently under investigation by the National Transportation Safety Board.

Chapter 2

Ensuring the Safety and Reliability of Surface Transportation Infrastructure



The Department plays a crucial role in ensuring that the millions of miles of roads, bridges, tunnels, tracks, and oil and gas pipelines across the Nation are safe and reliable. Our audit work has identified weaknesses in the safety performance and oversight of surface transportation infrastructure, highlighting the need for stronger efforts to identify and mitigate safety risks. In particular, the Department faces challenges in targeting inspections and enforcement to the areas of greatest risk, as well as implementing recommendations and mandates intended to enhance safety.

Key Challenges

- Transitioning effectively to an enhanced transit safety role
- Implementing effective highway bridge and tunnel safety programs
- Meeting regulatory requirements for hazardous materials and pipelines

Transitioning Effectively to an Enhanced Transit Safety Role

The Federal Transit Administration (FTA) faces significant challenges in carrying out its safety oversight responsibilities for our Nation's network of rail transit systems. Since the State Safety Oversight program was created in 1991,⁷ FTA has received enhanced authority to oversee the State agencies that monitor the safety of rail transit agencies, including allowing it to assume the State's responsibilities in the absence of an effective State safety oversight agency.⁸ In October 2015, FTA used this authority to assume direct oversight of the Washington Metropolitan Area Transit Authority after a January 2015 incident on a Metrorail train where 1 passenger died and 91 people were injured.

However, as we reported last year, FTA can do more to transition effectively to its enhanced oversight role. Specifically, FTA has actions underway to develop policies and procedures for assuming direct safety oversight of a transit agency and for returning it to a State safety oversight agency but lacks milestones for finalizing those policies and procedures. We also reported that FTA continues to face challenges in acquiring and retaining safety oversight personnel and resources; establishing a data-driven, risk-based oversight system; and establishing robust safety performance criteria and enforceable safety standards. We made seven recommendations to strengthen FTA's ability to assume and relinquish direct safety oversight and to improve its rail transit safety oversight overall. Until FTA implements these recommendations, the Agency will continue to face challenges in meeting its safety oversight mission.

Implementing Effective Highway Bridge and Tunnel Safety Programs

According to the Federal Highway Administration (FHWA), nearly one-fourth of the Nation's more than 600,000 bridges are deficient.⁹ Yet, 5 years after the enactment of the Moving Ahead for Progress in the 21st Century Act (MAP-21), FHWA has not fully implemented key requirements to improve bridge safety or completed actions necessary to close several of our related recommendations. In 2009, we recommended that FHWA improve its bridge inspection and inventory standards—actions later mandated in MAP-21—but the Agency's rulemaking process to make these improvements is more than 2 years behind schedule. Additionally, while FHWA has taken steps we recommended to use a data-driven, risk-based approach to oversee State bridge inspection programs, our 2015 work

⁷ Section 3029 of the Intermodal Surface Transportation Efficiency Act of 1991, Pub. L. No. 102-240.

⁸ The Moving Ahead for Progress in the 21st Century Act (MAP-21), Pub. L. No. 112-141, § 20021 (2012), and the Fixing America's Surface Transportation Act (FAST Act), Pub. L. No. 114-94, § 3013 (2015), enhanced FTA's safety authority.

⁹ Deficient bridges include those that have experienced significant deterioration or have substandard geometric characteristics, such as narrow lane widths or low clearances for the traffic on or under the bridge.

identified more opportunities to improve the Agency's oversight, which FHWA has committed to address but not yet fully completed. These include addressing gaps in program guidance and fully implementing a comprehensive national bridge safety risk-management process.

Tunnel safety also presents a challenge for FHWA. To its credit, the Agency has made progress toward MAP-21 requirements to establish a national tunnel inspection program. For example, in 2015, FHWA issued the National Tunnel Inspection Standards. This is its first regulation on tunnel inspection standards with qualifications, certification procedures, and formal training for tunnel inspectors as well as periodic State inspections and reports. Since then, FHWA has established its initial national tunnel inventory and a training and certification program for Federal and State tunnel safety inspectors nationwide. Similar to FHWA's oversight approach for bridges, the Agency plans to initiate a data-driven, risk-based approach to oversee States' tunnel inspection programs in 2018. Going forward, it will be critical for FHWA to pursue a rigorous and timely oversight process to best ensure the safety of the Nation's almost 500 highway tunnels nationwide.

Meeting Regulatory Requirements for Pipelines and Hazardous Materials

The Pipeline and Hazardous Materials Safety Administration (PHMSA) is responsible for the safety of the Nation's nearly 2.75 million-mile pipeline transportation system. From 2012 to 2016, there were 144 serious pipeline incidents resulting in 63 fatalities, demonstrating the need for stronger safety oversight. Between 2005 and 2015, PHMSA received 263 mandates and recommendations from Congress, our office, the National Transportation Safety Board (NTSB), and others aimed at improving its ability to prevent or mitigate pipeline and hazardous materials incidents. However, PHMSA lacks sufficient processes, oversight, and project management skills to address its mandates and internal deadlines in a timely manner. PHMSA completed 173—or nearly two-thirds—of these mandates and recommendations by 2016, but the Agency missed about 75 percent of its mandated deadlines and 85 percent of its internal deadlines.

PHMSA has faced particular challenges with carrying out efforts requiring rulemakings and non-rulemaking activities, such as advisory bulletins and studies. For example, in 2011, PHMSA received an NTSB recommendation to eliminate from a regulation a "grandfather" clause that exempts operators from testing gas transmission pipelines installed before 1970. In response, PHMSA developed a rulemaking, but did so more than 2 years after its internal deadline. As we reported last year, PHMSA's delays with rulemakings stem in part from ineffective coordination with the three other Operating Administrations involved with the transportation of hazardous materials—FAA, the Federal Motor Carrier Safety

Administration, and the Federal Railroad Administration. PHMSA did not adequately coordinate with these agencies on rulemaking and international standards development, limiting its ability to resolve disputes in a timely manner.

PHMSA has begun improving how it handles rulemakings by developing, for example, a rulemaking prioritization process. However, it is too soon to determine whether these efforts will adequately address the Agency's ability to effectively meet mandates and recommendations.

Related Documents

The following related documents can be found on the OIG website at <http://www.oig.dot.gov>.

- *Improvements in FTA's Safety Oversight Policies and Procedures Could Strengthen Program Implementation and Address Persistent Challenges*, November 2, 2016
- *Insufficient Guidance, Oversight, and Coordination Hinder PHMSA's Full Implementation of Mandates and Recommendations*, October 14, 2016
- *FHWA Effectively Oversees Bridge Safety, but Opportunities Exist To Enhance Guidance and Address National Risks*, February 18, 2015
- *FHWA Has Not Fully Implemented All MAP-21 Bridge Provisions and Prior OIG Recommendations*, August 21, 2014

For more information on the issues identified in this chapter, please contact Barry DeWeese, Assistant Inspector General for Surface Transportation Audits, at (202) 366-5630.

Chapter 3

Using Data-Driven Approaches and Technologies To Reduce Highway and Rail Safety Risks



Transportation along the Nation's roads, highways, and rail lines presents some of the most significant safety challenges for the Department. In 2015, the National Highway Traffic Safety Administration (NHTSA), Federal Motor Carrier Safety Administration (FMCSA), and Federal Railroad Administration (FRA) reported 35,843 fatalities combined. While maintaining the integrity of its safety programs remains the Department's top priority, our work continues to highlight improvements the Department can make to remove high-risk vehicles and drivers from roads and enhance overall safety. This includes harnessing technologies that promote safety and improving its collection and analysis of critical safety data.

Key Challenges

- Improving data use to meet safety goals
- Removing high-risk motor carriers from the Nation's roads
- Harnessing technology to promote safety

Improving Data Use To Meet Safety Goals

DOT has opportunities in a number of areas to improve how it targets oversight to significant safety risks. For example, since 2014, our work has recommended that NHTSA's Office of Defects Investigations (ODI) improve how it collects and analyzes safety data to remove unsafe vehicles from roads. Since October 2008, NHTSA has overseen recalls due to a safety defect in Takata airbags installed in tens of millions of U.S. vehicles, highlighting the importance of continued diligence in this area. NHTSA has taken action in response to recommendations we made in 2015 and 2016, which included improvements to ODI's processes for determining which potential safety issues warrant investigation, enhancing ODI's quality control mechanisms for complying with its policies, and overseeing recalls. NHTSA's challenge going forward will be implementation and followthrough. In particular, NHTSA needs to continue to assess and improve its internal controls for identifying and addressing vehicle safety defects. NHTSA will also need to continue working with stakeholders to enhance the collection and analysis of early warning and vehicle defect data.

Similarly, enhanced data collection and analysis can greatly improve safety for more than 3.5 million U.S. commercial motor vehicle drivers. To reduce driver fatigue and fatigue-related crashes, FMCSA's hours-of-service regulations limit the number of hours a driver can work per day to 14 hours. However, drivers who experience excessive delays at shipping and receiving facilities—known as driver detention—may also drive unsafely due to fatigue or the desire to recover lost income, increasing the risk of crashes that result in fatalities, injuries, and financial costs. The Fixing America's Surface Transportation Act of 2015 (FAST Act) directed the Secretary to issue regulations on collecting data on loading and unloading delays, and directed us to report on the impact of loading and unloading delays in areas such as the economy and efficiency of the transportation system. Preliminary results from our ongoing work show that FMCSA's current data on these delays have limited usefulness for assessing the impacts of detention.

Removing High-Risk Motor Carriers From the Nation's Roads

Fatalities involving large trucks and buses have increased in recent years, based on FMCSA data—from 4,043 in 2011 to 4,726 in 2015, with FMCSA's preliminary quarterly reported figures for 2016 at 4,702. FMCSA's Compliance, Safety, Accountability program seeks to identify and remove high-risk motor carriers from roads through steps such as targeted roadside inspections of trucks and onsite compliance reviews of carriers. Compliance reviews are an important tool for identifying carrier safety performance and compliance issues and ultimately correcting carrier behavior through timely enforcement of safety regulations. In July 2017, we reported that FMCSA made several policy and program changes, in response to recommendations by NTSB and the Department's Independent

Review Team, to improve the effectiveness of these reviews. For example, the Agency established a new prioritization policy that narrows its focus to those high-risk carriers requiring immediate intervention and implemented new tools to check the quality of its compliance reviews. However, because FMCSA has not yet assessed the effectiveness of its new tools and processes, the Agency may continue to face challenges balancing the quality and quantity of its compliance reviews and adapting distribution of oversight resources to changing conditions, such as budget constraints and industry growth. A related and more complex challenge will be to improve FMCSA's information systems and associated data to ensure that its safety investigators are conducting effective compliance reviews.

Harnessing Technology To Promote Safety

While the rapid development of and demand for emerging vehicle automation technologies holds promising long-term safety benefits, it also poses oversight and regulatory challenges.¹⁰ In September 2016, the Department and NHTSA issued the Federal Automated Vehicle Policy, which provided an initial framework, guidance, and best practices to help manufacturers and other entities in the safe design, development, testing, and deployment of highly automated vehicles. In September 2017, the Department issued revised guidance that builds on the previous policy and incorporates feedback received through public comments and congressional hearings. Moving forward, the Department and NHTSA will have to identify ways to quickly adapt oversight efforts to recognize and address the challenges that these new automation technologies pose and ensure that these vehicles are as safe as standard motor vehicles. While still in its early stages, this is an important opportunity to adapt to a changing technological landscape while meeting DOT's primary safety mission.

Technology can also play a key role in improving rail and transit safety, particularly through the use of Positive Train Control (PTC). PTC is an advanced system designed to automatically stop a train before collisions, derailments, and other incidents occur. The Rail Safety Improvement Act of 2008¹¹ required PTC to be implemented across a significant portion of the Nation's rail system by December 31, 2015. Congress extended the deadline by 3 years to December 31, 2018, with the possibility of an additional 2-year extension for limited, justifiable circumstances. To date, FRA and the Federal Transit Administration (FTA) have provided more than \$915 million in grants to support railroads' mandated use of PTC systems, and we are currently reviewing FRA and FTA's oversight of these grants. According to the most recent update from FRA, only 27 percent of freight-rail route miles and 23 percent of passenger-rail route

¹⁰ Harnessing technology will also require the Department to keep pace with new and evolving risks associated with cybersecurity. For more details on the Department's cybersecurity challenges, see chapter 7.

¹¹ Pub. L. No. 110-432.

miles had fully operational PTC systems as of the first quarter of 2017. The Department will need to diligently monitor the railroads' deployment of PTC to ensure these critical safety actions are taken.

Related Documents

The following related documents can be found on the OIG website at <http://www.oig.dot.gov>.

- *FMCSA Strengthened Controls for Timely and Quality Reviews of High-Risk Carriers, but Data Challenges Remain To Assess Effectiveness*, July 25, 2017
- *Additional Efforts Are Needed To Enhance NHTSA's Full Implementation of OIG's 2011 Recommendations*, February 24, 2016
- *NHTSA's Efforts To Identify Safety-Related Vehicle Defects*, June 23, 2015
- *Inadequate Data and Analysis Undermine NHTSA's Efforts To Identify and Investigate Vehicle Safety Concerns*, June 18, 2015
- *Process Improvements Are Needed for Identifying and Addressing Vehicle Safety Defects*, October 6, 2011
- *Letter to Chairmen Rockefeller and Pryor Regarding Whether Former NHTSA Employees Exerted Undue Influence on Safety Defect Investigations*, April 4, 2011

For more information on the issues identified in this chapter, please contact Barry DeWeese, Assistant Inspector General for Surface Transportation Audits, at (202) 366-5630.

Chapter 4

Keeping Modernization on Track and Increasing User Benefits While Fostering Resiliency in the National Airspace System



Through its multibillion-dollar Next Generation Air Transportation System (NextGen) program, the Federal Aviation Administration (FAA) aims to modernize the Nation's air traffic control system and provide safer, more efficient air traffic management by 2025. FAA has made progress in working with industry to identify and implement high-priority capabilities that will deliver tangible benefits to users within the National Airspace System (NAS). However, FAA continues to face challenges with managing risks and deploying new and complex capabilities while also enhancing critical infrastructure and minimizing costly disruptions to the NAS.

Key Challenges

- Mitigating risks with high-priority NextGen investments and delivering benefits to airspace users
- Keeping key air traffic infrastructure projects on track
- Strengthening the resiliency of the NAS

Mitigating Risks With High-Priority NextGen Investments and Delivering Benefits to Airspace Users

FAA has successfully worked with industry to identify and launch key NextGen priorities. In 2013, FAA tasked the NextGen Advisory Committee (NAC) with reviewing FAA's NextGen plans and recommending priorities for investment. That same year,¹² the NAC identified four top priorities critical to delivering near-term benefits and advancing NextGen: (1) advancing Performance Based Navigation (PBN), (2) improving access to closely spaced parallel runways (known as Multiple Runway Operations or MRO), (3) enhancing airport surface operations, and (4) developing data communications (DataComm) for controllers and pilots.

FAA collaborated with industry representatives to develop an implementation plan for capabilities in the four original priority areas. FAA has since made important progress and reported that it completed about 93 percent of its milestones between October 1, 2014, and March 31, 2017. FAA's progress includes implementation of Wake Recategorization (RECAT), a capability that reduces separation between aircraft on arrivals and departures at 12 airports nationwide. Additionally, FAA deployed DataComm at a total of 55 airport towers about 2.5 years ahead of schedule.

However, many risks to completing all the priority capabilities remain. Moreover, as we recently reported, the Agency lacks a comprehensive process for working with industry to effectively identify and mitigate risks for these initiatives, which could hinder its ability to deliver benefits as planned. This is particularly the case for surface operations, as FAA and industry will face complex challenges, such as introducing new technologies, integrating systems, and obtaining benefits by 2020. To continue progress toward major program milestones, FAA will need to mitigate the following key risk areas that will materially affect the delivery, capabilities, and benefits of its NextGen priorities (see table).

¹² The NAC added the Data Communications program as its fourth priority in February 2014.

Table. Key Risks To Implementing NextGen Investment Priorities and Delivering Benefits

Priority	Key Risk Areas
MRO	<ul style="list-style-type: none"> • Timely completion of safety analysis • Aircraft fleet mix at specific airports
PBN	<ul style="list-style-type: none"> • Community outreach to reduce concerns about aircraft noise • Mixed equipage • Implementation of new automated controller tools to help controllers manage traffic in the vicinity of airports and limit the impacts of mixed equipage. • Effective controller training and use of time-based approaches at all facilities
Surface Operations	<ul style="list-style-type: none"> • Execution of the Terminal Flight Data Manager¹³ program for electronic flight strips¹⁴ and other surface management technologies • Complex systems integration issues • Data sharing among FAA and the airlines to improve surface traffic management
DataComm	<ul style="list-style-type: none"> • Industry cooperation with purchasing and installing new avionics • Resolving avionics issues with over 700 Boeing 757 and 767 aircraft • Displaying information on controller displays at facilities that manage high-altitude traffic by 2019
Cross-cutting/ All Priorities	<ul style="list-style-type: none"> • Training for controllers and flight crews • Measurement and realization of benefits • Interdependencies between capabilities

Source: OIG analysis

Keeping Key Air Traffic Infrastructure on Track

As FAA works to deliver NextGen capabilities, it also faces the challenge of maintaining and upgrading key air traffic control infrastructure. This includes the En Route Automation Modernization (ERAM) system, a \$2.7 billion system that air traffic controllers rely on to manage high-altitude traffic nationwide.

FAA completed ERAM deployment at the last of 20 sites in 2015 after a 4-year delay and cost increases of over \$500 million. FAA has now embarked on a series of overlapping technical refresh and enhancement programs that will impact all the system's hardware, including elements of the main operating system, and introduce new capabilities. Two of these efforts have a combined value in excess

¹³ Terminal Flight Data Manager is a new \$795 million surface management system designed to introduce electronic flight strips into FAA towers and integrate other surface surveillance technologies into one efficient system.

¹⁴ Electronic flight strips replace today's paper flight progress strips with modern, real-time data-sharing displays for tower controllers. With today's paper strips, tower controllers must physically hand off a flight progress strip from controller to controller, while an electronic version is distributed automatically, reducing controller workload and operational complexity.

of \$575 million and will span through 2023. FAA has other replacement efforts planned by 2025 but has not yet developed reliable cost estimates.

Completing these ERAM-related efforts presents risk and challenges to FAA given the critical role the automation system plays in supporting new PBN routes and Data Communications—both high-priority NextGen investments for FAA and industry. Unanticipated problems with ERAM efforts will have a direct impact on FAA’s ability to deliver NextGen benefits to airspace users between now and 2020. In addition, since 2014, ERAM has experienced a number of outages—two of which were significant and caused major traffic disruptions on the west and east coasts. Given these risks and challenges, FAA’s ERAM efforts will be an important watch item for the Department, FAA, Congress, and other stakeholders going forward.

Strengthening the Resiliency of the National Airspace System

Unexpected events and emergencies that disrupt air traffic control can have a long-lasting and devastating impact on the Nation’s economy, airlines, and passengers. For example, in 2014, an FAA contract employee deliberately started a fire that destroyed critical telecommunications equipment at FAA’s Chicago Air Route Traffic Control Center, delaying thousands of flights and reportedly costing aviation stakeholders over \$350 million. The incident demonstrated that FAA faces significant challenges in strengthening the redundancy and resiliency of the NAS.

While FAA has taken steps to improve the effectiveness of its operational contingency plans since the Chicago incident, significant work remains. As we reported in January 2017, FAA’s air traffic facilities are not fully prepared to respond effectively to major system disruptions, in part because the Agency lacks the necessary controller training and the required resiliency and flexibility for its key air traffic control infrastructure. For instance, many of the new technologies and capabilities that can improve the continuity of air traffic operations, such as the new NAS Voice System,¹⁵ will not be available for years. Although the Agency has established new requirements for transferring airspace and managing air traffic control responsibilities to other facilities in the event of an incident, these plans remain incomplete. As a result, it is unclear when the new contingency plans will be in place and whether they will strengthen the resiliency of the NAS.

¹⁵ NAS Voice System is expected to standardize the voice communication infrastructure among FAA air traffic facilities by replacing 11 aging analog voice communication systems with a single digital technology.

Related Documents

The following related documents can be found on the OIG website at <http://www.oig.dot.gov>.

- *FAA Has Made Progress Implementing NextGen Priorities, but Additional Actions Are Needed To Improve Risk Management*, October 18, 2017
- *Letter to Chairman Bill Shuster and Chairman Frank L. LoBiondo Regarding FAA's July 2016 NextGen Business Case*, August 15, 2017
- *Although FAA Has Taken Steps To Improve Its Operational Contingency Plans, Significant Work Remains To Mitigate the Effects of Major System Disruptions*, January 11, 2017
- *FAA's Contingency Plans and Security Protocols Were Insufficient at Chicago Air Traffic Control Facilities*, September 29, 2015

For more information on the issues identified in this chapter, please contact Matthew Hampton, Assistant Inspector General for Aviation Audits, at (202) 366-0500.

Integrating Unmanned Aircraft Systems and Other Airspace Users Into the National Airspace System



The proliferation of nontraditional aviators and rapidly advancing diverse technologies into the National Airspace System (NAS) brings both opportunities and challenges for the Federal Aviation Administration (FAA), the Department, and airspace users. The growing use of Unmanned Aircraft Systems (UAS)—for commercial purposes ranging from filmmaking and precision agriculture to package delivery—represents a substantial economic opportunity for the United States but also presents one of the most significant safety challenges FAA has faced in decades. Similarly, the demand for using private, commercial providers to transport satellites and other cargo into space has increased in recent years. Safe integration of these rapidly evolving technologies into the NAS will continue to present significant regulatory and oversight challenges for DOT.

Key Challenges

- Meeting the regulatory challenges of an evolving and diverse commercial UAS industry
- Developing strategies for overseeing operations and mitigating risks as UAS integration continues
- Managing commercial space launch activities as the industry grows and expands

Meeting the Regulatory Challenges of an Evolving and Diverse Commercial UAS Industry

FAA recently forecast that the number of UAS in the United States is likely to be about 4 million by 2021, increasing from 1.1 million in 2016. The growing demand for commercial UAS presents new regulatory challenges for FAA, which must develop rules to govern UAS use while maintaining safety. To advance the safe integration of UAS in domestic airspace, FAA published a new rule in June 2016¹⁶ for small UAS (i.e., systems weighing less than 55 pounds). However, the rule does not permit several potential uses for UAS that are highly valued by industry, such as operating beyond line of sight or at night. To accommodate these operations, the rule allows operators to apply for waivers from its provisions. As of September 2017, the Agency has received more than 10,800 waiver applications and reviewed nearly 5,900, issuing approvals for more than 1,200 of these for waivers. However, just over 5,000 applications are still pending, and the Agency's backlog continues to grow.

FAA plans to collect safety and risk-mitigation data derived from the waiver process to inform future UAS policy decisions and rulemakings.¹⁷ According to FAA data, the most requested waivers are for night flying, operations over people, and beyond visual line of sight operations. FAA continues to work on a number of rulemakings that cover some of these expanded operations, but it is unclear when many of these rulemakings will be issued for public comment. For example, the proposed rule for allowing operations over people was originally scheduled to be issued nearly a year ago. We are currently assessing FAA's UAS waiver approval and oversight processes and plan to report out next year.

¹⁶ 14 CFR Part 107 (June 2016).

¹⁷ As noted in the summary to FAA's June 2016 Part 107 rule (see previous citation).

Developing Strategies for Overseeing Operations and Mitigating Risks as UAS Integration Continues

The growing number of UAS operators also presents significant oversight and risk mitigation challenges for FAA. The Agency is in the early stages of developing a risk-based oversight process for commercial UAS operators. For example, FAA recently published national program guidelines that instruct Flight Standards field offices to plan at least one operator inspection per year. However, this guidance does not include risk or operational factors to consider when selecting which UAS operators to visit, and it did not take effect until the beginning of fiscal year 2018.

Developing an effective oversight strategy is particularly important given the safety issues that arise as UAS increasingly operate in the same airspace as manned aircraft. UAS sightings by pilots and other sources have increased dramatically, with over 1,290 events reported in the first 7 months of 2017 and more than 1,800 reported in 2016, as compared to about 1,100 in 2015 and just 238 in 2014, according to FAA's UAS event data. However, FAA still lacks a cohesive system for tracking and analyzing UAS sightings and incidents, which is an essential element of a risk-based oversight system. This limits the Agency's ability to identify, analyze, and mitigate safety risks.

Another UAS oversight challenge for FAA is the limited pool of data available to inspectors should they need to contact a UAS operator or take enforcement action in the event of an incident or violation. A U.S. Court of Appeals decision in May 2017¹⁸ ruled that FAA's 2015 regulation requiring owners of model aircraft to register with FAA exceeded the Agency's statutory authority. FAA is finalizing a rule to account for this court decision. In addition, FAA recently established an aviation rulemaking committee to develop standards and provide recommendations to the Agency for remotely identifying and tracking UAS owners and operators, as directed by Congress in the FAA Extension, Safety, and Security Act of 2016.¹⁹ This act also calls on FAA to develop a system that manages UAS in low-altitude airspace at or below 400 feet. These efforts in response to the act could help FAA with the challenge of identifying and managing small UAS operations in the NAS.

Furthermore, prosecuting UAS owners who violate FAA regulations or engage in illegal flight activities has been challenging. Since 2016, our Office of Investigations has opened 20 cases involving illegal operation of UAS. However, 13 of these cases were closed with no prosecutorial action for reasons such as inability to prove criminal intent and a lack of prior prosecutions.

¹⁸ *Taylor v. Huerta*, 856 F.3d 1089 (D.C. Cir. 2017).

¹⁹ Pub. L. No. 114-190 (2016).

Managing Commercial Space Launch Activities as the Industry Grows and Expands

The growing demand for commercial space launches presents a significant new oversight challenge for FAA. Since the retirement of the space shuttle fleet in 2011, the United States has relied on private, commercial providers to transport satellites and other cargo into space. For example, the National Aeronautics and Space Administration (NASA) has been using commercial providers such as SpaceX and Orbital ATK to carry cargo to the International Space Station. This industry has grown over the last decade. According to FAA, the U.S. commercial space launch industry had estimated revenues of \$1.2 billion in 2016—compared with \$617 million in 2015—and FAA has licensed 37 commercial space launches from October 2014 through August 2017. Additionally, as noted by the Government Accountability Office last year, private companies and States, such as California, have been developing spaceports to support the expected growth of the commercial launch industry, and several U.S. companies are developing launch vehicles that will carry revenue passengers into space.²⁰

FAA's oversight of the industry currently includes supervising and coordinating commercial launch and reentry operations; issuing licenses and permits; regulating civil aircraft that may be used for space support activities; and certifying the aircraft, pilots, mechanics, and equipment associated with commercial space activities. Regardless of the pace of industry growth, FAA and the Department will face several safety and policy challenges that will need to be addressed. These include integrating commercial space launches with other aircraft operating in the NAS, aligning new procedures and technologies with its NextGen modernization plans, and coordinating oversight and regulatory issues as well as defining roles and responsibilities with other Federal agencies, including NASA, the Department of Commerce, and the Department of Defense.

²⁰ GAO, *Commercial Space Industry Developments and FAA Challenges*, Testimony Before the Subcommittee on Aviation, Committee on Transportation and Infrastructure, U. S. House of Representatives, June 22, 2016 (GAO-16-765T).

Related Documents

The following related documents can be found on the OIG website at <http://www.oig.dot.gov>.

- *FAA Lacks a Risk-Based Oversight Process for Civil Unmanned Aircraft Systems*, December 1, 2016
- *FAA's Progress and Challenges in Integrating Unmanned Aircraft Systems Into the National Airspace System*, December 10, 2014
- *FAA Faces Significant Barriers To Safely Integrate Unmanned Aircraft Systems Into the National Airspace System*, June 26, 2014

For more information on the issues identified in this chapter, please contact Matthew E. Hampton, Assistant Inspector General for Aviation Audits, at (202) 366-0500.

Chapter 6

Maximizing Surface Infrastructure Investments Through Innovative Financing, Improved Project Delivery, and Effective Oversight



The Department receives over \$50 billion in Federal dollars annually to fund projects to build, repair, and maintain the Nation's surface transportation system. However, the Nation's infrastructure needs continue to outpace financial resources. To maximize taxpayer investments while making vital infrastructure improvements, DOT will be challenged to balance innovative financing arrangements with effective oversight, improve its processes for delivering major projects, and enhance stewardship of billions of dollars in annual highway, rail, and transit grants.

Key Challenges

- Overseeing infrastructure investments using alternative funding
- Accelerating project delivery
- Enhancing stewardship of Federal transportation funds

Overseeing Alternative Funding for Infrastructure Investments

Rising demands on the transportation system and constraints on public resources have prompted the Department toward new and innovative funding sources for key infrastructure projects. In particular, the Department has sought greater private sector involvement in the provision of highway and transit infrastructure through public-private partnerships (P3). P3s allow a private partner to participate in some combination of the design, construction, financing, operations, and maintenance of a project, including the collection of toll revenues with a public sponsor. Most public sponsors of P3 projects are State departments of transportation.

The use of P3s marks a shift from traditional ways of procuring and financing highway projects solely with Government funding. However, P3s must conform to the same Federal requirements as other Federal-aid projects, presenting significant oversight challenges for the Department. The Federal Highway Administration (FHWA) oversees Federal-aid highway, bridge, and tunnel projects where P3s are being considered or used, and FHWA and its State counterparts are responsible for ensuring that P3 projects demonstrate compliance with Federal requirements. If a P3 private partner does not perform as intended, it may increase the risk of additional public sponsor involvement and can impede the mobility of the traveling public. As the Department pursues more of these and other alternate financing arrangements, stewardship will be key to ensure private partners conform to Federal requirements and meet their project delivery goals.

Accelerating Project Delivery

DOT has taken steps in recent years to improve its timelines for completing key infrastructure projects in response to congressional mandates. In particular, the Moving Ahead for Progress in the 21st Century Act of 2012 (MAP-21) Subtitle C²¹ and the Fixing America's Surface Transportation Act of 2015 (FAST Act)²² mandated that DOT implement initiatives to accelerate delivery of projects funded by FHWA, the Federal Transit Administration (FTA), and the Federal Railroad Administration (FRA). For example, the FAST Act codified FHWA's Every Day Counts (EDC) initiative, which the Agency began in 2009, to accelerate project delivery, enhance road and bridge safety and durability, reduce traffic congestion, and improve environmental sustainability.²³ The FAST Act also included changes to Federal law intended to streamline the environmental review

²¹ Pub. L. No. 112–141, § 20021 (2012), Subtitle C.

²² Pub. L. No. 114–94, § 3013 (2015).

²³ As part of the EDC, every 2 years, FHWA is expected to work with State departments of transportation, local governments, tribes, private industry, and other stakeholders to identify and select new sets of innovative technologies and practices that warrant widespread deployment.

process, such as expedited environmental reviews for reconstruction in the aftermath of emergencies.

Over the past 4 years, the Department has implemented nearly three-quarters of these MAP-21 Subtitle C initiatives, including integrating planning and environmental reviews and developing a process to exclude projects of limited Federal assistance. However, DOT has experienced delays in completing the remaining MAP-21 initiatives because it had to revise a large number of those actions to comply with the more recent FAST Act. We recently made multiple recommendations to improve DOT's ability to achieve the full range of Subtitle C's intended benefits—such as accelerating project delivery and reducing the costs of transportation projects. These include developing and implementing an oversight mechanism to periodically evaluate the performance of States that assume DOT's environmental review responsibilities and establishing target completion dates for the remaining planned actions for MAP-21 Subtitle C provisions already in progress. In June 2017, DOT reached out to the public through the Federal Register to identify and reduce rules that slow down the completion of projects across the Nation.

Enhancing Stewardship of Federal Surface Transportation Funds

DOT also faces challenges in implementing effective internal controls to safeguard billions of dollars in infrastructure grants. For example, FTA provided over \$11.7 billion in grant funds in fiscal year 2016 to grantees across its 10 regions. Our recent work has shown that challenges persist in areas we have highlighted for years in FTA's oversight and management of its grantees, particularly for high-dollar New Starts projects.²⁴ These challenges include effectively using its oversight contractors to proactively assess the cost, schedule, and financial risks of major projects and directing its resources at monitoring grantees to ensure they take timely and effective actions to address identified risks.

In particular, our review of four major projects in FTA's three western regions found that FTA did not mitigate key financial risks. Specifically, it did not ensure that grantees completed all critical third-party agreements prior to FTA's funding approval. Third-party agreements establish terms and conditions for requirements such as utility relocation and public/private funding arrangements; without them, projects can experience higher costs and schedule delays. We also found that insufficient FTA reviews of financial reports allowed one grantee's use of incorrect indirect rates to go undetected for several years, and we determined

²⁴ Each New Starts project totals at least \$300 million for new construction or seeks \$100 million or more in funding for improvements to existing transit programs.

that FTA put at least \$37 million in Federal funds at risk of overpayment if it reimbursed the grantee for ineligible or unsupported expenditures. We made five recommendations to FTA to strengthen its New Starts project oversight and processes. FTA has completed actions to close one of these recommendations.

Similarly, our recent audit work has highlighted the need for FHWA to improve oversight of roughly \$40 billion in Federal funding annually to States to construct and improve U.S. highways and bridges. This includes funds spent on preliminary engineering (PE) when FHWA authorizes States to spend Federal funds on the design and related ground work needed before a highway or bridge project advances to construction or acquires right-of-way.²⁵ For example, we reported last year that FHWA is not consistently enforcing a law²⁶ requiring States to repay Federal expenditures for PE if the project in question does not acquire right-of-way or begin construction in the 10 years following the obligation of Federal funds. In addition, our review found that FHWA did not have effective processes to track Federal funds spent on PE or ensure that States repay PE funds when warranted. As a result, we projected that \$3.3 billion of Federal funds authorized during fiscal years 2000 through 2004 were at risk of not being repaid to the Highway Trust Fund or were used ineffectively due to FHWA's inaction. All seven recommendations we made to FHWA to improve its oversight of PE funds remain open. Strengthening its controls on PE will remain critical if FHWA is to ensure that States use these funds efficiently.

The Department also plays an important role in the oversight of the Transportation Investment Generating Economic Recovery (TIGER) discretionary grant program. Since 2009, Congress has appropriated \$5.6 billion for TIGER grants to fund infrastructure improvement projects that enhance public safety and connectivity and the efficient movement of passengers and goods. Projects funded under the TIGER program have included roadway improvements, freight rail enhancements, and local transit projects, among others. The Office of the Under Secretary of Transportation for Policy leads the review of project applications—including evaluations of applicants' Benefit Cost Analyses (BCA)—for TIGER grant awards based on the program's national goals and each project's anticipated outcomes. BCAs are an important part of the project selection process as they inform decision makers on the economic merit of projects under consideration for TIGER funding. We are currently assessing OST's policies and procedures for evaluating BCA in determining which TIGER grant applications are forwarded for further review. Ultimately, while the TIGER grant program aims to provide significant economic opportunities to U.S. communities and promote

²⁵ Right-of-way is new real property that must be acquired in order to construct or complete a transportation project.

²⁶ According to 23 U.S. Code (U.S.C.) § 102(b).

transportation growth, DOT must continue to take steps to ensure that selected projects are best positioned to meet the program's intended mission.

Related Documents

The following related documents can be found on the OIG website at <http://www.oig.dot.gov>.

- *Review of Major Western Capital Projects Points to Overall Improvements Needed in FTA's Financial Guidance and Oversight*, May 9, 2017
- *Vulnerabilities Exist in Implementing Initiatives Under MAP-21 Subtitle C to Accelerate Project Delivery*, March 6, 2017
- *FHWA's Oversight Does Not Ensure Division Offices Fully Comply With Project Agreement and Modification Requirements*, February 7, 2017
- *FHWA Does Not Effectively Ensure States Account for Preliminary Engineering Costs and Reimburse Funds as Required*, August 25, 2016
- *Oversight of Major Transportation Projects: Opportunities To Apply Lessons Learned*, June 8, 2015
- *MWAA's Financial Management Controls Are Not Sufficient To Ensure Eligibility of Expenses on FTA's Dulles Rail Project Grant*, January 16, 2014
- *Improvements Needed in FTA's Grant Oversight Program*, August 2, 2012
- *Actions Needed To Improve FTA's Oversight of the Dulles Corridor Metrorail Project's Phase 1*, July 26, 2012
- *Financial Analysis of Transportation-Related Public Private Partnerships*, July 28, 2011

For more information on the issues identified in this chapter, please contact Barry DeWeese, Assistant Inspector General for Surface Transportation Audits, at (202) 366-5630.

Chapter 7

Recalibrating DOT's Cybersecurity Posture To Mitigate Evolving Cybersecurity Threats and Uncertainties



As cyberattacks on the Federal Government and security breaches become increasingly common, protecting the Department's more than 450 information technology (IT) systems presents a significant challenge. To prevent such attacks and minimize their impact, the Department must reshape its cybersecurity program to ensure its workforce and strategies can keep pace with rapidly evolving developments as well as resolve longstanding and emerging cybersecurity vulnerabilities, particularly within the Federal Aviation Administration (FAA).

Key Challenges

- Addressing competency gaps and shortages in the IT cybersecurity workforce
- Responding to security challenges posed by the use of cloud service providers
- Planning for threats targeting the Internet of Things (IoT) and intelligent transportation systems
- Increasing FAA's ability to withstand cyberattacks and enhancing DOT coordination with FAA

Addressing Competency Gaps and Shortages in the IT Cybersecurity Workforce

Skilled cybersecurity professionals are essential to deflect attacks and protect DOT from compromises. However, as noted by the Government Accountability Office (GAO) in a 2016 report,²⁷ DOT lacks an effective process for planning its IT workforce. For example, DOT has not fully identified or developed staffing requirements for its mission-critical IT positions, competency needs, or strategies to fill specific IT competency gaps. As a result, it will be difficult for the Department to ensure its cybersecurity staff has the necessary expertise to implement critical cybersecurity enhancements. This issue is exacerbated by the Federal and private sectors' growing demand for cybersecurity professionals, which is outpacing supply by approximately 40,000 jobs in the United States alone, according to industry reports. Globally, there will be a shortage of 2 million cybersecurity professionals by 2019. To remain competitive with the many Federal and private employers seeking to hire and retain these professionals, DOT must understand its workforce needs and competencies and leverage this knowledge to develop strong recruitment and retention strategies.

Responding to Security Challenges Posed by the Use of Cloud Service Providers

Use of cloud computing has grown in popularity in both the public and private sectors, due to its potential operational efficiencies and cost savings. As DOT moves toward cloud computing for transportation management services, securing its information from cyberattacks will pose significant challenges. For example, the Department must ensure it maintains accountability for data stored on third-party servers. Last year, we reported that the Federal Transit

²⁷ GAO, *Key Practices Help Ensure Strong Integrated Program Teams; Selected Departments Need to Assess Skill Gaps* (Report No. GAO-17-8), November 2016.

Administration (FTA) replaced its legacy financial system with a new grant management system using a cloud provider but did not execute a Service Level Agreement defining security requirements (including roles and responsibilities), as required by DOT policy. In addition, FTA did not effectively assess and monitor the service provider's security controls or address potential risks the provider identified. FTA has addressed these matters. As DOT pursues additional cloud solutions, it will be critical to clearly define all security requirements with providers and monitor their performance.

Planning for Threats Targeting IoT and Intelligent Transportation Systems

DOT must also address transportation risks associated with another rapidly evolving cybersecurity area, the Internet of Things, or IoT. IoT refers to technologies and devices that sense information and communicate it to the internet or other networks and, in some cases, act on that information.²⁸ Examples include digital thermostats, smart watches, and cameras that are capable of accessing the internet. While convenient, IoT devices also present increased cybersecurity and privacy risks.²⁹ For example, some IoT devices that rely on voice activation must listen to users at all times to function properly, enabling the device to transmit obtained private information. In addition, video-enabled IoT devices can be used to capture private or business information of unsuspecting personnel.

DOT also faces cybersecurity challenges related to the use of intelligent transportation systems, such as traffic-light synchronization and navigation and mapping technologies, which apply information and communications technology to surface transportation to increase safety and mobility.³⁰ DOT's main focus in this area is on connected vehicles (i.e., vehicles connected to internet networks), which benefit from IoT technologies and are subject to the same cybersecurity weaknesses. For example, as noted by GAO in a 2017 vehicle cybersecurity report,³¹ hackers remotely accessed a vehicle through the entertainment system to control the brakes, endangering the driver. Because of the potential for loss of life and other severe consequences, it is critical that cybersecurity be embedded into the process as DOT works to develop appropriate guidance and standards in this area.

²⁸ GAO, *Internet of Things: Communities Deploy Projects by Combining Federal Support With Other Funds and Expertise* (Report No. GAO-17-570), July 2017.

²⁹ GAO, *Technology Assessment: Internet of Things: Status and implications of an increasingly connected world* (Report No. GAO-17-75), May 2017.

³⁰ Federal Highway Administration, *History of Intelligent Transportation Systems* (Report No. FHWA-JPO-16-329), May 2016.

³¹ GAO, *Vehicle Cybersecurity: DOT and Industry Have Efforts Under Way, but DOT Needs to Define Its Role in Responding to a Real-world Attack* (Report No. GAO-16-350), March 2016.

Increasing FAA's Ability To Withstand Cyberattacks and Enhancing DOT Coordination With FAA

Our annual Federal and Information Security Management Act (FISMA) reports continue to find that DOT faces some of its most significant cybersecurity challenges at FAA, which owns over 300—or about 70 percent—of DOT's major information systems. In particular, as FAA has expanded its use of technology, its vulnerability to cyberattacks has expanded. For example, FAA's cyberattack surface—the set of ways in which an adversary can enter a system and cause damage—now includes:

- **Global Positioning System (GPS) technology**—FAA is transitioning from radar to GPS technology to monitor and control aircraft. However, GPS can be jammed or “spoofed” to send incorrect information.
- **Connections between air traffic control information systems and networks**—Some air traffic control systems are legacy systems that lack required security controls, and they may be particularly vulnerable to cyberattacks when connected to new networks.
- **Wireless technologies on aircraft**—Passengers increasingly have access to wireless networks and the internet, increasing cyberattack risks.
- **Airlines' use of IoT**—Airlines are using IoT to perform functions such as increasing fuel efficiency and automating repairs, opening up potential vulnerabilities to hackers.

Despite the increase in the cyberattack surface in its systems and those of its users, FAA has not resolved longstanding cybersecurity issues. For example, our FISMA report last year noted that FAA's unresolved security weaknesses increased from 1,780 to 2,733 between fiscal years 2015 to 2016, in addition to untracked weaknesses.

One reason that DOT faces challenges promoting cybersecurity at FAA is that, historically, FAA has conducted its security-related efforts separately from the Department. For example, in our 2016 report on cybersecurity incident handling, we identified a number of cybersecurity efforts that FAA performs at least partially independently of the Department. These include operating the National Airspace Systems Cyber Operations—which monitors the cybersecurity of the National Airspace System—tracking security weaknesses outside the Department's central system, deploying information security continuous monitoring products, and developing common control procedures. In addition, DOT's recent enterprise-wide network assessment did not include FAA networks.

Related Documents

The following related documents can be found on the OIG website at <http://www.oig.dot.gov>.

- *Quality Control Review of Audited Consolidated Financial Statements for Fiscal Years 2016 and 2015*, November 15, 2016
- *FISMA 2016: DOT Continues To Make Progress, but the Department's Information Security Posture Is Still Not Effective*, November 9, 2016
- *DOT Cybersecurity Incident Handling and Reporting Is Ineffective and Incomplete*, October 13, 2016
- *FISMA 2015: DOT Has Major Success in PIV Implementation, but Problems Persist in Other Cybersecurity Areas*, November 5, 2015
- *FISMA 2014: DOT Has Made Progress but Significant Weaknesses in Its Information Security Remain*, November 14, 2014

For more information on the issues identified in this chapter, please contact Louis King, Assistant Inspector General for Financial and Information Technology Audits, at (202) 366-1407.

Chapter 8

Enhancing the Department's Management and Oversight of Acquisitions To Achieve Results and Save Taxpayer Dollars



A continuing challenge for the Government and DOT is spending taxpayer dollars wisely and protecting them from waste and abuse. With more than half of DOT's nearly \$79 billion annual budget disseminated through contracts and grants, it is imperative that these funds result in the best value for the taxpayer. Our work has identified a number of areas where DOT can better manage and oversee contracts and grants to improve program performance, achieve cost savings, and help prevent fraud, waste, and abuse.

Key Challenges

- Increasing management attention to Federal Aviation Administration (FAA) acquisitions—the Department's largest buyer
- Enhancing oversight of multiple-award contracts and other types of agreements to successfully manage risk
- Ensuring financial integrity within the Department's small business programs

Increasing Management Attention on FAA Acquisitions— The Department's Largest Buyer

FAA is by far the largest procurer within the Department, obligating over \$5.5 billion annually for goods and services. Most of these funds go to large and complex contracting efforts aimed at improving FAA's management of the National Airspace System (NAS). While FAA is reporting some success in meeting this challenge based on improved delivery of NAS technologies and capabilities through its acquisitions, we have identified contract management weaknesses that have increased costs and delays in implementing FAA technology deliverables integral to Next Generation Air Transportation System (NextGen) programs. Such weaknesses include inadequately defined requirements, insufficient efforts to assess and address acquisition-specific risks, overreliance on a "grand design" versus an incremental modular contracting approach, inadequately managed incentive awards, and unwillingness to enforce key contract terms and conditions. For example, FAA's acquisition planning for Automatic Dependent Surveillance-Broadcast (ADS-B), a major NextGen initiative intended to replace antiquated radar, exhibited weaknesses associated with acquisition approach, source-selection practices, and price analysis, which could have contributed to FAA paying millions more than necessary for delivered services. Additionally, FAA allowed the ADS-B contractor to deliver partially completed installations, despite contract provisions calling for complete installation, and awarded incentives even though the system was experiencing service outages.

To more effectively focus management attention on FAA's acquisition and other agreement costs, the Agency must be more transparent in how it reports its spending on contracts and other instruments. For example, our recent review of DOT's use and management of other transaction agreements (OTA) found that FAA does not report hundreds of millions of dollars in OTA awards to USAspending.gov, limiting public visibility of FAA's expenditures.³² Moreover, we found FAA had five times more OTAs than it initially identified. Similarly, in 2016, we found that, due to data transfer errors, FAA did not report to the Department (and ultimately Congress) 81 high-risk, sole-source contracts valued at \$166 million during fiscal years 2012 through 2014. Our prior work has also found that FAA did not report cost overruns associated with early segments of acquisitions, thereby masking the true costs and progress of its major acquisitions.

³² The Federal Funding Accountability and Transparency Act, Pub. L. 109-282, as amended, currently requires agencies to report all Federal awards of \$25,000 or more to a publicly available website.

Enhancing Oversight of Multiple-Award Contracts and Other Types of Agreements To Successfully Manage Risk

Multiple-award contracts are used by agencies to help accelerate acquisition timeframes, reduce acquisition costs, and quickly meet mission requirements; however, they are not without risks. Our reviews of several of DOT's large-dollar, multiple-award service contracts and procurement vehicles found that DOT's usage does not always comply with Federal, DOT, or FAA requirements. For example, our recent review of the Electronic FAA Accelerated and Simplified Tasks (eFAST) vehicle (valued at \$7.4 billion) shows that FAA does not always verify contractor eligibility; it awarded \$67 million in 8(a) awards³³ to firms that were no longer eligible. In addition, on the Volpe Transportation Information Project Support (V-TRIPS) contract (valued at \$234 million), we identified nearly \$8.7 million in improperly recorded transactions. Such shortfalls create greater risk that DOT will not meet its needs in the most economical and efficient manner or that appropriated funds may be used for unintended purposes.

Similarly, other types of agreements—such as OTAs and cooperative agreements—also create opportunities and risks. For example, OTAs can provide important flexibilities for agencies when the requirements of a particular project cannot be easily met through traditional procurement instruments. However, OTAs also pose performance and financial risks because they are not subject to the same controls as contracts or grants. Therefore, use of OTAs requires clear, comprehensive guidance to address proper usage and related pitfalls—an area in which DOT is lacking, particularly at FAA—its primary user of OTAs. For example, FAA advance payments to some OTA recipients exceeded their immediate financial need and did not match recipients' near-term costs as required under Federal grant rules. As a result, recipients earned more than \$372,000 in interest on Federal funds that could have been put to better use.

Ensuring Financial Integrity Within the Department's Small Business Programs

Nearly 29 million small businesses account for 99.7 percent of all businesses and are responsible for employing approximately 56 million people (nearly half of the private workforce) in the United States. DOT recognizes the economic importance of these businesses' contributions and offers several programs to promote small business opportunities. Our work continues to identify several areas where DOT can strengthen its management of these efforts. For example, we found that DOT's Office of Small and Disadvantaged Business Utilization (OSDBU) lacked

³³ The 8(a) status is part of a business development program administered by the Small Business Administration and makes the firm eligible for a broad range of assistance—such as financial and procurement assistance, mentoring, and training—to help it compete in the general marketplace. An 8(a) firm must be owned and controlled at least 51 percent by socially and economically disadvantaged individuals.

effective internal control practices, which led to noncompliance with Federal and Departmental procurement and financial management policies and increased the potential for appropriations law violations. Our reviews of DOT's Disadvantaged Businesses Enterprise Programs (DBE) also identified various issues with compliance or program effectiveness. For example, we found in our most recent airport DBE audit that DOT had not developed a "train-the-trainer" program to ensure that FAA, Federal Highway Administration (FHWA), and Federal Transit Administration (FTA) personnel provide consistent guidance and training to certification staff—a DOT Order requirement since 2014.³⁴ Lastly, small firms seeking to do business at large U.S. airports face various barriers, including infrequent turnover of existing DBE firms, high entry costs, and difficulty receiving timely payments. While DOT and airports are taking steps to address these obstacles, ensuring all DBEs have a fair opportunity to compete for contracts and concessions will continue to present a challenge for DOT, as the number of such firms doing business at the Nation's largest airports declined by 31 percent between 2012 and 2014.³⁵

Related Documents

The following related documents can be found on the OIG website at <http://www.oig.dot.gov>.

- *OSDBU Lacks Effective Processes for Establishing, Overseeing, and Managing Its Small Business Transportation Resource Centers*, September 26, 2017
- *DOT and FAA Lack Adequate Controls Over Their Use and Management of Other Transaction Agreements*, September 11, 2017
- *Greater Adherence To ADS-B Contract Terms May Generate Better Performance and Cost Savings for FAA*, September 5, 2017
- *Opportunities Exist for FAA To Strengthen Its Award and Oversight of eFAST Procurements*, May 8, 2017
- *New Disadvantaged Business Enterprise Participation Is Decreasing at the Nation's Largest Airports, and Certification Barriers Exist*, January 17, 2017

³⁴ DOT Order 4220.1, Disadvantage Business Enterprise Program Coordination and Oversight (February 2014), directs the Departmental Office of Civil Rights to oversee the development of a "train-the-trainer" program for Operating Administration staff so that they may deliver consistent training and guidance to their recipients on all aspects of the DBE program.

³⁵ Strengthening DBE oversight to counter fraud is another challenge for DOT, as discussed in chapter 9.

- *Weaknesses Identified in Volpe's Cost Accounting Practices for the V-TRIPS Contract*, May 9, 2016
- *FAA Lacks Adequate Controls To Accurately Track and Award Its Sole-Source Contracts*, May 9, 2016
- *FAA Reforms Have Not Achieved Expected Cost, Efficiency, and Modernization Outcomes*, January 15, 2016
- *New Disadvantaged Business Enterprise Firms Continue To Face Barriers To Obtaining Work at the Nation's Largest Airports*, November 3, 2015
- *New Disadvantaged Business Enterprise Firms Face Barriers To Obtaining Work at the Nation's Largest Airports*, June 12, 2014
- *Weaknesses in the Department's Disadvantaged Business Enterprise Program Limit Achievement of Its Objectives*, April 23, 2013

For more information on the issues identified in this chapter, please contact Mary Kay Langan-Feirson, Assistant Inspector General for Acquisition and Procurement Audits, at (202) 366-5225 and Charles A. Ward, Assistant Inspector General for Audit Operations and Special Reviews, at (202) 366-1249.

Chapter 9

Improving Mechanisms for Deterring Fraud, Waste, and Abuse



The Department of Transportation manages an annual budget of more than \$79 billion. Effective stewardship of these taxpayer dollars is a continual challenge and requires diligent attention to proactively identify and prevent instances of fraud, waste, and abuse. DOT has opportunities to better leverage its existing fraud detection and prevention resources, including increasing Office of Inspector General (OIG) referrals and strengthening oversight in high-risk fraud areas.

Key Challenges

- Developing a more effective process for referring potential criminal violations to OIG
- Preventing known bad actors from receiving Federal funds
- Strengthening Disadvantaged Business Enterprise (DBE) program oversight to prevent fraud

Developing a More Effective Process for Referring Potential Criminal Violations to OIG

The Department's mission to ensure a safe, efficient, and accessible transportation system requires proper stewardship of funds and effective enforcement of laws and regulations. OIG plays a crucial role in fulfilling this mission by detecting and preventing fraud, waste, abuse, and mismanagement. In order for our office to fulfill this role, Operating Administrations, in consultation with OIG, should determine whether circumstances indicate that a potential criminal violation warrants referral to OIG or to the Department of Justice.³⁶ While the Department and its Operating Administrations retain discretion to determine whether conduct rises to the level of a potential criminal violation,³⁷ our office is the only DOT organization with the authority to employ criminal investigators or to conduct criminal investigations.²⁸ When we receive potential criminal referrals, we evaluate the information to determine whether the alleged activity falls within our investigative jurisdiction; if so, we open investigations in situations where there may be a significant impact on the Department's mission. In fiscal year 2016, we received 82 notifications of potential criminal violations from DOT's Operating Administrations. These notifications resulted in the initiation of 60 criminal investigations. So far, these investigations have resulted in the filing of criminal charges in 15 separate cases. Six convictions have been obtained, and further investigation and judicial action are still pending in some cases.

However, Operating Administrations do not always notify our office of potential violations, even when circumstances may warrant it. For example, our 2016 audit of the Federal Railroad Administration's (FRA) oversight of transportation of hazardous materials by rail found that FRA did not refer any potential criminal violations in our sample to our office during the 5 years prior to the audit. In response to our recommendations, FRA revised its referral policy to allow its enforcement personnel to directly refer potential criminal matters to our office and has since made 10 referrals. We began another audit in April 2017 to assess whether the Department and other Operating Administrations have sufficient policies and procedures to promptly refer cases of potential criminal violations in appropriate circumstances. We are also expanding our risk-based data analytics work to assist the Department by predicting and targeting possible areas of fraud, waste, and abuse. Our new Data Analytics unit, established last year, will work directly with our ongoing audit and investigation teams to identify key data, such as outliers or patterns of abuse to increase the effectiveness of DOT's anti-fraud efforts. Effectively leveraging data and establishing sound referral policies will aid the Department's efforts to prosecute crimes, recover wasted funds, and prevent future offenses.

³⁶ See DOT Order 8000.8, sec. 6.a(1) – (8).

³⁷ See DOT Order 8000.8, sec. 7.

Preventing Known Bad Actors From Receiving Federal Funds

As a steward of billions in taxpayer dollars, DOT must adhere to Federal suspension and debarment (S&D) regulations to prevent federally funded contract or grant awards to irresponsible parties. The S&D program is intended to provide immediate protection to the Government and taxpayers from those who engage in dishonest or illegal conduct or are lacking in business integrity. S&D actions are among the Government's strongest tools to deter unethical and unlawful use of Federal funds because one Federal agency's S&D action applies Governmentwide.

However, the Department has previously faced challenges in complying with Federal S&D requirements and its own S&D program. For example, although the Department requires that decisions to suspend or disbar an organization be made within 45 days, our work in 2014 found that it took, on average, 205 days to take an S&D action. In addition, DOT did not have adequate controls in place to ensure it was entering accurate and timely data into the Governmentwide database of federally excluded parties. While DOT has taken steps to strengthen its S&D program in response to our recommendations, making timely S&D decisions and accurately reporting those decisions remain critical to reducing the risk of doing business with unethical and dishonest parties.

DOT can also do more to identify parties that may warrant S&D review or action. Currently, DOT initiates S&D actions based on referrals from our office, but does not do so in response to other potential sources of information, such as media reports or other agencies' reviews or audits.³⁸ By improving its S&D identification, reporting, and oversight procedures, DOT will be better positioned to protect the Government from doing business with bad actors and prevent the unethical and unlawful use of Federal funds.

Strengthening DBE Program Oversight To Prevent Fraud

A significant challenge for DOT is addressing Disadvantaged Business Enterprise (DBE) program fraud, which our audits and investigations have found to be one of the Department's highest-risk and most persistent fraud areas. DOT's DBE program was created to help level the playing field by increasing opportunities for socially and economically disadvantaged individuals who own and control small businesses participate in DOT contracting opportunities. Annually, DBEs receive \$4.7 billion of Federal funds from DOT federally assisted contracts under transportation projects, which are administered through State and local

³⁸ DOT Order 4200.5F, "Suspension and Debarment, and Ineligibility Procedures," states that Operating Administrations and Secretarial Offices "shall be proactive in responding to information and referrals regarding potential suspension and debarment 'actions'" from a variety of information sources.

transportation agencies and subject to DOT oversight. DBE fraud often involves prime contractors and non-DBE subcontractors who conspire with DBE firms to circumvent DBE participation criteria. DBE fraud currently represents 30.5 percent of our active grant and procurement fraud investigations, which focus on the most egregious violators. Over the past 5 years, our DBE fraud investigations have produced 44 indictments, 40 convictions, and over \$56 million in financial recoveries, and we continue to open new investigations.

Since 2013, our audits have identified weaknesses and recommended steps for strengthening DOT's oversight of DBE programs and protecting DBE funding from fraud. For example, we found that recipients of DOT's DBE funds did not always verify that firms applying for DBE certification met program eligibility requirements, especially those related to ownership and control. Strong oversight is needed to ensure that only certified DBEs are performing the work, rather than acting as "front companies" for ineligible firms. DOT is taking steps to address issues our reports have identified, including clarifying that the Secretary and Deputy Secretary have overall accountability and decision-making responsibility for the DBE program, as well as defining the management roles of the Office of the Secretary offices and Operating Administrations. However, strong and diligent oversight remains critical to remove bad actors who attempt to fraudulently claim funds through the DBE program.

Related Documents

The following related documents can be found on the OIG website at <http://www.oig.dot.gov>.

- *FRA's Oversight of Hazardous Materials Shipments Lacks Comprehensive Risk Evaluation and Focus on Deterrence*, February 24, 2016
- *DOT's Suspension and Debarment Program Continues To Have Insufficient Controls*, October 15, 2014
- *Management Advisory: Suspended or Debarred Firms Are Listed on State DBE Directories as Eligible for DBE Participation*, September 26, 2013
- *Weaknesses in the Department's Disadvantaged Business Enterprise Program Limit Achievement of Its Objectives*, April 23, 2013

For more information on the issues identified in this chapter, please contact Barry DeWeese, Assistant Inspector General for Surface Transportation Audits, at (202) 366-5630; Mary Kay Langan-Feirson, Assistant Inspector General for Acquisition and Procurement Audits, at (202) 366-5225; or Michelle McVicker, Principal Assistant Inspector General for Investigations, at (202) 366-1967.

Chapter 10

Managing Response, Recovery, and Rebuilding Efforts for National Disasters and Emergencies



Recent events such as Hurricanes Harvey, Irma, and Maria, which caused significant destruction in the United States and its territories this year, are reminders of the vulnerabilities our citizens and critical transportation infrastructure face during and after catastrophic events. Beyond the immediate risks posed to public safety, natural disasters and emergencies within the United States and globally have repercussions on the Nation's transportation systems, commerce, and overall economy. Other events such as bridge collapses, train derailments, and pipeline breaks further highlight the need to commit significant Federal resources to response and recovery efforts. The magnitude and duration of such efforts can extend for years, presenting significant leadership and oversight challenges for the Department as it works to support resiliency and protect federally funded assets and disaster relief projects.

Key Challenges

- Effectively responding to disasters and fostering a resilient transportation infrastructure
- Applying lessons from prior relief efforts to safeguard taxpayer funds

Effectively Responding to Disasters and Fostering a Resilient Transportation Infrastructure

DOT plays a significant Federal role in assisting States and localities when transportation infrastructure is damaged or destroyed by natural or manmade disasters. Past disaster relief efforts show that an effective response requires—before devastating events occur—a well-defined and coordinated approach to mobilize resources immediately. Under the National Response Framework,³⁹ DOT's emergency support responsibilities include emergency airspace management, transportation safety, restoration of transportation infrastructure, and damage and impact assessment. Additionally, DOT must be prepared to support Federal, State, tribal, and local agencies carry out their emergency response responsibilities. In the aftermath of Hurricane Katrina, for example, DOT successfully redeployed personnel to support the affected region since State and local agencies were overburdened. This included transporting people via air and bus to safe locations across the country and moving thousands of truckloads of goods, such as meals, water, ice, and generators.

After a disaster or emergency occurs, one of DOT's statutory roles is to provide and oversee relief funds. For example, since fiscal year 2012, Congress has appropriated about \$5.7 billion to the Federal Highway Administration's (FHWA) Emergency Relief Program (ERP) to repair or rebuild roads that sustained serious damage from catastrophic failures or natural disasters. Additionally, when rebuilding or replacing storm-damaged infrastructure, DOT has emphasized using this funding to make the transportation system more resilient⁴⁰—i.e., to better anticipate and prepare for, respond to, and recover rapidly from disruptions. Our work has identified areas where DOT can do more to ensure that State DOTs plan for resilience improvements and enhance its stewardship of ERP funds. For example, while FHWA's updated (in 2013) Emergency Relief Manual now focuses more on infrastructure resilience, it does not define "resilience improvement" or inform States how to incorporate resilience improvement and best practices into their ERP-funded projects.

The Federal Transit Administration (FTA) also published an emergency relief manual for States and transit agencies in 2015 to guide their recovery efforts and usage of FTA's ERP. Implementing this fairly recent guidance could be a challenge for FTA, if public transportation agencies affected by recent weather events—such as the Metropolitan Transit Authority of Harris County in Houston, TX, or the Puerto Rico Department of Transportation and Public Works—seek reimbursement of emergency-related expenses under the terms of FTA's ERP.

³⁹ The Department of Homeland Security National Response Framework guide details how Federal agencies respond to all types of National emergencies and disasters as part of the National Preparedness System.

⁴⁰ DOT Fiscal Years 2014 through 2018 Strategic Plan.

Applying Lessons From Prior Relief Efforts To Safeguard Taxpayer Funds

After a significant disaster, such as the recent Gulf Coast hurricanes, DOT must provide meaningful oversight of taxpayer dollars expended for recovery efforts—and then be prepared to sustain that oversight for years. This challenge can be complicated by the unique effects and transportation needs that follow each disaster or emergency. In addition, certain oversight and acquisition requirements for receiving Federal aid are often relaxed in these situations to facilitate timelier relief. Therefore, it is critical that DOT and its agencies have effective guidance, criteria, and procedures for expending funds from their emergency relief programs; visibility into how those taxpayer funds are used; and the ability to reapply requirements after the emergency period ends.

Our prior work has noted several areas where FTA can apply lessons learned as it plans future emergency relief and recovery efforts. For example, after the widespread damage caused by Hurricane Sandy in 2012, Congress enacted the Disaster Relief Appropriations Act (DRAA)⁴¹ in 2013, appropriating over \$10 billion for FTA's Public Transportation Emergency Relief Program.⁴² We found, however, that FTA's oversight practices did not fully ensure its grantees' proper use of DRAA funds. Specifically, we found (1) New York City Transit drew down \$17.7 million in DRAA funds for procurement actions that FTA determined were ineligible for inclusion in a grant; (2) FTA did not enforce its requirement that Port Authority Trans-Hudson Corporation have an approved project management plan in place before drawing down Federal funds for the project; and (3) FTA lacked effective processes for tracking grantee and project-specific issues, which risked delays and cost overruns in recovery and resiliency efforts. While the \$17.7 million has been recovered with interest, and FTA is working on the remaining issues, continued vigilance is needed as over \$2.9 billion in Hurricane Sandy funds are yet to be obligated—and some projects are not estimated for completion until 2025. The destruction caused by recent natural disasters underscores the need for sustained management attention on these issues to effectively implement response and recovery efforts, ensure the safety and sustainability of the Nation's transportation infrastructure, and efficiently and prudently deploy resources and Federal funds.

As the Department embarks on relief efforts in response to recent and future potential disasters, we will continue to review DOT's and FTA's implementation and oversight of emergency plans, including identifying further lessons learned that can benefit DOT's relief efforts.

⁴¹ Pub. L. No. 113–2, January 29, 2013.

⁴² FTA's ERP was authorized by Congress in 2012 under the Moving Ahead for Progress in the 21st Century Act (MAP-21), Pub. L. No. 112-141.

Related Documents

The following related documents can be found on the OIG website at <http://www.oig.dot.gov>.

- *FTA Can Improve Its Oversight of Hurricane Sandy Relief Funds*, July 21, 2016
- *FTA Did Not Adequately Verify PATH's Compliance With Federal Procurement Requirements for the Salt Mitigation of Tunnels Project*, March 28, 2016
- *FTA Has Not Fully Implemented Key Internal Controls for Hurricane Sandy Oversight and Future Emergency Relief Efforts*, June 12, 2015
- *Initial Assessment of FTA's Oversight of the Emergency Relief Program and Hurricane Sandy Relief Funds*, December 3, 2013

For more information on the issues identified in this chapter, please contact Barry DeWeese, Assistant Inspector General for Surface Transportation Audits, at (202) 366-5630 or Mary Kay Langan-Feirson, Assistant Inspector General for Acquisition and Procurement Audits, at (202) 366-5225.

Exhibit. List of Acronyms

ADS-B	Automatic Dependent Surveillance-Broadcast
BCA	Benefit Cost Analyses
CIO	Chief Information Officer
DataComm	Data communications
DBE	Disadvantaged Business Enterprise
DOT	Department of Transportation
DRAA	Disaster Relief Appropriations Act
EDC	Every Day Counts
eFAST	Electronic FAA Accelerated and Simplified Tasks
ERAM	En Route Automation Modernization program
ERP	Emergency Relief Program
FAA	Federal Aviation Administration
FAST Act	Fixing America's Surface Transportation Act
FHWA	Federal Highway Administration
FISMA	Federal and Information Security Management Act
FITARA	Federal Information Technology Acquisition Reform Act
FMCSA	Federal Motor Carrier Safety Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
GPS	Global Positioning System
IoT	Internet of Things
IT	Information technology
MAP-21	Moving Ahead for Progress in the 21st Century Act
MRO	Multiple Runway Operations
NAC	NextGen Advisory Committee
NAS	National Airspace System
NASA	National Aeronautics and Space Administration
NextGen	Next Generation Air Transportation System

NHTSA	National Highway Traffic Safety Administration
NTSB	National Transportation Safety Board
ODI	NHTSA Office of Defects Investigations
OIG	Office of Inspector General
OSDBU	Office of Small and Disadvantaged Business Utilization
OTA	Other Transaction Agreement
P3	Public-Private Partnership
PBN	Performance-Based Navigation
PE	Preliminary Engineering
PHMSA	Pipeline and Hazardous Materials Safety Administration
PTC	Positive Train Control
RECAT	Wake Recategorization
S&D	Suspension and debarment
SUP	Suspected Unapproved Parts
TIGER	Transportation Investment Generating Economic Recovery grant program
TSA	Transportation Security Administration
UAS	Unmanned Aircraft Systems
V-TRIPS	Volpe Transportation Information Project Support

Appendix. Department Response




**U.S. Department of
Transportation**
Office of the Secretary
of Transportation

Memorandum

Subject: INFORMATION: Management Response to the
Office of Inspector General (OIG) Draft Report:
DOT's Fiscal Year 2018 Top Management Challenges

October 31, 2017

From: 
Lana Hurdle
Acting Chief Financial Officer and
Assistant Secretary for Budget and Programs

To: Mitchell Behm
Deputy Inspector General

The OIG's Fiscal Year 2018 Top Management Challenges report refers to many of the priorities and risks the Secretary of Transportation has identified. Safety has consistently been DOT's priority—it is the core of the Department's mission. We are strengthening safety in all modes of transportation by taking a systematic approach to safety, which includes promoting the use of performance-based standards, improving data quality and analysis to further evidence-based policy making, and working closely with stakeholders to better understand safety vulnerabilities. Another top priority, as consistently emphasized by the President, is modernizing and investing in our country's infrastructure. If we fail to maintain our infrastructure and transportation systems, then deterioration could impact the safety and mobility of our citizens, impede the flow of goods and services within our economy and put our nation's commerce at risk of sudden disruption. A third priority cited by the Secretary is innovation. Emerging technologies can offer benefits in safety and efficiency thus advancing DOT's mission of providing safe, clean, accessible, and efficient transportation.

The fourth priority, which in many ways is government's number one mission, is accountability. DOT must ensure that every dollar spent on airports, roads, and transit is used to the maximum benefit of the taxpayer. The Department is committed to streamlining regulations while exercising proper management and oversight of its contracts and grants to improve program performance and prevent fraud, waste, and abuse. In addition, we want to ensure that efficient and effective internal controls, processes, and procedures are in place and appropriately implemented. We expect the Office of Inspector General to be a partner in these efforts, and the Department and its Operating Administrations (OAs) will work with OIG to identify fraud, waste, abuse, or mismanagement in the Department's programs, activities, or operations.

We appreciate the opportunity to respond to the OIG draft report. Please contact Madeline M. Chulumovich, Director, Office of Audit Relations and Program Improvement, at (202) 266-6512, with any questions.

U.S. DOT IG Fraud & Safety Hotline

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<https://www.oig.dot.gov/hotline>

Our Mission

OIG conducts audits and investigations on behalf of the American public to improve the performance and integrity of DOT's programs to ensure a safe, efficient, and effective national transportation system.

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