The U.S. Department of Transportation's Actions to Address the NTSB's Most Wanted List

A Report to Congress and the
National Transportation Safety Board

January 2022 Report

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

This page was intentionally left blank.

TABLE OF CONTENTS

LIST OF ACRONYMS AND INITIALISMS

ABS	Antilock Braking System
AC	Advisory Circular
ADAS	Advanced Driver Assistance Systems
C-ADS	Cooperative Automated Driving System
AEB	Automatic Emergency Braking
ASE	Automated Speed Enforcement
BAC	Blood Alcohol Concentration
BIL	Bipartisan Infrastructure Law (enacted as the Infrastructure Investment and Jobs Act, P.L. 117-58)
BSI	Blind Spot Intervention
BTSCRP	Behavioral Traffic Safety Cooperative Research Program
CAMP	Collision Avoidance Metric Partnership
CAV	Connected Automated Vehicle
CDL	Commercial Driver's License
CFR	Code of Federal Regulations
CIB	Crash Imminent Braking
CLP	Commercial Learner's Permit
CMS	Camera Monitor Systems
CMTW	Countermeasures That Work
CMV	Commercial Motor Vehicle
CVR	Cockpit Voice Recorders
DBS	Dynamic Brake Support
DIMP	Distribution Integrity Management Program
DOT/USDOT	United States Department of Transportation
EDC	Every Day Counts
EUROCAE	European Organization for Civil Aviation Equipment
FAA	Federal Aviation Administration
FAMES	Fatality Analysis of Maintenance of Way Employees & Signalmen
FCC	Federal Communications Commission
FDM	Flight Data Monitoring
FDR	Flight Data Recorder
FHWA	Federal Highway Administration
FMCSA	Federal Motor Carrier Safety Administration
FMVSS	Federal Motor Vehicle Safety Standards
FOQA	Flight Operational Quality Assurance
FR	Federal Register
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
FY	Fiscal Year
GA	General Aviation
GAJSC	General Aviation Joint Steering Committee
GHz	Gigahertz
GTR	Global Technical Regulation
GVWR	Gross Vehicle Weight Rating
HAA	Helicopter Air Ambulance
HCA	High Consequence Area
HHS	U.S. Department of Health and Human Services
HSIP	Highway Safety Improvement Program
IACP	International Association of Chiefs of Police
ICAO	International Civil Aviation Organization
ISA	Intelligent Speed Adaptation
ITS JPO	Intelligent Transportation Systems Joint Program Office
LTE	Long-Term Evolution (Wireless Broadband Communication Standard)
MCSAP	Motor Carrier Safety Assistance Program
MHz	Megahertz
MMUCC	Model Minimum Uniform Crash Criteria
MUTCD	Manual of Uniform Traffic Control Devices
MWL	NTSB's Most Wanted List
NCAP	New Car Assessment Program
NHI	National Highway Institute
NHTSA	National Highway Traffic Safety Administration

NPA	Notice of Proposed Amendments
NPRM	Notice of Proposed Rulemaking
NTIA	National Telecommunications and Information Administration
NTSB	National Transportation Safety Board
OA	Operating Administration
ODAPC	Office of Drug and Alcohol Policy and Compliance
OROS	Our Roads, Our Safety Campaign
PAEB	Pedestrian Automatic Emergency Braking
PCP	Phencyclidine
PHMSA	Pipeline and Hazardous Materials Safety Administration
PL	Public Law
PSC	Proven Safety Countermeasures
R&D	Research and Development
RSAC	Railroad Safety Advisory Committee
RIN	Regulation Identifier Number
RTA	Rail Transit Agencies
RWIS	Road Weather Information Systems
RWP	Roadway Worker Protection
SAE	Society of Automotive Engineers
SAMHSA	Substance Abuse and Mental Health Services Administration
SBIR	Small Business Innovation Research
SDLA	State Driver's Licensing Agencies
SE	Safety Enhancement
SHSP	Strategic Highway Safety Plan
SIR	Special Investigation Report
SMS	Safety Management Systems
SR	NTSB Safety Recommendation
SRM	Safety Risk Management
SSA	Safety System Approach
SSO	State Safety Oversight
SSOA	State Safety Oversight Agency
STEP	Safe Transportation for Every Pedestrian
TAW	Train Approach Warning
TRACS	Transit Rail Advisory Committee
TRB	Transportation Research Board
TSO	Technical Standard Order
UNECE	United Nations Economic Commission for Europe
VRU	Vulnerable Road User
V2X	Vehicle to Everything

EXECUTIVE SUMMARY

Safety is the top priority of the U.S. Department of Transportation's (DOT, Department, or USDOT). The Department remains committed to advancing safety across all modes of transportation and strives to continuously improve and enhance its safety priorities.

Since 1990, the National Transportation Safety Board (NTSB or Board) has published the Most Wanted List (MWL), which represents the NTSB's advocacy priorities. Previously published annually, NTSB began publishing the MWL biennially in November 2016.

The Department is required to report on the regulatory status of each recommendation on the Board's MWL pursuant to section 1135(e)(1) of Title 49, United States Code (U.S.C.). This report describes the activities that DOT is undertaking to enhance the safety of the Nation's transportation network for each of the NTSB's 2021-22 Most Wanted List[2] and fulfills the reporting requirement. NTSB identified 200 safety recommendations (SRs) related to the ten safety issue areas, 114 of which were addressed to DOT.

The ten safety issue areas specified in the 2021-22 NTSB MWL are:

- Require and Verify the Effectiveness of Safety Management Systems in all Revenue Passenger-Carrying Aviation Operations
- Install Crash-Resistant Recorders and Establish Flight Data Monitoring Programs
- Implement a Comprehensive Strategy to Eliminate Speeding-Related Crashes
- Protect Vulnerable Road Users through a Safe System Approach
- Prevent Alcohol- and Other Drug-Impaired Driving
- Require Collision-Avoidance and Connected-Vehicle Technologies on all Vehicles
- Eliminate Distracted Driving
- Improve Passenger and Fishing Vessel Safety
- Improve Pipeline Leak Detection and Mitigation
- Improve Rail Worker Safety

The following Operating Administrations (OAs) contributed to this report:

- Federal Aviation Administration (FAA)
- Federal Highway Administration (FHWA)
- Federal Motor Carrier Safety Administration (FMCSA)
- Federal Railroad Administration (FRA)
- Federal Transit Administration (FTA)
- National Highway Traffic Safety Administration (NHTSA)
- Pipeline and Hazardous Materials Safety Administration (PHMSA)

This page was intentionally left blank.

REQUIRE AND VERIFY THE EFFECTIVENESS OF SAFETY MANAGEMENT SYSTEMS IN ALL REVENUE PASSENGER-CARRYING AVIATION OPERATIONS

The DOT requires and upholds a high level of safety standards for aviators and crews whether they are flying cargo or passengers. The Department recognizes the value and widespread adoption of Safety Management Systems (SMS) in aviation and other modes of transportation. A SMS is a formal, top-down, organization-wide approach to managing safety risk and assuring the effectiveness of safety risk controls. It includes systematic procedures, practices, and policies for the management of safety risk.

SMS is becoming the standard throughout the aviation industry worldwide. Through development of SMS Rules for Part 121 and Part 135 operators, FAA is ensuring that SMS is implemented in the United States. Further, SMS is recognized by the International Civil Aviation Organization (ICAO); foreign civil aviation authorities; and product and service providers as the next step in the evolution of safety in aviation.

STATUS

FAA

By recognizing the organization's role in accident prevention, SMSs provide the following benefits to both certificate holders and the FAA:

- A structured means of safety risk management decision making;
- A means of demonstrating safety management capability before system failures occur;
- An increased confidence in risk controls through structured safety assurance processes;
- An effective interface for knowledge sharing between regulator and certificate holder; and
- A safety promotion framework to support a sound safety culture.

SMS is required for air carriers operating under Title 14, Code of Federal Regulations (CFR) Part 121 (Operating Requirements: Domestic, Flag, and Supplemental Operations), and the FAA is working to determine the appropriate application of SMS for 14 CFR Part 135 (Operating Requirements: Commuter and On-Demand Operations and Rules Governing Persons on Board Such Aircraft). The FAA is pursuing SMS implementation in the aerospace system, as appropriate.

SMS for Part 121 Operators

The FAA issued the Safety Management Systems for Domestic, Flag, and Supplemental Operations Certificate Holders Final Rule (the Part 121 SMS Final Rule) on January 8, 2015 (80 FR 1307), which requires operators authorized to conduct operations under Part 121 to develop and implement an SMS. The rule added a new 14 CFR Part 5 (SMS), creating the set of requirements for a SMS that a Part 121 air carrier must meet. It also modified title 14 CFR Part 119 (Certification: Air Carriers and Commercial Operators) to specify applicability and implementation of a SMS for aircraft operators certificated under Part 121.

Further, the FAA issued guidance to its Flight Standards Service offices regarding implementation plan approval, system validation, acceptance, and oversight. These documents

and tools assisted Part 121 operators in developing and implementing their SMS. Documents include:

- Advisory Circular (AC) 120-92B, Safety Management Systems for Aviation Service Providers, published January 8, 2015, provides information for Part 121 operators that are required to implement a SMS based on Part 5. This AC may also be used by other aviation service providers interested in voluntarily developing a SMS based on the requirements in Part 5.
- FAA Order 8900.1, Flight Standards Information Management System, Volume 17, Chapters 1-3, titled General, SMS for New Part 121 Applicants, and SMS Voluntary Program, respectively.

SMS for Part 135 Operators

During the rulemaking process for the Part 121 SMS, the FAA acknowledged in its notice of proposed rulemaking (NPRM) that SMS could be applied to Part 135 certificate holders at some point in the future (75 FR 68224, 68232; Nov. 5, 2010). As an interim phase, the FAA put into place a voluntary SMS program for part 135 operators. Currently, there are 20 Part 135 operators with an active conformance status in the voluntary SMS program, with a total of 160 Part 135 operators consisting of 42 applicants, and 118 in various stages of implementation.

While Part 5 currently applies only to air carriers operating under Part 121, the FAA, after considering input received from the SMS Aviation Rulemaking Committee, designed its SMS principles to be scalable and flexible. Recognizing that SMS may be applied to other entities in the future, this approach will allow SMS principles to be broadly applied throughout the aerospace system. The FAA is considering implementation of SMS by the following entities:

- Persons engaged in the design and production of aircraft, engines, or propellers;
- Certificate holders that conduct common carriage operations under Part 135;
- Persons engaged in maintaining Part 121 aircraft under 14 CFR Part 145 (Repair Stations); and
- Persons conducting certain, specific types of air tour operations under 14 CFR Part 91 (General Operating and Flight Rules).

Additional information about this rulemaking effort can be found in the Fall 2021 Unified Agenda of Regulatory and Deregulatory Actions.

RELATED SAFETY RECOMMENDATION (SR) UPDATES

SR	OA	Recommendation from NTSB	OA Response
A-16-036	FAA	Require all 14 Code of Federal Regulations Part 135 operators to establish safety management system programs.	The FAA initiated a rulemaking project in the fall of 2020 entitled, Safety Management System (SMS) for Part 21, 91, 135, and 145. The rulemaking project would expand application of the existing regulatory requirements of 14 CFR, Part 5, Safety Management Systems, with appropriate modifications, to the following persons: all persons engaged in the design and production of aircraft, engines, or propellers; certificate holders that conduct common carriage operations under Part 135; persons engaged in maintaining Part 121 aircraft under Part 145; and persons conducting specific types of air tour operations under Part 91. As a result of the regulatory changes, the persons specified above would be required to implement an SMS program as part of their operations. FAA sent a letter to the NTSB on October 7, 2021 describing the rulemaking project and will provide a further update by September 30, 2022.
A-19-028	FAA	Require all commercial air tour operators, regardless of their operating rule, to implement a safety management system.	The FAA will consider rulemaking to require all commercial air tour operators to implement a safety management system (SMS).
A-21-013	FAA	Require safety management systems for the revenue passenger-carrying operations addressed in Safety Recommendations A-21-9 and -10.	FAA has assigned these safety recommendations to its Flight Standards Service, which will evaluate existing agency policies and guidance to determine the larger scope of work necessary to fully respond to the safety recommendations. Additionally, FAA will assess the feasibility of these safety recommendations and consider whether rulemaking efforts to implement them are likely to meet Office of Management and Budget cost-benefit guidelines.
A-21-014	FAA	For the revenue passenger-carrying operations addressed in Safety Recommendations A 21-9 and -10, provide ongoing oversight of each operator's safety management system once established.	FAA has assigned these safety recommendations to its Flight Standards Service, which will evaluate existing agency policies and guidance to determine the larger scope of work necessary to fully respond to the safety recommendations. Additionally, FAA will assess the feasibility of these safety recommendations and consider whether rulemaking efforts to implement them are likely to meet Office of Management and Budget cost-benefit guidelines.

A-16-034	FAA	Require all 14 Code of Federal Regulations Part 135 operators to install flight data recording devices capable of supporting a flight data monitoring program.	The Federal Aviation Administration (FAA) will conduct a review to determine the feasibility of requiring all Title 14, Code of Federal Regulations (14 CFR) Part 135 certificate holders to install flight data recording devices on their aircraft. In 2014, a similar review was conducted in advance of proposed rule changes to § 135.607, Flight Data Monitoring System. In that review, it was determined through a financial analysis that the proposed rule change did not meet the cost-benefit requirements for safety. However, the proposed change was mandated by Congress in Section 306(a) of the FAA Modernization and Reform Act of 2013 (PL 112-95), which specifically stated that revised regulations should apply only to Part 135 certificate holders providing air ambulance services, whenever medical personnel are onboard the aircraft. As a result, on February 21, 2014, the FAA published the Helicopter Air Ambulance, Commercial Helicopter, and Part 91 Helicopter Operations final rule (helicopter final rule).
A-16-035	FAA	After the action in Safety Recommendation A-16-34 is completed, require all 14 Code of Federal Regulations Part 135 operators to establish a structured flight data monitoring program that reviews all available data sources to identify deviations from established norms and procedures and other potential safety issues.	The FAA previously considered this issue as a part of the helicopter final rule. During this consideration, it was determined that the FAA's voluntary programs are successful for monitoring and evaluating operational practices and procedures. These programs are important to the FAA. However, we believe maintaining a voluntary nature is paramount to the success of flight data monitoring programs. To address this safety recommendation, we will conduct a review of the level of participation of Part 135 certificate holders in voluntary programs and evaluate additional actions that can increase awareness and participation.

INSTALL CRASH-RESISTANT RECORDERS AND ESTABLISH FLIGHT DATA MONITORING PROGRAMS

The Department shares the Board's view of the safety benefits of crash-resistant recorders and flight data monitoring programs. Data found in crash resistant cockpit voice recorders (CVR) have helped investigators identify the cause of aviation crashes in many cases. The Department is interested in learning more about the benefits and costs of cockpit image recorders. Though there are potential safety benefits, DOT understands the privacy and security concerns that must be adequately addressed before full implementation and adoption.

Coordination with international partners, such as ICAO and the European Organization for Civil Aviation Equipment (EUROCAE), with which the FAA is currently working, will be instrumental. DOT is exploring alternative solutions that address the safety issue while respecting the associated privacy and legal concerns and believes more research is needed on this issue.

STATUS

FAA

The FAA's regulations for CVRs and flight data recorders (FDR) under 14 CFR § 91.609 (FDR and CVR), require that any multiengine, turbine-powered airplane or rotorcraft having a passenger seating configuration (excluding any pilot seats) of 10 or more and manufactured after October 11, 1991, have a CVR and FDR. After October 11, 1991, any multiengine, turbine-powered airplane or rotorcraft having a passenger seating configuration of six passengers or more and for which two pilots are required by type certification or operating rule must have a CVR.

The FAA additionally supports the voluntary equipage of CVR and FDRs through guidance, which includes the following examples: 1) AC 20-186 – Airworthiness and Operational Approval of Cockpit Voice Recorder Systems, provides guidance for compliance with applicable regulations for the airworthiness and operational approval for required CVR systems; and 2) AC 20-141B – Airworthiness and Operational Approval of Digital Flight Data Recorder Systems, provides guidance on compliance with the applicable regulations for the airworthiness and operational approval for digital flight data recorder systems.

The FAA understands and shares the concerns expressed by the Board regarding the availability of relevant CVR data in its safety investigations of events. The FAA recognizes CVRs are an important investigation tool and understands the link between successful investigations and improving future safety. The FAA is assessing the feasibility of requiring CVRs to record at least the last 25 hours of audio on both newly manufactured airplanes requiring a CVR, and all airplanes required to carry both a CVR and FDR.

Flight Data Monitoring

The FAA continues to work with Part 121 operators through the Flight Operational Quality Assurance (FOQA) Program. FOQA is a voluntary safety program designed to make commercial

aviation safer by allowing commercial airlines and pilots to share de-identified aggregate information with the FAA, so that the FAA can monitor national trends in aircraft operations and target its resources to address operational risk issues (e.g., flight operations, air traffic control, and airports). A cornerstone of this program is the understanding that aggregate data that is provided to the FAA will be kept confidential and the identity of reporting pilots or airlines will remain anonymous as allowed by law.

The FAA worked closely with the Commercial Aviation Safety Team to develop Safety Enhancement (SE) 10, Proactive Safety Programs (FOQA + Aviation Safety Reporting Program) to build a FOQA framework that was suitable to participating operators. As a result, operators are leveraging FOQA to capture and analyze flight data to identify safety risks and trends without fear of reprisal. Lessons learned from programs like FOQA are shared at industry-sponsored and FAA-facilitated events such as InfoShare. These events bring together safety professionals from across the aviation community in a protected environment to share safety concerns, lessons learned, and best practices.

In the Helicopter Air Ambulance, Commercial Helicopter, and Part 91 Helicopter Operations Final Rule on February 24, 2014 (79 FR 9931), the FAA also required that helicopter air ambulance (HAA) operators install an FAA-approved Flight Data Monitoring (FDM) System in each HAA. Specifically, 14 CFR § 135.607 (FDM System), states that after April 23, 2018, no person may operate a HAA unless it is equipped with an approved flight data monitoring system capable of recording flight performance data.

The FAA has collaborated with the General Aviation Joint Steering Committee (GAJSC) since it was formed in 1997 to reduce fatal general aviation (GA) accidents, encompassing Part 91 and Part 135 non-scheduled operations. Revitalized in 2011, the GAJSC uses an integrated data driven methodology to analyze safety data to develop interventions and strategically target resources to mitigate the root causes of GA accidents.

The GAJSC has developed and approved SEs aimed at mitigating GA fatal accident occurrences. SE22 - Flight Data Monitoring, aims to increase GA participation in FDM programs by creating a public education campaign about the safety benefits of FDM programs; assessing the GA community's current sentiment, perception of, and understanding of FDM before and after the public education campaign; determining the incentives, if any, required to generate a meaningful level of GA participation in a national FDM program; and creating a non-punitive policy to promote the use of voluntary GA FDM programs, similar to that used in the FOQA program.

Cockpit Image Recorders

The FAA continues to review the feasibility of implementation of crash-protected image recorder systems in the cockpit and is collaborating with ICAO to define other types of image recorders, such as screen capture systems, that record screen information displayed to aircrew. This technology would provide investigators with a clear picture of the information presented to flight crews without the associated privacy and legal concerns of image recorders. The FAA is a member of ICAO's Flight Recorder Specific Working Group, and also a member of the European Organization for Civil Aviation Equipment's Flight Recorders - General Issues

Working Group (WG-118 SG-2 - Flight Crew- Machine Interface Recording) that is currently updating standards for image recorders.

The FAA's work with international partners is having a real impact on improving the data available to accident investigation teams. For example, ICAO Annex 6, Part I – International Commercial Air Transport – Aeroplanes, Amendment 43, mandates that after January 1, 2023, aircraft over 27,000 kg record information displayed to the flight crew from electronic displays, as well as the operation of switches and selectors by the flight crew.

To support continued progress with cockpit image recorders, the FAA is reviewing various standards and methodologies to determine the feasibility of requiring aircraft to be equipped with a crash-protected screen capture recording system. As part of its analysis for a future rulemaking project, the FAA is considering a "whole system/operation" approach combining overall aircraft and ground systems, acceptance of risk based on specific operations and in-place mitigations, benefit to the public, and the economic burden placed on aircraft owners and operators.

While the FAA continues the above efforts, the FAA encourages the voluntary use of cockpit image recorders, via Technical Standard Order (TSO), TSO-C176a, Cockpit Image Recorder Equipment. This TSO allows manufacturers to determine what minimum performance standards cockpit image recorder equipment must first meet for approval from the FAA.

The FAA supports the voluntary equipage of CVRs, FDRs, FDM, and cockpit image recording systems for those aircraft not currently required to have these recorders through current regulations. The FAA will continue to monitor the potential benefits of requiring greater recorder use.

RELATED SR UPDATES

SR	OA	Recommendation from NTSB	OA Response
A-13-012	FAA	Require the installation of a crash-resistant flight recorder system on all newly manufactured turbine-powered, nonexperimental, nonrestricted-category aircraft that are not equipped with a flight data recorder and a cockpit voice recorder and are operating under 14 Code of Federal Regulations Parts 91, 121, or 135. The crash-resistant flight recorder system should record cockpit audio and images with a view of the cockpit environment to include as much of the outside view as possible, and parametric data per aircraft and system installation, all as specified in Technical Standard Order C197, Information Collection and Monitoring System	FAA is reviewing various standards and methodologies, to include determining the feasibility of requiring Part 91, 121, and 135 aircraft to be fitted with a crash-resistant flight recorder system. We will provide further information on this review when an update is available. In July 2017, FAA reported that it intended to publish a notice to our aviation safety inspectors that oversee operators of turbine-powered aircraft not required to be equipped with a flight data recorder or cockpit voice recorder under Parts 91 and 135 to determine how many have voluntarily installed flight data monitoring systems. At this time, FAA has paused these efforts until next steps with the review are determined.

A-13-013	FAA	Require all existing turbine-powered, nonexperimental, nonrestricted-category aircraft that are not equipped with a flight data recorder or cockpit voice recorder and are operating under 14 Code of Federal Regulations Parts 91, 121, or 135 to be retrofitted with a crash-resistant flight recorder system. The crash-resistant flight recorder system should record cockpit audio and images with a view of the cockpit environment to include as much of the outside view as possible, and parametric data per aircraft and system installation, all as specified in Technical Standard Order C197, Information Collection and Monitoring Systems.	FAA is reviewing various standards and methodologies, to include determining the feasibility of requiring part 91, 121, and 135 aircraft to be fitted with a crash-resistant flight recorder system. FAA will provide further information on this review when an update is available. In our letter dated July 20, 2017, FAA reported that it intended to publish a notice to aviation safety inspectors that oversee operators of turbine-powered aircraft not required to be equipped with a flight data recorder or cockpit voice recorder under parts 91 and 135 to determine how many have voluntarily installed flight data monitoring systems. At this time, FAA has paused these efforts until next steps with the review are determined.
A-15-007	FAA	Require that all existing aircraft operated under Title 14 Code of Federal Regulations (CFR) Part 121 or 135 and currently required to have a cockpit voice recorder and a flight data recorder be retrofitted with a crash-protected cockpit image recording system compliant with Technical Standard Order TSO-C176a, Cockpit Image Recorder Equipment TSO-C176a or equivalent. The cockpit image recorder should be equipped with an independent power source consistent with that required for cockpit voice recorders in 14 CFR 25.1457. (Supersedes Safety Recommendation A-00-30)	Video image recorders in cockpits raise significant privacy and security concerns that to date have not been adequately addressed. While the FAA encourages the voluntary use of these devices, via TSO-C176a, Cockpit Image Recorder Equipment, FAA believes privacy and security issues should be addressed. The FAA is involved at the international level on work to define other types of image recorders, such as screen capture systems that record screen information displayed to aircrew as well as position and selection of buttons, knobs, and

A-15-008	FAA	Require that all newly manufactured aircraft operated under Title 14 Code of Federal Regulations (CFR) Part 121 or 135 and required to have a cockpit voice recorder and a flight data recorder also be equipped with a crash-protected cockpit image recording system compliant with Technical Standard Order TSO-C176a, Cockpit Image Recorder Equipment or equivalent. The cockpit image recorder should be equipped with an independent power source consistent with that required for cockpit voice recorders in 14 CFR 25.1457. (Supersedes Safety Recommendation A-00-31)	switches. Working with the NTSB, in response to A-15-007 and -008, the FAA gathered information to better understand the possible benefits gained versus the economic impact of installing and maintaining image recorders. This data is still being reviewed. The FAA will provide a response to the NTSB with its findings once the review has been completed and will provide an update by August 31, 2022.
A-16-034	FAA	Require all 14 Code of Federal Regulations Part 135 operators to install flight data recording devices capable of supporting a flight data monitoring program.	The FAA will conduct a review to determine the feasibility of requiring all Title 14, Code of Federal Regulations (14 CFR) Part 135 certificate holders to install flight data recording devices on their aircraft. In 2014, a similar review was conducted in advance of proposed rule changes to § 135.607, Flight Data Monitoring System. In that review, it was determined through a financial analysis that the proposed rule change did not meet the cost-benefit requirements for safety. However, the proposed change was mandated by Congress in Section 306(a) of the FAA Modernization and Reform Act of 2013 (PL 112-95), which specifically stated that revised regulations should apply only to part 135 certificate holders providing air ambulance services, whenever medical personnel are onboard the aircraft. As a result, on February 21, 2014, the FAA published the Helicopter Air Ambulance, Commercial Helicopter, and Part 91 Helicopter Operations final rule (helicopter final rule).

A-16-035	FAA	After the action in Safety Recommendation A-16-34 is completed, require all 14 Code of Federal Regulations Part 135 operators to establish a structured flight data monitoring program that reviews all available data sources to identify deviations from established norms and procedures and other potential safety issues.	The FAA previously considered this issue as a part of the helicopter final rule. During this consideration, it was determined that the FAA's voluntary programs are successful for monitoring and evaluating operational practices and procedures. These programs are important to the FAA. However, we believe maintaining a voluntary nature is paramount to the success of flight data monitoring programs. To address this safety recommendation, we will conduct a review of the level of participation of part 135 certificate holders in voluntary programs and evaluate additional actions that can increase awareness and participation.

IMPLEMENT A COMPREHENSIVE STRATEGY TO ELIMINATE SPEEDING-RELATED CRASHES

Speeding-related crashes are a major issue for safety and improving roadway safety is a top priority for DOT. Roadway deaths is the biggest crisis facing the safety community, and it must be addressed. Roadway deaths account for more than 94% of all transportation-related fatalities and have been above 35,000 annually since 2015. Even more alarming is that roadway fatalities have increased recently during the pandemic.

In January 2022, DOT released its comprehensive National Roadway Safety Strategy (NRSS) to address this troubling trend. The NRSS outlines the Department's comprehensive approach to significantly reducing serious injuries and deaths on our Nation's highways, roads, and streets and provides concrete steps that the Department will take to address the issue systemically and prevent these tragic and avoidable deaths and serious injuries. With the historic funding included in the Bipartisan Infrastructure Law, the NRSS is the first step in working toward an ambitious long-term goal of reaching zero roadway fatalities. As part of the NRSS, DOT is adopting the "Safe System Approach," which acknowledges both human mistakes and human vulnerability, and designs a redundant system to protect everyone by preventing crashes and ensuring that if they do occur they do not result in serious injury or death.

The Department will use a five-pronged model to address safety: safer people, safer roads, safer vehicles, safer speeds and post-crash care. Importantly, DOT recognizes that reducing traffic fatalities will take sustained and concerted action from everyone across all sectors and all levels of government. The Department plans to work with states and local road owners to build and maintain safer roadway through efforts such as updates to the Manual on Uniform Traffic Control Devices; a Complete Streets Initiative to provide technical assistance to communities of all sizes; and speed limit setting.

Part of DOT's approach includes addressing the equity, environmental, and economic issues that are interwoven with safety issues facing our communities. For example, roadway fatalities among Black people increased by 23 percent between 2019 and 2020 compared to an overall increase of 7.2%[1]. American Indians and Alaska Natives have roadway fatality rates more than double the national rate on a per population rate[2]. The disproportionate safety impacts are especially true in underserved communities, where people face heightened exposure to risk. A comprehensive strategy will require coming together with stakeholders to reach a holistic solution.

[1] National Center for Statistics and Analysis. (2021, June (revised)). Early estimates of motor vehicle traffic fatalities and fatality rate by sub-categories in 2020 (Crash•Stats Brief Statistical Summary. Report No. DOT HS 813 118). National Highway Traffic Safety Administration
[2] Id.

STATUS

FHWA

Speed management is a cross-cutting safety issue, and FHWA has been collaborating with partners and stakeholders to address this national priority. In recent years, speed management has received increased attention from State and local agencies, especially those that have embraced a "zero deaths" vision and the Safe System Approach (SSA) to safety. The DOT Speed Management Team–consisting of members from FHWA, NHTSA, and FMCSA–is updating the DOT speed management program plan, which will present a vision for actions the DOT will consider undertaking in the coming years to address speeding-related fatalities and serious injuries. The DOT Speed Management Team is also updating the DOT Speed Enforcement Camera Systems Operational Guidelines with the latest speed safety camera technologies and operating practices.

FHWA continues to provide State and local agencies and transportation professionals with technical and training tools and promote robust practices that have been implemented by practitioners. A focus has been providing direct technical assistance to State and local agencies in developing speed management plans for their jurisdictions, and FHWA will continue this effort by reaching out to as many State and local agencies as possible for advancing effective speed management. The FHWA also issued new Proven Safety Countermeasures to help with speed management and is currently evaluating comments received on proposed revisions to the Manual of Uniform Traffic Control Devices (MUTCD), including speed management practices.

FHWA has completed or has the following underway:

- *Proven Safety Countermeasures* – Three new speed-related proven safety countermeasures were added to the Proven Safety Countermeasure initiative in October 2021: Speed Safety Cameras, Variable Speed Limits, and Appropriate Speed Limits for All Road Users. Brochures are posted on our website explaining the safety effectiveness, applications, and considerations for each countermeasure. *(Complete)*
- *A Safe System-Based Framework and Analytical Methodology for Assessing Intersection*s – Report and Tech Brief: Provides a basis to assess intersection alternatives according to Safe System principles, using a kinetic energy management approach. *(Complete)*
- *Noteworthy Speed Management Practices* – The report summarizes eight case studies that highlight noteworthy practices from across the U.S. over a range of speed management issues. *(Complete)*
- *Speed Management for Safe System Approach Project* – This project synthesizes the existing body of available knowledge on speed management practices (including selection and setting of a target speed) used to adopt a Safe System Approach into case studies. FHWA will generate an informational report for practitioners. *(Underway)*
- *Safe System for Intersections Framework in FHWA's National Highway Institute (NHI) Training Courses on Intersection Safety* – FHWA will include training modules on the FHWA Safe System for Intersections Framework in NHI training courses on intersection safety. *(Underway)*

- *Speed Crash Modification Factors (CMFs)* – FHWA will develop speed CMFs using Strategic Highway Research Program 2 (SHRP 2) data. *(Underway)*

NHTSA

NHTSA recognizes that speeding-related crashes remain one of the leading causes of motor vehicle related fatalities and injuries and supports a comprehensive strategy to address this persistent road safety issue. Over the years, the agency's efforts to address this issue have focused on aiding in enforcement actions and educating the American public on the safety hazards of speeding. As in-vehicle driving monitoring systems become available in the market, NHTSA sees opportunities in its vehicle safety programs to explore other means to mitigate unsafe driving behavior, including speeding. NHTSA continues to work toward reducing the number of speeding-related crashes through multi-modal initiatives to help states and local jurisdictions establish and maintain comprehensive speed management programs.

RELATED SR UPDATES

SR	OA	Recommendation from NTSB	OA Response
H-17-018	DOT	Complete the actions called for in your 2014 Speed Management Program Plan, and periodically publish status reports on the progress you have made.	The DOT Intermodal Speed Management Team is updating the Speed Management Program Plan (last updated in 2014), including an inventory and status of activities completed in support of the plan.
H-17-027	FHWA	Revise Section 2B.13 of the Manual on Uniform Traffic Control Devices so that the factors currently listed as optional for all engineering studies are required, require that an expert system such as USLIMITS2 be used as a validation tool, and remove the guidance that speed limits in speed zones should be within 5 mph of the 85th percentile speed.	Notice of Proposed Amendments (NPA) to the MUTCD was published in the Federal Register on 12/14/2020. Docket closed on 5/14/2021. FHWA is currently considering the comments received in the development of any final amendments.
H-17-028	FHWA	Revise Section 2B.13 of the Manual on Uniform Traffic Control Devices to, at a minimum, incorporate the safe system approach for urban roads to strengthen protection for vulnerable road users.	Notice of Proposed Amendments (NPA) to the MUTCD was published in the Federal Register on 12/14/2020. Docket closed on 5/14/2021. FHWA is currently considering the comments received in the development of any final amendments.
H-17-029	FHWA	Work with the National Highway Traffic Safety Administration to update the Speed Enforcement Camera Systems Operational Guidelines to reflect the latest automated speed enforcement (ASE) technologies and operating practices and promote the updated guidelines among ASE program administrators.	FHWA and NHTSA have jointly funded a project to update the DOT Speed Management program plan and the Speed Safety Camera guidelines. Drafts of these two documents are currently under development. Additionally, in 2021, FHWA's Office of Safety selected Speed Safety Cameras as one of the Proven Safety Countermeasures (PSC).

H-17-030	FHWA	Work with the National Highway Traffic Safety Administration to assess the effectiveness of point-to-point speed enforcement in the United States and, based on the results of that assessment, update the Speed Enforcement Camera Systems Operational Guidelines, as appropriate.	There is currently no installation of point-to-point automated speed enforcement in the US to be able to conduct a before/after study. This will take many years to address/accomplish. FHWA is working with NHTSA and supporting activities identified by NHTSA. FHWA and NHTSA have jointly funded a project to update the USDOT Speed Management program plan and the Speed Safety Camera guidelines. Final drafts of these two documents are currently under development. Additionally, in 2021, FHWA's Office of Safety selected Speed Safety Cameras as one of the updated Proven Safety Countermeasures (PSC)
H-12-020	NHTSA	Develop performance standards for advanced speed-limiting technology, such as variable speed limiters and intelligent speed adaptation devices, for heavy vehicles, including trucks, buses, and motorcoaches.	On September 7, 2016, NHTSA and the FMCSA published a Notice of Proposed Rulemaking (NPRM) that would require vehicles with a gross vehicle weight rating of more than 26,000 pounds to be equipped with a speed limiting device. NHTSA and FMCSA are currently evaluating next steps in response to the comments received on the NPRM.
H-12-021	NHTSA	After establishing performance standards for advanced speed-limiting technology for heavy commercial vehicles, require that all newly manufactured heavy vehicles be equipped with such devices.	On September 7, 2016, NHTSA and the FMCSA published a NPRM that would require vehicles with a gross vehicle weight rating of more than 26,000 pounds to be equipped with a speed limiting device. NHTSA and FMCSA are currently evaluating next steps in response to the comments received on the NPRM.

H-17-019	NHTSA	Identify speeding-related performance measures to be used by local law enforcement agencies, including but not limited to the numbers and locations of speeding-related crashes of different injury severity levels, speeding citations, and warnings, and establish a consistent method for evaluating data-driven, high-visibility enforcement programs to reduce speeding. Disseminate the performance measures and evaluation method to local law enforcement agencies.	NHTSA continues to work with law enforcement partners to establish appropriate performance measures for speeding issues. Through crash data provisions in the BIL, NHTSA will significantly expand its Crash Investigation Sampling System (CISS) to include more sites, crash types, and an on-scene protocol. This will result in more detailed data on a variety of pre-crash factors which will enable faster and more accurate data to support the development of speeding countermeasures. NHTSA is also conducting a study of and revision to the Model Minimum Uniform Crash Criteria (MMUCC) that will lead to increased opportunities for states and local jurisdictions to collect and analyze improved crash data including speeding-related crashes. Improved data will help support the establishment of appropriate performance measures to support state and local speed management programs.
H-17-020	NHTSA	Identify best practices for communicating with law enforcement officers and the public about the effectiveness of data-driven, high-visibility enforcement programs to reduce speeding, and disseminate the best practices to local law enforcement agencies.	NHTSA worked with the International Association of Chiefs of Police (IACP) to revise their Traffic Safety Resource Guide that includes information for police officers to increase awareness of the need for speeding enforcement and effective approaches for conducting speeding enforcement. The guide is posted on IACP's website and regularly disseminated through law enforcement communications channels.

H-17-021	NHTSA	Work with the Governors Highway Safety Association, the International Association of Chiefs of Police, and the National Sheriff's Association to develop and implement a program to increase the adoption of speeding-related Model Minimum Uniform Crash Criteria Guideline data elements and improve consistency in law enforcement reporting of speeding-related crashes.	As noted in our response to recommendation H-17-19, NHTSA is conducting a study of and revision to the MMUCC 6th Edition that will provide guidance to law enforcement agencies to better capture speeding-related crash data. NHTSA continues to work with the Governors Highway Safety Association, IACP, and National Sheriffs' Association on speeding-related projects to help improve consistency in crash reporting.
H-17-022	NHTSA	Work with the Federal Highway Administration to update the Speed Enforcement Camera Systems Operational Guidelines to reflect the latest automated speed enforcement (ASE) technologies and operating practices and promote the updated guidelines among ASE program administrators.	The DOT Intermodal Speed Management Team is updating the Speed Enforcement Camera Systems Operational Guidelines and renaming them Speed Safety Camera Guidelines.
H-17-023	NHTSA	Work with the Federal Highway Administration to assess the effectiveness of point-to-point speed enforcement in the United States and, based on the results of that assessment, update the Speed Enforcement Camera Systems Operational Guidelines, as appropriate.	The DOT Intermodal Speed Management Team will include literature review material about implementation of point-to-point speed enforcement in the Speed Safety Camera Guidelines.
H-17-024	NHTSA	Incentivize passenger vehicle manufacturers and consumers to adopt intelligent speed adaptation (ISA) systems by, for example, including ISA in the New Car Assessment Program.	The New Car Assessment Program (NCAP) assists consumers with their vehicle purchasing decisions by providing information about new vehicle safety technologies. NHTSA continuously identifies technologies for potential inclusion in NCAP. NHTSA is considering expanding NCAP to provide more information about advanced driver assistance systems (ADAS) technologies. The agency will continue its assessment of other technologies for possible inclusion in NCAP.

H-17-025	NHTSA	Collaborate with other traffic safety stakeholders to develop and implement an ongoing program to increase public awareness of speeding as a national traffic safety issue. The program should include, but not be limited to, initiating an annual enforcement mobilization directed at speeding drivers.	NHTSA's speed prevention campaign materials are available on TrafficSafetyMarketing.gov. - *Obey The Sign or Pay The Fine* is a campaign built for law enforcement to raise community awareness about laws regarding speed. Stop Speeding - *Before It Stops You* is a general public education campaign to raise awareness about the dangers and consequences of speeding. NHTSA continues to support, through its Regional Offices and the highway safety grant program, the deterrence of speeding though high-visibility enforcement by states and local communities. More information is included in the IACP Traffic Safety Resource Guide referenced in H-17-20.
H-17-026	NHTSA	Establish a program to incentivize state and local speed management activities.	NHTSA recognizes that there are several methods by which speed management activities can be incentivized, including new resources, performance targets and dedicated grant funding. For instance, The Road to Zero Coalition and Vision Zero Network have provided opportunities to incentivize and prioritize safe speeds via their Safe System Approach. NHTSA will continue to engage stakeholders, safety advocates, and local/state communities to seek additional opportunities to incentivize speed management activities.

PROTECT VULNERABLE ROAD USERS THROUGH A SAFE SYSTEM APPROACH

The DOT's top priority is to ensure America has the safest transportation system in the world. More than 90 percent of our nation's transportation deaths occur on America's streets, roads, and highways, and transportation deaths are on the rise. People who walk, bike, or use a wheelchair also suffer disproportionately from serious injuries and fatalities, yet hold the keys to a more sustainable transportation system and increased prosperity. They are also disproportionately Black and American Indian/Alaskan Native. Fatalities rose 23 and 11 percent among Black and American Indian individuals, respectively, between 2019 and 2020[3]. Overall deaths among people walking and biking have increased 43 percent over the last decade. This situation is unacceptable, yet solvable, and the Safe Systems Approach can play a large role in its solution.

The recently signed Bipartisan Infrastructure Law (BIL, enacted as the Infrastructure Investment and Jobs Act, P.L. 117-58) offers several new opportunities to focus on protecting our most vulnerable road users. For instance, States will now be required to conduct a vulnerable road user assessment to assist in the analysis of vulnerable road user fatalities and serious injuries and identify a program of projects or strategies to address vulnerable user risks. The Safe Streets and Roads for All grant program will support local initiatives to prevent death and serious injury on roads and streets, including transportation-related fatalities and serious injuries involving pedestrians, bicyclists, and other vulnerable road users.

As mentioned above, DOT has also released its first ever National Roadway Safety Strategy. This effort will bring together work done across USDOT and put forth a comprehensive set of actions to significantly reduce serious injuries and deaths on our nation's roadways. The strategy will be rooted in the Safe System Approach (SSA) principles and identifies significant actions the Department will take to help ensure safer roads, safer drivers, safer vehicles, safer speeds, and post-crash care. The strategy will also focus on new priorities that target the most significant and urgent problems, including protecting vulnerable road users.

STATUS

FHWA

With the vision of eliminating fatalities and serious injuries on the Nation's roads, the Safe System Approach is gaining momentum across the country. FHWA has taken a national leadership role in advancing the Safe System Approach and has also been a leader in working aggressively to reduce pedestrian and bicyclist deaths. FHWA supports pedestrian and bicycle safety through funding, policy, guidance, program management, resources, and the availability of an FHWA Bicycle and Pedestrian point of contact in each of its Division offices. The Office of Safety has advanced Safe Transportation for Every Pedestrian (STEP) under Every Day Counts (EDC), which focuses on providing safe crossings for pedestrians through installation of Proven Safety Countermeasures. Additionally, FHWA is targeting technical assistance to States and cities with the biggest pedestrian and bicyclist safety problems, through an updated "Focused

[3] National Center for Statistics and Analysis. (2021, June (revised)). Early estimates of motor vehicle traffic fatalities and fatality rate by sub-categories in 2020 (Crash•Stats Brief Statistical Summary. Report No. DOT HS 813 118). National Highway Traffic Safety Administration

Approach to Safety[4]". To address the issue of pedestrian safety, FHWA and NHTSA jointly released the *USDOT Pedestrian Safety Action Plan* in 2020, which includes current and future ways to improve pedestrian safety across all DOT modes.

Another strategy of the Safe System Approach to improve vulnerable road user safety is to routinely include safety for all users in all road infrastructure projects. FHWA has launched a Complete Streets initiative to update its own practices and to support transportation agencies in planning, developing and operating streets and networks that prioritize safety, comfort, and connectivity to destinations for all people who use the street network. The initiative includes a review of FHWA policies and procedures; training for FHWA staff and stakeholders; and a Complete Streets web portal to help agencies find information relevant to Complete Streets.

In 2019, seventy-six percent of pedestrian fatalities occurred in areas that were not well lit[5]. FHWA is developing a draft of the Pedestrian Lighting Primer that will be published in 2022. This primer will be a resource for transportation practitioners interested in the safety and security benefits of pedestrian lighting, as well as lighting design considerations at locations with existing or future pedestrian activity. Also, FHWA included crosswalk visibility enhancements, rectangular rapid flashing beacons, and lighting in the new set of proven safety countermeasures, which can be used to enhance the visibility of pedestrians.

FHWA is developing resources that provide an overview of the Safe System Approach and how the elements of the Approach map to pedestrian and bicycle-specific issues. The following activities have been completed or are underway:

- *Safe System flyer* – Describes principles and core elements of SSA, and the differences between the approach and traditional road safety practices. *(Complete)*
- *Safe System presentation* – Provides an overview of SSA background, principles, core elements, and examples. The presentation contains speaker notes and background information. *(Complete)*
- *Integrating the Safe System Approach with the Highway Safety Improvement Program* – Presents areas of alignment between HSIP and SSA, as well as opportunities, noteworthy practices, and next steps for safety stakeholders to advance implementation of SSA through HSIP. *(Complete)*
- *Integrating the Safe System Approach into Strategic Highway Safety Plans (SHSPs)* – This guide will provide a framework for how to organize SHSPs around the Safe System core principles and elements. The guide will focus on developing emphasis areas and strategies that align with SSA. *(Underway)*
- *Safe System for Pedestrian/Bicycle Peer Exchange* – FHWA hosted a half-day virtual peer exchange for seven State DOTs interested in advancing Safe System for pedestrians and bicyclists – California, Florida, Maryland, Minnesota, Pennsylvania, Oregon, and Washington. *(Complete)*

[4] https://safety.fhwa.dot.gov/fas/

[5] National Center for Statistics and Analysis. (2021, May). Pedestrians: 2019 data (Traffic Safety Facts. Report No. DOT HS 813 079). National Highway Traffic Safety Administration.

- *A Safe System-Based Framework and Analytical Methodology for Assessing Intersections - Report and Tech Brief* – Provides a basis to assess intersection alternatives according to SSA principles, using a kinetic energy management approach. *(Complete)*
- *Proven Safety Countermeasure Initiative (PSC) Update* – FHWA updated the PSC initiative to include bicycle lanes, rectangular rapid flashing beacons, and crosswalk visibility enhancements. The PSCs align with and can assist an agency with implementing the Safe System Approach. Fatal and serious injuries may decrease when implementing PSCs with elements that separate users in space and time, manage speeds, mass, and impact force angles, increase attentiveness, and reduce complexity of the design and operation of our transportation system. *(Complete)*
- *Primer on Safe System for Pedestrians and Bicyclists* – The primer provides transportation agencies a baseline understanding of SSA and how it relates to bicycle and pedestrian safety. The primer provides an overview of the SSA and maps the elements to pedestrian and bicycle-specific issues. *(Complete)*
- *Safe System for Intersections Framework in FHWA's National Highway Institute (NHI) Training Courses on Intersection Safety* – Training modules on the FHWA Safe System for Intersections Framework will be included into NHI training courses on intersection safety. *(Underway)*
- *Enhancing Vulnerable Road User Detection and Volume Data Through Advanced Imaging Techniques* – This project will: 1) test the ability of sensors to detect pedestrians and bicyclists at intersections and mid-block crossings in different conditions and 2) evaluate if this technology is appropriate for collecting bicycle and pedestrian count data that can inform a measure for exposure. Aligned with the Safe System principles of "humans are vulnerable" and "safety is proactive" and the elements of safe road users and safe roads, the project will evaluate if these technologies can be used as tools in improving the safety of vulnerable road users. *(Underway)*
- *Ensuring Cooperative Automated Driving System (C-ADS) Vehicles and Vulnerable Road Users Safety Through Infrastructure* – This project aims to develop infrastructure-based countermeasures and strategies to facilitate safe interactions between ADS & C-ADS equipped vehicles and vulnerable road users. The project seeks to advance Safe Systems Approach implementation by ensuring pedestrian and vulnerable road user protection as more vehicles become equipped with Advanced Driver Assistance Systems technologies. *(Underway)*
- *Pedestrian and Bicycle Crash Analysis Tool (PBCAT)* – FHWA released the third version of Pedestrian and Bicycle Crash Analysis Tool (PBCAT). PBCAT helps road safety professionals improve their understanding of non-motorist crashes. The application allows users to categorize their non-motorist crashes and create a data set for analysis. *(Complete)*
- *Safe System Approach and Roadway Departure Video* – This video shows the relationship of the four pillars of Focus on Reducing Rural Roadway Departures to the six principles of the SSA, especially the Safe Roads element. It also identifies actions that state and local agencies can take to achieve a Safe System. *(Complete)*

NHTSA

NHTSA has a wide range of initiatives and strategies underway to enhance vulnerable road user safety. NHTSA's activities include setting safety standards for motor vehicles and equipment, identifying safety defects, researching vehicle safety innovations and behavioral factors, developing evidence-based State and community traffic safety programs and behavioral countermeasures, and educating the public on making safer choices in and around vehicles. The agency's work fits into the Department's Safe System Approach in the protection of all road users. The SSA is based upon a shared responsibility among all stakeholders to prevent crashes and deaths and injuries resulting from crashes.

Roadways and Infrastructure

NHTSA works collaboratively with its modal counterparts at FHWA and the Intelligent Transportation System Joint Program Office to address vulnerable road user safety through roadways and infrastructure solutions.

Vehicle Design

NHTSA is conducting research on new and emerging technologies to improve vulnerable road user safety. Research includes visibility and lighting enhancements for detecting vulnerable road users in blind spots and at night, crash avoidance technologies that detect and mitigate crashes with pedestrians, cyclists and motorcyclists, and enhanced vehicle hood and bumper designs to mitigate injury in crashes with vulnerable road users.

NHTSA is working to issue a notice of proposed rulemaking (NPRM) by March 2022 on requirements for protecting pedestrians in impacts with vehicle hoods, and a NPRM in April 2022 on requiring installation of pedestrian automatic emergency braking in light vehicles that meet specific performance requirements to mitigate pedestrian crashes. The agency is also developing a Request for Comment on its comprehensive planned changes to its New Car Assessment Program (NCAP), including systems to address pedestrian safety.

Mitigating Injuries

NHTSA encourages the use of helmets for protecting bicycle and motorcycle riders from head injury. NHTSA has conducted significant education and outreach to stakeholders specifically about mitigating bicycle injuries to children and other riders.

RELATED SR UPDATES

SR	OA	Recommendation from NTSB	OA Response
H-18-037	FHWA	Work with the National Highway Traffic Safety Administration to incorporate motorcycles in the development of performance standards for connected vehicle-to-infrastructure systems.	FHWA is working with NHTSA to better understand causes of motorcycle crashes and the various vehicle and roadway improvements that can be made to address these crashes. FHWA will share with NHTSA the results from a Small Business Innovation Research (SBIR) project funded by FHWA that is supporting the development of a system that will provide real-time hazard warnings to a rider through a helmet-mounted heads-up display system. FHWA is also developing a Synthesis on Vehicle to Infrastructure (V2I) and Connected Automated Vehicle (CAV) Technology

			Applications for Motorcycles (synthesis report to be completed by summer 2022). It will take several years to incorporate motorcycles in the development of performance standards for connected vehicle-to-infrastructure systems.
H-19-041	FHWA	Include separated bike lanes and intersection safety treatments on the list of Proven Safety Countermeasures.	The FHWA Office of Safety has added a new PSC to promote bicycle lanes, which references studies regarding the effectiveness of painted bike lanes and refers users to a recently completed update of the Bikeway Selection Guide. The FHWA's Office of Safety Research and Development is currently conducting research that assesses the safety effects of implementing separated bicycle lanes, and conducting an evaluation of innovative intersection designs for pedestrians and bicyclists which includes looking at protected intersections
H-19-042	FHWA	Include separated bike lanes and intersection safety treatments in the Every Day Counts program.	See H-19-41. The Office of Safety is soliciting ideas and considering various safety innovations for EDC7.
H-19-043	FHWA	In collaboration with the Intelligent Transportation Systems Joint Program Office and the National Highway Traffic Safety Administration, expand vehicle-to-pedestrian research efforts to ensure that bicyclists and other vulnerable road users will be incorporated into the safe deployment of connected vehicle systems.	FHWA research report, Pedestrian Test Bed Phase II highlights the development and implementation of a multi-functional pedestrian technology test bed at FHWA's Turner-Fairbank Highway Research Center. The purpose of the test bed is to support continued research, testing, and demonstration of connected pedestrian/bicyclist systems. Safety Research and Development (R&D) is conducting a Phase I study titled "Ensuring Cooperative automated driving system (C-ADS) vehicles and vulnerable road users (VRU's) safety through infrastructure," which seeks to identify potential infrastructure-based solutions, countermeasures, and strategies to facilitate the interactions of ADS & C-ADS equipped vehicles with VRU's in complex and crowded urban environments. FHWA continues to collaborate with ITS JPO and NHTSA, and support activities to ensure that bicyclists and other vulnerable road users will be incorporated into the safe deployment of connected vehicle systems.

H-13-011 H-13-012 H-14-001	NHTSA	Develop performance standards for visibility enhancement systems to compensate for blind spots in order to improve the ability of drivers of single-unit trucks with gross vehicle weight ratings over 10,000 pounds to detect vulnerable road users, including pedestrians and cyclists, in their travel paths. Once the performance standards requested in H-13-11 have been developed, require newly manufactured single-unit trucks with gross vehicle weight ratings over 10,000 pounds to be equipped with visibility enhancement systems meeting the performance standards. Require that newly manufactured truck-tractors with gross vehicle weight ratings over 26,000 pounds be equipped with visibility enhancement systems to improve the ability of drivers of tractor-trailers to detect passenger vehicles and vulnerable road users, including pedestrians, cyclists, and motorcyclists.	NHTSA is evaluating the safety potential of a variety of visibility enhancement systems to mitigate risks to vulnerable road users, such as blind spot monitoring systems and other crash avoidance technologies, like pedestrian automatic emergency braking. NHTSA is also continuing research following an October 10, 2019, advance notice of proposed rulemaking seeking comment on modifications to Federal Motor Vehicle Safety Standard No. 111, "Rear visibility," regarding camera-based rear visibility systems, commonly referred to as Camera Monitor Systems (CMS). CMS may have the potential to mitigate crash risks associated with side and side-rear blind spots by providing wider, extended fields of view, potentially improving the ability of drivers to detect vulnerable road users such as pedestrians and cyclists. Today, some truck-tractors and other heavy vehicles already supplement the visibility provided by side-mounted mirrors with CMS, including systems that provide visibility benefits in reduced lighting conditions. In addition, the Federal Motor Carrier Safety Administration has granted three exemptions to allow installation of CMS as an alternative to the required rearview mirrors on heavy vehicles, an effort that will provide the agencies insight on how drivers perform with these systems. Currently, NHTSA is also conducting research to assess driver performance when using CMS on heavy trucks.
H-18-029	NHTSA	Incorporate motorcycles in the development of performance standards for passenger vehicle crash warning and prevention systems.	NHTSA plans to perform multiple, concurrent research programs to evaluate how passenger car automatic emergency braking (AEB) systems respond to motorcycles in rear-end and intersection-based crash-imminent driving situations. Additionally, we are planning to assess blind spot intervention (BSI) performance with a motorcycle approaching, or operating within, a light vehicle blind zone. The work is expected to include a range of passenger car types (e.g., cars, trucks, and sport utility vehicles) and be inclusive of different sensing technologies and technology implementations. Some AEB evaluations will be performed in light and dark lighting conditions. We plan to select test speeds to characterize system performance and plan to compare car-to-car and car-to-motorcycle AEB and BSI performance.

H-18-030	NHTSA	Incorporate motorcycles in the development of performance standards for connected vehicle-to-vehicle systems.	NHTSA plans to perform multiple, concurrent research programs to evaluate how passenger car automatic emergency braking (AEB) systems respond to motorcycles in rear-end and intersection-based crash-imminent driving situations. Additionally, we are planning to assess blind spot intervention (BSI) performance with a motorcycle approaching, or operating within, a light vehicle blind zone. The work is expected to include a range of passenger car types (e.g., cars, trucks, and sport utility vehicles) and be inclusive of different sensing technologies and technology implementations. Some AEB evaluations will be performed in light and dark lighting conditions. We plan to select test speeds to characterize system performance and plan to compare car-to-car and car-to-motorcycle AEB and BSI performance.
H-18-031	NHTSA	Work with the Federal Highway Administration to incorporate motorcycles in the development of performance standards for connected vehicle-to-infrastructure systems.	Working with the Collision Avoidance Metric Partnership (CAMP), NHTSA explored potential modifications to connected vehicle system technologies to support vehicle-to-motorcycle (V2M) applications. While NHTSA prioritized its initial activity on vehicle-to-everything (V2X) technology on light duty vehicles (as they represent the largest crash population segment), the agency believed that V2X technology could be adapted to motorcycles, and has significant potential for improving safety by improving the conspicuity of riders to other road users. However, there is uncertainty concerning: the availability of spectrum to support V2X communications; potential interference in the band; and the adequacy of cellular vehicle-to-everything (C-V2X) technology to support connected vehicle applications (including motorcycles). NHTSA therefore is prioritizing its V2X research efforts to work with the FCC, the National Telecommunications and Information Administration, the Federal Highway Administration (FHWA), and industry and other stakeholders to resolve those issues, before deciding how to proceed in the connected vehicle-to-infrastructure area. NHTSA and USDOT are engaged in spectrum research to assess potential interference in the revised 5.9 GHz V2X band, and NHTSA is evaluating the performance of C-V2X technology. In 2022, NHTSA will work with FHWA on connected vehicle-to-pedestrian technology per the provisions included in the Bipartisan Infrastructure Law, Sec.24219 - Research on Connected Vehicle Technology.
H-18-032	NHTSA	Require all new motorcycles manufactured for on-road use in the United States be equipped with antilock braking system technology.	Antilock braking system (ABS) technology is now either standard or optional on at least 70 percent of model year 2020 motorcycles. The agency expects the trend toward voluntary adoption of ABS on motorcycles to continue. NHTSA will continue to evaluate safety data and information from the agency's crash databases and other sources and will continue to work with stakeholders to identify research opportunities on ABS and other advanced safety technologies for motorcycles. Additionally, in ongoing NHTSA research on light

			vehicle advanced crash avoidance features, such as automatic emergency braking and blind-spot detection/intervention, the agency assesses the degree to which the systems detect motorcycles to obtain data that could help develop systems that benefit motorcyclists along with other road users.
H-18-033	NHTSA	Conduct or sponsor research to evaluate the effectiveness of stability control systems for motorcycles.	A 2020 report entitled Pre-Crash Scenario Characteristics of Motorcycle Crashes for Crash Avoidance Research (DOT HS 812 902) indicates that 14% of all motorcycle crashes and 13% of fatal motorcycle crashes are single-vehicle control loss crashes. Stability control systems for motorcycles are a relatively recent technology. There are several available systems in production, but not enough deployed for researchers to determine their effect, if any, on crashes. NHTSA will work toward characterizing the stability control performance of these systems and will monitor the proliferation of these technologies.
H-18-034	NHTSA	Based on the research recommended in Safety Recommendation H-18-033, develop and publish performance standards for stability control systems on motorcycles, and require systems meeting those standards on all new motorcycles manufactured for on-road use in the United States.	At this time, there is insufficient information indicating such a requirement would be beneficial to motorcycle riders' safety. Results derived from research conducted in H-18-033 will provide information regarding system effectiveness and potential benefits. This information will guide NHTSA in the determination of appropriate rulemaking in this area.
H-18-039	NHTSA	Revise Federal Motor Vehicle Safety Standard 108 to include performance-based standards for vehicle headlight systems correctly aimed on the road and tested on-vehicle to account for headlight height and lighting performance.	FMVSS No. 108, "Lamps, reflective devices, and associated equipment," contains performance-based standards for both equipment and vehicles. NHTSA is considering vehicle-level headlighting performance requirements as part of its adaptive driving beam headlighting rulemaking. In NHTSA's October 12, 2018, notice of proposed rulemaking (NPRM) to permit adaptive driving beam headlighting systems, NHTSA proposed vehicle-level requirements and test procedures for headlighting system performance. NHTSA is currently considering the comments received on the NPRM in developing a final rule.
H-18-040	NHTSA	Revise Federal Motor Vehicle Safety Standard 108 to allow adaptive headlight systems.	On October 12, 2018, NHTSA published an NPRM to permit adaptive driving beam headlighting systems. NHTSA is currently considering the comments received on the NPRM in developing a final rule.
H-18-041	NHTSA	Develop performance test criteria for vehicle designs that reduce injuries to pedestrians.	As noted in NTSB's Special Investigation Report, Pedestrian Safety (SIR-18-03), the United Nations Economic Commission for Europe (UNECE) established a global technical regulation (GTR) to reduce the levels of injury sustained by pedestrians from frontal impacts with motor vehicles (see page 22 of the report). This regulation, GTR No. 9 - Pedestrian Safety, contains performance test criteria for vehicle designs. NHTSA is developing a proposed rule following

			establishment of the GTR (see www.reginfo.gov, RIN 2127-AK98).
H-18-042	NHTSA	Develop performance test criteria for manufacturers to use in evaluating the extent to which automated pedestrian safety systems in light vehicles will prevent or mitigate pedestrian injury.	In November 2019, NHTSA published draft pedestrian automatic emergency braking (PAEB) test procedures for public comment. Work is currently underway to evaluate several aspects of those procedures to refine the performance test. Areas of interest include higher test speeds (aligning with real-world crash data), and factors relating to lighting conditions (day and night testing (most fatal pedestrian crashes occur at night), lower and higher vehicle headlighting beams, and varying urban lighting conditions). Looking beyond test criteria, NHTSA will be researching advanced perception systems (e.g. Lidar, thermal imaging technologies) in comparing and investigating testing and characterization methods. Further, NHTSA performed exploratory research using a modified version of NHTSA's draft PAEB test procedure on 11 model year 2020 vehicles. The testing included higher test speeds, day and night performance with lower and upper beam headlights and use of articulated mannequins. NHTSA is completing its analysis of the data. In addition, exploratory research is looking at an integrated approach combining active and passive safety to explore the development of a single test sequence that can assess pedestrian safety. The integrated approach evaluates a vehicle in four stages (pre-crash sensing, contact-induced initiation of active/deployable hood systems, leg protection, and head protection).
H-18-043	NHTSA	Incorporate pedestrian safety systems, including pedestrian collision avoidance systems and other more-passive safety systems, into the New Car Assessment Program.	NHTSA is committed to reducing the number of pedestrian fatalities in motor vehicle crashes. In 2015, the agency published plans to incorporate a pedestrian crashworthiness protection program and pedestrian automatic emergency braking technology in the New Car Assessment Program (NCAP). In response to comments on the plans, the agency undertook additional research to enhance NCAP's incorporation of the safety technologies. NHTSA is considering a request for comment on proposed changes to NCAP, including incorporation of pedestrian safety systems.
H-18-044	NHTSA	Develop a detailed pedestrian crash data set that represents the current, complete range of crash types and that can be used for local and state analysis and to model and simulate	This recommendation was reclassified as "Closed Acceptable Action" by the NTSB on 4/6/2021.

		pedestrian collision avoidance systems.	
H-19-036	NHTSA	Incorporate into the New Car Assessment Program tests to evaluate a car's ability to avoid crashes with bicycles.	NHTSA continues research efforts and stakeholder engagements to explore the readiness and development of crash avoidance technologies, including those for pedestrians and bicyclists. The agency will consider incorporating additional crash avoidance technologies into NCAP when the research is complete. NHTSA has research planned for later this year.
H-19-037	NHTSA	In collaboration with the Intelligent Transportation Systems Joint Program Office and the Federal Highway Administration, expand vehicle-to-pedestrian research efforts to ensure that bicyclists and other vulnerable road users will be incorporated into the safe deployment of connected vehicle systems.	Please see NHTSA's response to H-18-31. NHTSA is prioritizing its vehicle-to-everything (V2X) deployment support efforts, working with the Federal Communications Commission, the National Telecommunications and Information Administration, the Intelligent Transportation Systems Joint Program Office, the Federal Highway Administration, and industry stakeholders to resolve uncertainties before proceeding to next steps on V2X.
H-19-038	NHTSA	(1) Convene a bicycle safety coalition of stakeholders to develop a comprehensive national strategy to increase bicycle helmet use among bicyclists of all ages that would include, at a minimum, a model all-ages bicycle helmet law; (2) disseminate the strategy to all states and make it available on your website.	NHTSA has compiled a list of State bicyclist safety laws, including laws on bicycle helmet use. NHTSA plans to compare these laws to existing model laws to identify gaps in existing State laws, and to use the information to inform a comprehensive national strategy to increase bicycle helmet use. NHTSA has met with the League of American Bicyclists to discuss their perspective on the safety recommendation as well as help identify additional stakeholders. The League is an advocacy organization representing bicyclists across the Nation, that advocates for safer roads and that provides bicycling education. NHTSA will continue meeting quarterly with the League, with plans to expand discussion to include other relevant stakeholders.
H-19-039	NHTSA	After Safety Recommendation H-19-38 is completed, include the model all-ages bicycle helmet law in Countermeasures That Work: A Highway Safety Countermeasure Guide for State Highway Safety Offices.	NHTSA periodically updates Countermeasures That Work (CMTW): A Highway Safety Countermeasure Guide and is currently working on the tenth edition. The document includes "Bicycle Helmet Laws for Children," as well as "Bicycle Helmet Laws for Adults," as effective highway safety countermeasures, as the purpose of bicycle helmet laws is to increase helmet use and reduce the number of severe and fatal head injuries resulting from bicycle crashes. Once a Model all-ages bicycle helmet law is enacted, the Model all-ages helmet law will be referenced within CMTW as a resource for States and communities interested in implementing an all-ages helmet law

PREVENT ALCOHOL- AND OTHER DRUG-IMPAIRED DRIVING

Impaired driving is one of our nation's most critical transportation safety issues, and eliminating alcohol-related driving and crashes is a priority for the Department. Drug-impaired driving has emerged as another serious safety issue, and the Department is dedicated to understanding and reducing this growing risk. Whether by alcohol, other drugs, or a combination, impaired driving puts the driver, their passengers, and other road users at risk. The Department shares NTSB's concerns with this serious highway safety issue and agrees it is 100% preventable.

The Office of Drug and Alcohol Policy and Compliance (ODAPC), part of the Office of the Secretary of Transportation, is responsible for reducing the demand for illicit drugs in the transportation industries; deterring the use of illicit drugs and the misuse of alcohol in the transportation industries; and creating prevention and treatment opportunities for transportation employers and employees. ODAPC's regulation, 49 CFR Part 40 (Part 40), "Procedures for Transportation Workplace Drug and Alcohol Testing Programs," establishes the requirements for how to conduct DOT-regulated drug and alcohol testing, including how to conduct tests, and the evaluation and treatment procedures necessary for returning employees to duty after testing violations. The DOT Modes that require testing in accordance with Part 40 are the FAA, FMCSA, FRA, FTA, and PHMSA.

In accordance with the Omnibus Transportation Employee Testing Act of 1991, Part 40 sets the standards for drug and alcohol testing in the transportation industries. There are approximately 6 million drug tests conducted per year under Part 40, making it the largest drug and alcohol testing program in the world. The 5-panel of drugs for which we require testing includes: marijuana, cocaine, amphetamines/ methamphetamines, phencyclidine (PCP), and opioids. In a final rule effective January 1, 2018 (82 FR 52229), we added four semi-synthetic opioids (hydrocodone, oxycodone, hydromorphone, and oxymorphone) to DOT drug testing panel for the transportation industries. The FMCSA, which has provided additional information below, requires its regulated employers to conduct drug and alcohol testing in accordance with Part 40.

ODAPC is developing a rulemaking that would propose to add laboratory-based oral fluid testing as an additional methodology available to transportation industry employers for conducting DOT-regulated drug tests. The advantages to this methodology include lower costs, less invasive testing from a privacy standpoint, a shorter window-of-detection, and a better way to reduce cheating on drug tests because all oral fluid tests would be directly observed. We are hopeful that, if adopted, oral fluid drug testing would further our goals of deterrence of illegal substance use by transportation safety-sensitive employees.

The Department will actively pursue prevention opportunities, outreach, and a coordinated effort to further transportation safety by preventing alcohol- and other drug-impaired driving.

STATUS

<u>FMCSA</u>

FMCSA is implementing NTSB's safety recommendations to prevent alcohol- and drug-impaired operation of CMVs. The FMCSA is committed to ensuring that only safe commercial

drivers and motor carriers operate on our Nation’s roads, and improves truck and bus safety through education, regulation, enforcement, research, and innovative technology.

Impairment Training and Detection Authority

FMCSA continues to target high-risk carriers through field oversight efforts such as investigations, safety audits, and roadside inspections to make certain that unsafe commercial drivers are removed from the Nation's roadways. In FY2020, FMCSA and its Motor Carrier Safety Assistance Program (MCSAP) partners conducted 5,253 roadside inspections of commercial motor vehicles (CMV) that resulted in an alcohol- or drug-related violation being recorded against the driver, with 5,232 of those citations being out of service violations (details in Table 1).

On December 5, 2016, the FMCSA published its final rule concerning the Drug and Alcohol Clearinghouse (Clearinghouse) (81 FR 87686), which established an information technology (IT) system to capture violations of the agency’s drug and alcohol testing rules. The Clearinghouse serves as a central repository containing records of violations of FMCSA’s drug and alcohol testing program by commercial driver’s license (CDL) holders and employers are required to conduct pre-employment queries of new drivers and annual queries of drivers they employ to verify that any drivers with adverse information have completed the return-to-duty process prior to being allowed to operate commercial motor vehicles. The final rule requires State Driver Licensing Agencies (SDLAs) to check the Clearinghouse before issuing, renewing, transferring, or upgrading a CDL to determine whether the driver is qualified to operate a commercial motor vehicle.

Table 1. Roadside Inspections Data, Driver Violations; Drug- and Alcohol-Related, Fiscal Year 2020

Violation Code	Violation Description	# of Inspections	# of Violations	# of Out of Service Violations
392.4A	Driver uses or is in possession of drugs	300	310	293
392.4APOS	Driver on duty and in possession of a narcotic drug / amphetamine	2,172	2,277	2,169
392.4AUI	Driver on duty and under the influence of, or using a narcotic drug / amphetamine, which renders the driver incapable of safe operation.	402	405	400
392.5A & 392.5A1	Driver consuming an intoxicating beverage within 4 hours before operating a motor vehicle	240	281	269
392.5A2DETECT	Driver having any measured alcohol concentration, or any detected presence of alcohol while on duty, or operating, or in physical control of a commercial motor vehicle	431	432	425
392.5A2POS	Driver having possession of alcohol while on duty, or operating, or in physical control of a CMV	781	786	761
392.5A2UI	Operating a CMV while under the	241	241	240

	influence of an intoxicating beverage regardless of its alcohol content.			
392.5A3	Driver in possession of intoxicating beverage while on duty or driving.	686	692	675
Total		**5,253**	**5,424**	**5,232**

Source: FMCSA, Analysis & Information Online (https://ai.fmcsa.dot.gov/default.aspx)

On November 13, 2017, DOT's Office of Drug and Alcohol Policy and Compliance (ODAPC) published a final rule, *Procedures for Transportation Workplace Drug and Alcohol Testing Programs: Addition of Certain Schedule II Drugs to the Department of Transportation's Drug-Testing Panel and Certain Minor Amendments* (82 FR 52229). The effective date of the final rule was January 1, 2018, resulting in the addition of four semi-synthetic opioids (i.e., hydrocodone, oxycodone, hydromorphone, and oxymorphone) to DOT's opiate category of the drug testing panel. The Department's drug testing panel already included the marijuana metabolite THCA (Δ^9-tetrahydrocannabinolic acid), as marijuana remains a schedule I, illegal drug under the Controlled Substances Act.

On October 7, 2021, FMCSA published a final rule (86 FR 55718) *Controlled Substances and Alcohol Testing: State Driver's Licensing Agency Non-Issuance/Downgrade of Commercial Driver's License* that requires State Driver's Licensing Agencies (SDLAs) to remove the commercial learner's permit (CLP) or commercial driver's license (CDL) privilege from the driver license of individuals who, under current regulations, are prohibited from operating a CMV due to controlled substance (drug) and alcohol program violations. The final rule is expected to improve roadway safety by helping to ensure that CLP and CDL holders who engage in prohibited drug or alcohol-related conduct complete the required return-to-duty process before resuming operation of a CMV on public roads.

Promoting Best Practices

FMCSA's Chief Medical Officer is developing a series of videos to educate motor carriers and certified medical examiners so they can inform drivers about the dangers of impairing substances. These videos will allow the agency to provide an online repository that will be available to motor carriers' safety departments. One video in the series will address prescription and over-the-counter medications often encountered during DOT certification exams of truck and bus drivers and provide medical examiners, drivers, and motor carrier safety departments with information about these medications, including common side effects, drug interactions, dosages and half-lives of these medications. These videos will increase awareness about these medications so certified medical examiners can make informed determinations on whether the medications would impact a driver's ability to safely operate a CMV. Medications covered will include stimulants, anti-anxiety, analgesics, anti-psychotic, and over-the-counter products that may increase crash risk if not used properly.

In coordination with ODAPC, FMCSA routinely provides a featured speaker at the Drug and Alcohol Testing Industry Association, the American Association of Medical Review Officers, and the Substance Abuse Program Administrators Association conferences, each attracting over 500 attendees. During the conferences, FMCSA provides information about its drug and alcohol testing program as well as the safety risks associated with the use of prescription medications.

Hair Testing

With respect to the recommendation that FMCSA disseminate information to motor carriers about using hair testing as a method of detecting the use of controlled substances (H-16-008), FMCSA must adhere to Section 12020 of the Omnibus Transportation Employee Testing Act of 1991 (Public Law 102-143), which requires the DOT to incorporate the U.S. Department of Health and Human Services' (HHS) scientific and technical guidelines for testing procedures, including the mandatory guideline that establishes the minimum list of controlled substances for which individuals may be tested. On September 10, 2020, the Substance Abuse and Mental Health Services Administration (SAMHSA) published a Notification of Proposed Mandatory Guidelines (85 FR 56108) to establish scientific and technical guidelines for the inclusion of hair specimens in the Mandatory Guidelines for Federal Workplace Drug Testing Programs (Guidelines). The public comment period for SAMHSA's notice ended on November 9, 2020. To address this recommendation, FMCSA will adhere to any changes to the Part 40 regulations that ODAPC may undertake consistent with any final HHS action.

NHTSA

NHTSA is committed to preventing impaired driving by using its national leadership in extensive research, demonstration projects, and partnerships with other Federal agencies, State Highway Safety Offices, and nonprofit and advocacy groups. As a science-based agency, NHTSA provides foundational information, technical assistance, and grant funding to States and works to decrease impaired driving crashes, injuries and fatalities. To bring a stronger focus on this important traffic safety issue, NHTSA has initiated and completed a variety of impaired driving research projects, programs, and associated activities; increased support for training, technical assistance, and education for law enforcement, prosecutors, judges, and others in the criminal justice system; created and employed year-round communication efforts that increase during periods of concentrated enforcement; and provided significant grant funding to States for their own impaired driving programs.

NHTSA strives to reach every person with safety messages throughout the year, which includes two key mobilization periods that raise awareness about the dangers of driving under the influence of both alcohol and drugs and riding with an impaired driver. But NHTSA's work does not rely solely on public education. Through program development work and highway safety grants, NHTSA supports State programs that seek to prevent impaired driving. NHTSA works with States and other stakeholders to prevent impaired driving among potential offenders, develop and implement programs that closely monitor high-risk individuals, and deter recidivism. By providing critical training to law enforcement officers on detecting impaired drivers, NHTSA helps remove impaired drivers from the roads. NHTSA works with partners in the States to strengthen and support ignition interlock programs and to provide training to prosecutors so that they can successfully try impaired driving cases. NHTSA also provides education to judges on nuances of impaired driving, and supports innovative approaches to offender assessment, treatment, and supervision. This support allows the expanded use of proven countermeasures by critical user groups that can effectively prevent impaired driving crashes.

The research NHTSA conducts aims to bring an understanding of how the presence of a drug influences driver impairment, and how prevalent the use of alcohol and drugs are among the driving public. Through this research, NHTSA plans to increase understanding of effective

countermeasures to impaired driving that can ultimately save lives. This important contribution allows NHTSA to provide technical assistance to States on the toxicology of drugs that could impair driving-related skills.

NHTSA's leadership on this issue extends to the development and testing of advanced technology. Efforts underway include identifying and reviewing ideas on how to detect and stop impaired drivers (a Request for Information[6] was published in November 2020) and a literature review and research on impaired driving detection technologies and on driver monitoring strategies. Additionally, NHTSA will prioritize actions outlined in the Bipartisan Infrastructure Law that will address impaired driving.

RELATED SR UPDATES

SR	OA	Recommendation from NTSB	OA Response
H-12-033	NHTSA	Develop and disseminate to appropriate state officials a common standard of practice for drug toxicology testing, including (1) the circumstances under which tests should be conducted, (2) a minimum set of drugs for which to test, and (3) cutoff values for reporting the results.	NHTSA is working with other Federal agencies and senior toxicologists on guidance for drug toxicology testing for drug-impaired driving. The guidance is expected to include information on the circumstances under which tests should be conducted, a minimum set of drugs for which to test, test procedures to use, and appropriate cutoff values, by drug. NHTSA anticipates seeking public input on the need for this guidance, including required content and the proper means to facilitate its use. In addition, NHTSA is planning a demonstration program to evaluate the use of Toxicology Liaisons. In three NHTSA regions, these positions would be deployed at a State-level similar to other previously established liaison positions that help address impaired driving issues (e.g., Law Enforcement Liaison, Traffic Safety Resource Prosecutor, Judicial Outreach Liaison, Probation Fellow). NHTSA is also planning to sponsor toxicology stakeholder meetings in up to ten states for the purpose of improving communication, coordination and drug toxicology testing and reporting in those states.
H-13-001	NHTSA	Seek legislative authority to award incentive grants for states to establish a per se blood alcohol concentration (BAC) limit of 0.05 or lower for all drivers who are not already required to adhere to lower BAC limits.	In December 2018, Utah became the first State in the country to establish a per se BAC limit of 0.05. NHTSA is evaluating Utah's reduction of its per se BAC limit from .08 to .05. The study examines the law's impact on traffic safety, including a broad range of non-fatality involved and fatality-involved crashes. NHTSA will also review whether the law has created unintended consequences and the legislative history of Utah's effort to enact the law. The study will provide NHTSA and other States with important information on the merits of .05 per se laws. We expect the report to be released in late 2021.

[6] https://www.federalregister.gov/documents/2020/11/12/2020-24951/request-for-information-impaired-driving-technologies

H-15-039	FMCSA	Work with motor carrier industry stakeholders to develop a plan to aid motor carriers in addressing commercial motor vehicle driver use of impairing substances, particularly those not covered under current drug-testing regulations such as by promoting best practices by carriers, expanding impairment detection training and authority, and developing performance-based methods of evaluation.	On October 7, 2021, FMCSA published a final rule (86 FR 55718) Controlled Substances and Alcohol Testing: State Driver's Licensing Agency Non-Issuance/Downgrade of Commercial Driver's License. Pursuant to that final rule, State Driver's Licensing Agencies (SDLAs) must remove the commercial learner's permit (CLP) or commercial driver's license (CDL) privilege from the driver license of individuals who, under current regulations, are prohibited from operating a CMV due to controlled substance (drug) and alcohol program violations. The final rule is expected to improve roadway safety by helping to ensure that CLP and CDL holders who engage in prohibited drug or alcohol-related conduct complete the required return- to- duty process before resuming operation of a CMV on public roads.
H-16-008	FMCSA	Disseminate information to motor carriers about using hair testing as a method of detecting the use of controlled substances, under the appropriate circumstances.	With respect to the recommendation that FMCSA disseminate information to motor carriers about using hair testing as a method of detecting the use of controlled substances (H-16-008), FMCSA must adhere to Section 12020 of the Omnibus Transportation Employee Testing Act of 1991 (Public Law 102-143), which requires the U.S. Department of Transportation (DOT) to incorporate the U.S. Department of Health and Human Services' (HHS) scientific and technical guidelines for testing procedures, including the mandatory guideline that establishes the minimum list of controlled substances for which individuals may be tested. On September 10, 2020, the Substance Abuse and Mental Health Services Administration (SAMHSA) published a Notification of Proposed Mandatory Guidelines (85 FR 56108) to establish scientific and technical guidelines for the inclusion of hair specimens in the Mandatory Guidelines for Federal Workplace Drug Testing Programs (Guidelines). The public comment period for SAMHSA's notice ended on November 9, 2020. FMCSA will adhere to any changes to the Part 40 regulations that ODAPC may undertake consistent with any final HHS action.
H-18-056	NHTSA	Develop and disseminate best practices, identify model specifications, and create a conforming products list for oral fluid drug screening devices.	NHTSA believes oral fluid drug screening devices can assist law enforcement during the decision-making process for arrest of a driver suspected of impaired driving. These types of screening tests provide information on the presence of selected drug categories; however, no current devices are capable of providing information on the amount of drugs present. Tests to identify the specific types of drugs and amounts present require additional samples (such as blood) to be evaluated at a toxicological laboratory. It must also be noted that, unlike with alcohol, specific drug concentration levels cannot be reliably equated with effects on driver performance. NHTSA recently published the research study, "Evaluation of On-Site Oral Fluid Drug Screening Technology." The study evaluated the performance of various screening devices against

			their individual manufacturer specifications. The study results showed that oral fluid drug screening devices are not of evidential quality, and their use requires a separate laboratory confirmation test. The study also showed that there is variability in performance across the devices and in the detection of drugs. The devices also vary in the cut-off levels used to determine presence of various drugs and do not test for all drugs that have the potential to impair driving ability. Presently, NHTSA considers the devices to be a tool that can be used by law enforcement but only in combination with various other methods/practices to determine drug impairment. NHTSA, however, will continue to engage other Federal agencies to explore processes and opportunities for additional research which could potentially lead to best practices and the development of model specifications.

REQUIRE COLLISION-AVOIDANCE AND CONNECTED-VEHICLE TECHNOLOGIES ON ALL VEHICLES

Collision avoidance and connected vehicle technologies have the potential to prevent crashes and save lives. However, mandating such technologies is not without tradeoffs, as safer vehicles come at a higher cost of ownership. DOT looks forward to understanding and analyzing the cost and benefits, working with our industry partners toward a safer future.

Safety Band is essential for the implementation of Vehicle-to-Everything (V2X) technologies which have proven benefits including crash avoidance for travelers and vulnerable road users, reducing traffic congestion, and reducing emissions.

The remaining spectrum must be utilized fully, and as soon as possible, through the rapid deployment of safety-critical V2X technologies. The Department is committed to working to reduce the potential for harmful interference to safety-critical communications in the remaining 30MHz. As a first step, the Department will convene stakeholders to discuss spectrum requirements for next generation transportation connectivity. The Department will also continue to test the efficacy of Cellular-V2X LTE for crash avoidance in partnership with the National Telecommunications and Information Administration (NTIA).

STATUS

NHTSA

NHTSA is committed to advancing collision-avoidance and connected-vehicle technologies that have the potential to mitigate crashes and save lives on our nation's roadways. In July 2008, NHTSA added three collision-avoidance technologies—forward collision warning, lane departure warning, and electronic stability control—to its NCAP and began assessing system performance in vehicles starting with model year 2011. NCAP was further updated to include crash imminent braking (CIB) and dynamic brake support (DBS) technologies beginning with model year 2018 vehicles.

NHTSA will develop proposals to update consumer information on vehicle safety performance through NCAP. Updates are expected to emphasize safety features that protect people both inside and outside of the vehicle, better understanding of impacts to pedestrians (e.g., specific considerations for children), and automatic emergency braking and lane keeping assistance to benefit bicyclists and pedestrians. An NCAP road map that will show how a set of vehicle improvements may be advanced over the next ten years, covering the stages of data evaluation, research, and analysis of the criteria for inclusion in NCAP, will also be developed.

RELATED SR UPDATES

SR	OA	Recommendation from NTSB	OA Response
H-13-030 H-13-031	NHTSA	Develop minimum performance standards for connected vehicle technology for all highway vehicles.	There is ongoing uncertainty concerning: the nature and availability of spectrum to support vehicle-to-everything (V2X) communications; potential interference that could occur in the

		Once minimum performance standards for connected vehicle technology are developed, require this technology to be installed on all newly manufactured highway vehicles.	revised band allocation; and the limited research data currently available on cellular vehicle-to-everything (C-V2X) technology with respect to how effectively it could support safety-critical connected vehicle applications. To inform the agency's next steps, NHTSA and other DOT OAs are engaged in spectrum research and technology testing to assess the potential interference of unlicensed Wi-Fi in the revised 5.9 GHz V2X band allocation and exploring preliminary performance characteristics of the 4G-based C-V2X technology.
H-15-004	NHTSA	Develop and apply testing protocols to assess the performance of forward collision avoidance systems in passenger vehicles at various velocities, including high speed and high velocity-differential.	NHTSA has initiated test track research to characterize the automatic emergency braking performance of passenger cars in rear-end crash-imminent driving situations using a range of speeds beyond those presently defined in the agency's forward collision warning, crash imminent braking, and dynamic brake support assessments in the New Car Assessment Program. The work is expected to include a range of passenger car types (cars, light trucks, etc.) and systems inclusive of different sensing technologies. The test data and associated observations from planned research activities will help NHTSA better understand how forward collision avoidance systems may address crashes that occur at higher speeds and will play an important role in quantifying future safety benefit estimations.
H-15-005	NHTSA	Complete, as soon as possible, the development and application of performance standards and protocols for the assessment of forward collision avoidance systems in commercial vehicles. (Safety Recommendation H-15-005 supersedes Safety Recommendation H-01-006)	NHTSA is currently researching next generation technology for heavy vehicles with a gross vehicle weight rating over 4,536 kilograms (10,000 pounds) equipped with forward collision warning and automatic emergency braking (AEB) systems. These systems have been designed to offer improved threat detection (e.g., reduce false activations that were observed on the earlier systems). In 2016, NHTSA completed the first phase of a field operational test examining hundreds of drivers operating trucks from different manufacturers equipped with AEB. NHTSA is continuing to study real-world performance of these new systems with field operational testing and test track research. The test track research is focused on studying objective test procedures and collecting heavy vehicle system performance data. This research, supporting crash data analyses, estimates of potential safety benefits, and other information will help inform an agency decision on next steps, including any rulemaking actions.

H-15-006	NHTSA	Expand the New Car Assessment Program 5-star rating system to include a scale that rates the performance of forward collision avoidance systems.	On October 16, 2019, NHTSA announced its plan to propose significant updates to NCAP, including consideration of rating collision-avoidance systems. The development of the agency's planned changes to NCAP is still ongoing. NHTSA intends to seek public comment on any proposed changes.
H-15-007	NHTSA	Once the rating scale, described in Safety Recommendation H-15-6, is established, include the ratings of forward collision avoidance systems on the vehicle Monroney labels.	On April 28, 2020, the agency published a Federal Register notice seeking public comment on its planned information collection relating to the qualitative and quantitative consumer market research that includes, among other things, collision avoidance ratings on vehicle window stickers known as Monroney labels. NHTSA plans to use this research to determine how to best convey vehicle safety rating information, including collision avoidance, to the public via the agency's website and at the point of sale via the Monroney label. Any update to the Monroney label requires a rulemaking, which NHTSA would pursue after the comprehensive consumer market research effort is complete.
H-17-037	DOT	Define the data parameters needed to understand the automated vehicle control systems involved in a crash. The parameters must reflect the vehicle's control status and the frequency and duration of control actions to adequately characterize driver and vehicle performance before and during a crash.	Pre-crash data parameters from vehicles involved in a crash, such as brake application, accelerator application, and steering input, are currently part of NHTSA's if-equipped Event Data Recorder (EDR) regulation. However, with the proliferation of increasingly sophisticated sensors and automation systems being installed on modern vehicles equipped with ADAS, NHTSA is researching enhanced data logging elements for when an ADAS-equipped vehicle experiences a safety critical event: NHTSA coordinates with domestic and international standard setting bodies involved in the standardization of updated data logging. The agency continues to liaise with SAE International's EDR Committee and the Automated Driving System (ADS) Logger Task Force in defining data elements and pre-crash time durations needed for crash causation and crash reconstruction purposes. NHTSA is also coordinating globally through the United Nations World Forum for the Harmonization of Vehicle Regulations (WP.29) to develop harmonized draft technical requirements for data storage systems for automated driving systems and EDRs that would include appropriate pre-crash and crash data elements. Additionally, NHTSA is conducting vehicle safety research to explore the use cases, data elements, viability, constraints, and special circumstances of logging selective data from driving automation functions. In accordance with the 2015 Fixing America's Surface Transportation

			Act section 24303(b), NHTSA is developing a notice of proposed rulemaking to amend 49 CFR part 563, "Event Data Recorders," to update the current pre-crash recording duration for motor vehicles equipped with event data recorders (Regulatory Identification Number 2127-AM12).
H-18-008	NHTSA	Require all new school buses to be equipped with collision avoidance systems and automatic emergency braking technologies.	NHTSA continues its research on automatic emergency braking technologies. On October 16, 2015, NHTSA granted a petition for rulemaking submitted by the Truck Safety Coalition, the Center for Auto Safety, Advocates for Highway and Auto Safety, and Road Safe America to establish a safety standard to require automatic forward collision avoidance and mitigation systems on certain heavy vehicles. Responding to the petition, NHTSA is evaluating the performance of next generation technology for heavy vehicles with a GVWR (Gross Vehicle Weight Rating) greater than 4,536 kilograms (10,000 pounds) equipped with forward collision warning and automatic emergency braking (AEB). The data collected in this field test will inform a decision on potential regulatory action to require these systems.
H-20-001	NHTSA	Expand New Car Assessment Program testing of forward collision avoidance system performance to include common obstacles, such as traffic safety hardware, cross-traffic vehicle profiles, and other applicable vehicle shapes or objects found in the highway operating environment.	NHTSA is actively pursuing research to develop objective criteria and repeatable test procedures for assessing advanced forward collision avoidance system performance. On November 21, 2019, NHTSA published a Request for Comments notice seeking public input on nine draft research test procedures for advanced driver assistance systems (ADAS) under development. These included draft research test procedures for assessing the performance of intersection safety assist systems in cross-traffic and left-turn across path driving scenarios, as well as pedestrian automatic emergency braking (PAEB) systems in daytime crash scenarios. In addition, the agency is planning research to evaluate the performance of PAEB systems in dark and low lighting conditions and automatic emergency braking (AEB) system to mitigate crashes with bicyclists. Other agency initiatives include assessing AEB performance in intersection crash scenarios involving bicyclists and motorcyclists. Once the research efforts are complete, the agency will determine next steps including possible consideration of these systems in NCAP.

ELIMINATE DISTRACTED DRIVING

Distracted driving is deadly. Data collected by NHTSA indicates that 3,142 lives were lost due to crashes involving distracted drivers in 2019[7]. Though this represents a downward trend since 2016, this is 3,142 lives too many. Distraction poses safety risks in all modes of transportation. As cell phone usage becomes ubiquitous in society, distraction and its associated safety risks are increasingly prevalent in driving and transportation as a whole.

STATUS

NHTSA

NHTSA works to reduce the occurrence of distracted driving and raise awareness of its dangers. This risky behavior poses a danger to vehicle occupants as well as people walking and bicycling. In addition to the 3,142 people killed in motor vehicle crashes involving distracted drivers in 2019, an estimated additional 424,000 people were injured in motor vehicle crashes involving distracted drivers[8]. Six percent of all drivers involved in fatal crashes in 2019 were reported as distracted at the time of the crashes and nine percent of young drivers (15 to 20 years old) were distracted at the time of the fatal crashes, the largest proportion among all age groups[9].

NHTSA continues to support a variety of efforts to reduce all forms of distracted driving and associated crashes and injuries. Its program initiatives seek to change driver behavior to reduce the incidence of texting and other driver distractions and to help the public recognize the risks and consequences of distracted driving. NHTSA also provides grants to States so they can conduct effective highway safety programs and awarded $19,301,500 in distracted driving grants to eight States[10] in Fiscal Year 2021. Further, NHTSA works to encourage employers and fleet owners to adopt policies to decrease distracted driving through a partnership with the Network of Employers for Traffic Safety. Through this partnership, NHTSA supported the development of resources for employers that include a cost of crash estimator, employer toolkits, and educational modules.

Work with Federal, State, and local safety partners to educate the public about the dangers of distracted driving, as well as the possibility of traffic citations, continues through the annual "*U Drive. U Text. U Pay.*" media campaign, which intentionally coincides with Distracted Driving Awareness Month in April[11]. This high-visibility enforcement campaign centers on aiding law enforcement officers in their efforts to deter texting while driving, and it mirrors the approach used to successfully reduce impaired driving and increase seat belt use.

NHTSA plans to publish a comprehensive literature review that covers multiple aspects of distracted driving with a focus on electronic device use in 2023 and supports distracted driving research through the Behavioral Traffic Safety Cooperative Research Program (BTSCRP). In

[7] National Center for Statistics and Analysis. (2021, April). Distracted driving 2019 (Research Note. Report No. DOT HS 813 111). National Highway Traffic Safety Administration.
[8] Id.
[9] Id.
[10] The 405(e) grant recipients were AR, CT, ME, NJ, OR, RI, VT and WV (https://www.nhtsa.gov/highway-safety-grants-program/fy-2021-grant-funding-table)
[11] https://www.trafficsafetymarketing.gov/get-materials/distracted-driving/u-drive-u-text-u-pay

March 2021, the Transportation Research Board (TRB) released its first BTSCRP report, "Using Electronic Devices While Driving: Legislation and Enforcement Implications." TRB also expects to complete the BTSCRP project, "Influence of Infrastructure Design on Distracted Driving," in 2021. Additionally, NHTSA supports human factors research to understand the relationship between distracted driving and technology; and continues to focus on eliminating distraction inside the vehicle.

In 2013, NHTSA published "Visual-Manual NHTSA Driver Distraction Guidelines for In-Vehicle Electronic Devices."[12] These voluntary guidelines apply to original equipment in-vehicle electronic devices used by the driver to perform secondary tasks (communications, entertainment, etc.) through visual-manual means. More recently, a research study on "Driver monitoring strategies in driving automation systems" seeks to help identify the driver monitoring and mitigation strategies currently deployed or prototyped as concepts for SAE driving automation Level 2 and Level 3. Another recently initiated project is "Advanced Driver Assistance Systems Technology and Distracted Driving" which will examine the effects of driver assistance technologies on distracted driving behaviors and driving performance. These studies and projects will help the safety industry and stakeholders better understand the cognitive processes which lead to distracted driving and how best to mitigate them.

FMCSA

On September 27, 2010 (75 FR 59118), FMCSA published a final rule, *Limiting the Use of Wireless Communication Devices,* with an effective date of October 27, 2010. The final rule made it illegal for a commercial driver to text while driving. On December 2, 2011, the agency published a final rule (76 FR 75470), *Drivers of CMVs: Restricting the Use of Cellular Phones,* which limits the use of mobile phones (devices must be hands free). Texting while driving can result in driver disqualification, with penalties ranging up to $3,923 for drivers and up to $15,691 for employers who allow or require drivers to use a hand-held communications device for texting while driving. Multiple violations of State traffic laws prohibiting texting while driving a CMV that requires a CDL is a serious traffic violation that could result in a CDL holder being disqualified for up to 120 days. Multiple convictions for texting while driving a CMV can result in a driver disqualification by FMCSA.

In 2016, FMCSA launched the "*Our Roads, Our Safety"* (OROS) campaign. Now the agency's signature safety education program, OROS supports FMCSA's mission to reduce crashes, injuries and fatalities involving large trucks and buses. The campaign serves as a central consumer-facing effort to engage key stakeholders and reach all road users with important safety tips to influence behavioral change and improve road safety for all. The campaign's messaging incorporates speeding, distracted driving, and the protection of vulnerable road users in its outreach and awareness. The overall objectives for the campaign include: 1) positioning FMCSA as the leading voice in CMV safety; and 2) educating all road users on the unique safety challenges faced by large trucks and buses. FMCSA advertisements typically run from May to September annually, with e-mail and social media outreach conducted throughout the year. The

[12] https://www.federalregister.gov/documents/2013/04/26/2013-09883/visual-manual-nhtsa-driver-distraction-guidelines-for-in-vehicle-electronic-devices

campaign's listserv includes more than 8,000 relevant third-party stakeholders, and the OROS partnership has grown to a network of 29 active, formal partner organizations.

IMPROVE PASSENGER AND FISHING VESSEL SAFETY

No DOT Safety Recommendations

IMPROVE PIPELINE LEAK DETECTION AND MITIGATION

DOT is committed to enhancing leak-detection and mitigation systems and pursuing additional regulatory options and alternative solutions to continuously improve its pipeline safety program.

STATUS

PHMSA

PHMSA is reviewing its inspection practices to increase focus on pipeline safety regulations that require operators to consider the addition of rupture mitigation valves in high consequence areas (HCAs). The agency is also conducting research and development (R&D) projects related to new or improved leak detection technology solutions for locating, quantifying, and reducing the volume of pipeline leaks and ruptures into the environment.

RELATED SR UPDATES

SR	OA	Recommendation from NTSB	OA Response
P-11-010, P-11-011	PHMSA	Require that all operators of natural gas transmission and distribution pipelines equip their supervisory control and data acquisition systems with tools to assist in recognizing and pinpointing the location of leaks, including line breaks; such tools could include a real-time leak detection system and appropriately spaced flow and pressure transmitters along covered transmission lines. Amend Title 49 Code of Federal Regulations 192.935(c) to directly require that automatic shutoff valves or remote control valves in high consequence areas and in class 3 and 4 locations be installed and spaced at intervals that consider the factors listed in that regulation.	In February 2020, PHMSA published its Notice of Proposed Rulemaking (NPRM) Pipeline Safety: Valve Installation and Minimum Rupture Detection Standards. PHMSA expects the final rule to be published in February 2022 (see the Fall 2021 Unified Agenda of Regulatory and Deregulatory Actions, available at https://www.reginfo.gov/public/do/eAgendaMain, RIN 2137-AF06). Additionally, on May 5-6, 2021, PHMSA held a Pipeline Leak Detection, Leak Repair, and Methane Emission Reductions Public Meeting to inform potential rulemaking on Pipeline Safety: Leak Detection. At this meeting, experts and the public shared perspectives and best practices on improving gas pipeline leak detection and repair. Current challenges, relevant technologies, and other potential solutions that can support preventing or reducing pipeline leaks were also discussed. PHMSA expects to use technology and advanced methods to improve leak detection and leak repair, which will improve safety and minimize methane emissions. PHMSA continues to pursue additional regulatory options and possible alternative solutions to improve leak/rupture detection and mitigation. PHMSA is reviewing its inspection practices to emphasize requirements for operators to consider the addition of rupture mitigation valves in HCAs. PHMSA is also conducting R&D on new or improved leak detection technology solutions for locating, quantifying, and reducing the volume of pipeline leaks and ruptures into the environment. Additional research is planned to address identifying small leaks before they lead to catastrophic ruptures.

P-19-001 P-19-002	PHMSA	Require that all new service regulators be installed outside occupied structures. Require existing interior service regulators be relocated outside occupied structures whenever the gas service line, meter, or regulator is replaced. In addition, multifamily structures should be prioritized over single-family dwellings.	In February 2020, PHMSA included a question in its Pipeline Safety Gas State Program Evaluation, used to evaluate the performance of its state partners' pipeline safety programs, to verify that states are checking operator compliance with regulations for inside regulators. In June 2020, PHMSA updated its gas distribution inspection form to include questions that more clearly guide federal and state inspectors to review operators' compliance with the regulations relating to service regulators. Inspectors are also reviewing operators' operation and maintenance procedures required by regulations relative to the placement of service regulators. In September 2020, PHMSA issued an advisory bulletin alerting owners and operators of natural gas distribution pipelines to the requirements of the current regulations and the consequences of failures of inside meters and regulators. In September 2020, PHMSA also sent a letter to all state rate-making authorities encouraging them to consider having a rate rider to help with the cost recovery of moving inside meters and regulators outside, when it can be done without comprising pipeline safety. PHMSA is conducting R&D in this area as well. PHMSA awarded a research project in September 2020 that will deliver recommendations of technologies and procedures for retrofitting regulators located inside occupied structures to improve their safety. Additionally, the researcher will develop a decision-making approach for pipeline operators to identify regulator/piping assemblies that could be replaced or relocated outdoors, and those where remediation, instead of relocation, would provide a similar level of safety to outdoor installations. The research project has concluded and PHMSA expects a final report in February 2022. PHMSA expects the results to offer valuable information regarding the placement of service regulators and on potential retrofitting alternatives, when relocating a service regulator outside occupied structures may not be possible. Additionally, PHMSA funded a related research project in September 2021 to evaluate new "vent-limiting" service regulators with a smaller footprint and to consider whether minimum clearance distances from building openings could be safely decreased for these service regulators, making them suitable for use outdoors where there is limited space. The research project is expected to be completed by March 2023 and will offer valuable information to pipeline regulators and stakeholders regarding alternative technology that could potentially allow for a greater number of service regulators to be installed outside occupied structures.

P-21-002	PHMSA	Evaluate industry's implementation of the gas distribution pipeline integrity management requirements and develop updated guidance for improving their effectiveness. The evaluation should specifically consider factors that may increase the likelihood of failure such as age, increase the overall risk (including factors that simultaneously increase the likelihood and consequence of failure), and limit the effectiveness of leak management programs.	In PHMSA's May 2021 letter to NTSB, the agency proposed to analyze data and trends available from the information reported by distribution pipeline operators to evaluate the industry's implementation of the gas distribution integrity management program (DIMP) requirements. This evaluation will specifically consider factors that may increase the likelihood of failure (such as age of equipment/infrastructure), increase the overall risk (including factors that simultaneously increase the likelihood and consequence of failure), and limit the effectiveness of leak management programs. Additionally, PHMSA expects to continue work with the states to participate in DIMP inspections to identify areas of potential implementation improvement. Based on the results of PHMSA's data analysis and state inspection participation, PHMSA will update inspection questions and guidance to help improve the effectiveness of operators' DIMPs. PHMSA looks forward to NTSB's response.
P-21-003	PHMSA	Assist the Railroad Commission of Texas in conducting the audit recommended in Safety Recommendation P-21-4.	In PHMSA's May 2021 letter to NTSB, the agency proposed to monitor Atmos' completion of NTSB Safety Recommendations P-21-11 and P-21-12. Once completed, PHMSA will coordinate with and assist the Railroad Commission of Texas in conducting a comprehensive audit of Atmos' incident reporting practices, its policies and procedures for responding to leaks, fires, explosions and emergency calls, and the company's DIMP. PHMSA looks forward to NTSB's response.

IMPROVE RAIL WORKER SAFETY

Since 1997, annual rail worker fatalities have dropped from 37 to 11, and injuries have decreased over 50% in the same time period, with the most significant improvements over the past five years[13]; however, work still remains. Through efforts such as identifying and promoting noteworthy practices in work zone safety; supporting worker safety training and technical assistance across the transportation and public safety industry; investigating and mitigating transportation worker exposure to unsafe situations; and ensuring operator safety through fatigue management, adequate rest areas, and efforts to promote better workplaces and compensation, the health, safety, and well-being of rail and transportation workers can be improved.

STATUS

FRA

Roadway worker[14] safety and protection is essential and continues to be a priority for FRA. In 1990, FRA received a petition to amend its track safety standards from the Brotherhood of Maintenance of Way Employees Division, which included issues pertaining to the hazards faced by roadway workers. In response, FRA created the Railroad Safety Advisory Committee (RSAC) in 1996 and issued a final rule in 1996 protecting roadway workers (61 FR 65959; Dec. 16, 1996).

Continuing its commitment to roadway worker protection, FRA introduced Task Number 05-01 to the RSAC on January 26, 2005, proposing a review of 49 CFR Part 214, Subpart C, Roadway Worker Protection, and related sections of Subpart A. This task recommended consideration of specific actions to advance the on-track safety of railroad employees and contractors engaged in maintenance-of-way activities throughout the general railroad system of transportation, including clarification of existing requirements. It also recommended that the working group review the existing regulation, technical bulletins, and safety advisory dealing with on-track safety to consider implications and, as appropriate, consider enhancements to the existing regulation. The RSAC accepted the task, forming the Roadway Worker Protection Working Group. This Working Group met several times in 2005, 2006, and early 2007, presenting its consensus recommendations to RSAC on June 26, 2007. The RSAC accepted the proposed rule changes and FRA published the final rule on November 30, 2011. (76 FR 74585).

FRA currently employs several strategies to promote the protection and safety of rail workers and devotes a significant number of resources towards roadway worker protection (RWP) activities, including inspections, audits, accident investigations, and outreach to railroads and individual railroad employees to emphasize the importance of establishing effective RWP and complying with all applicable RWP rules and regulations. FRA evaluates and adjusts its inspection and outreach priorities if any deficiencies are discovered. FRA conducts rigorous

[13] https://www.bts.gov/content/fatalities-and-injuries-duty-railroad-employees

[14] Per 49 CFR § 214.7: Roadway worker means any employee of a railroad, or of a contractor to a railroad, whose duties include inspection, construction, maintenance or repair of railroad track, bridges, roadway, signal and communication systems, electric traction systems, roadway facilities or roadway maintenance machinery on or near track or with the potential of fouling a track, and flagmen and watchmen/lookouts as defined in this section.

accident investigations that include on-site data collection, interviews with labor and railroad management, fatigue analysis, and accident reenactments to determine probable and contributing causes for accidents so that mitigating actions can be identified and implemented by railroads. Roadway worker fatalities are also reviewed and analyzed by the Fatality Analysis of Maintenance of Way Employees & Signalmen (FAMES) Committee. FAMES is a voluntary, consensus-based committee of railroad labor and management focused on identifying risks, trends, and factors impacting roadway worker safety.

FRA recognizes the importance of addressing errors or non-compliance before a potential accident and created a RWP Review Team consisting of one track-safety inspector from each district to facilitate this. The RWP Review Team meets monthly and is currently reviewing seven On-Track Safety Manuals. The goal is to have all Class One railroads' manuals reviewed by 2022. This team also provides an in-depth review of each Part 214 Subpart C regulation line-by-line to ensure the railroad's plan complies with FRA regulations. This team also reviews any On-Track Safety Program where a roadway worker has been injured in relation to on-track safety.

FRA is working to expand RWP training for all FRA inspectors, regardless of discipline. Currently FRA is drafting job aids that can be used by all FRA inspectors to assist in providing more oversight related to RWP. These job aids will be drafted for each type of on-track safety described in part 214. FRA intends to increase our inspections related to RWP by providing all FRA inspectors with the basic knowledge to monitor RWP activities.

FRA will also begin quarterly RWP-focused inspections on the Northeast Corridor (NEC). These inspections will bring different inspectors from across the country to participate in RWP inspections on the NEC. FRA leadership will monitor the quarterly inspections to evaluate and strategize for improvements related to RWP on the NEC.

FTA

FTA's primary mission is to improve safety within the transit industry. In 2019 FTA developed and deployed its Safety Risk Management (SRM) process to proactively address safety concerns impacting the transit industry by systematically applying FTA's statutory oversight authority to improve the safety of the nation's transit infrastructure. FTA's SRM process features five steps: identify safety concern, assess safety risk, develop mitigation(s), implement mitigation(s), and monitor safety performance. The use of SRM stems from FTA's drive to adopt the principles and methods of SMS as the basis for enhancing the safety of public transportation in the United States. FTA recognizes the importance of improving the safety of the Nation's transit systems for both riders and workers and remains committed to implementing mitigations to improve system safety.

On the issue of rail worker safety, FTA has taken the following actions:

- *FTA Safety Advisory 14-1*[15] – this safety advisory requested that State Safety Oversight Agencies (SSOAs) coordinate with the rail transit agencies (RTAs) in their jurisdiction to

[15] https://www.transit.dot.gov/oversight-policy-areas/safety-advisory-14-1-right-way-worker-protection-december-2013)

inventory current practices in place to protect roadway workers, including the identification of the rules, procedures, technology, and other elements currently. The Safety Advisory also requested that SSOAs and RTAs conduct formal hazard analyses regarding workers' access to the roadway how the protections identified in the inventory address the consequences associated with each hazard. FTA Safety Advisory 14-1 served to aid agencies in determining options for eliminating roadway access that depends solely on roadway workers to provide protection from trains and moving equipment and to determine if existing safety barriers adequately protect workers from train movements and other roadway risks.

- *Transit Advisory Committee for Safety (TRACS)* – Through the TRACS, FTA sought feedback from transit stakeholders on how to address the issue of roadway worker safety. The TRACS is a Federal Advisory Committee that provides information, advice, and recommendations to the DOT Secretary and the FTA Administrator on matters relating to the safety of public transportation systems. TRACS comprises of diverse interests, representing large and small rail and bus agencies, SSOAs, labor organizations, academia, and key industry and other stakeholders to cooperatively address transit safety and other issues by identifying the best solutions based on agreed-upon facts, and identifying proposed regulatory provisions to implement those solutions.
- *Final Rule on State Safety Oversight (49 CFR Part 674, 81 FR 14229)* – this final rule on SSO for rail transit systems was published on March 16, 2016. The SSO Rule authorizes SSOAs to establish safety standards for rail transit, including for roadway worker safety.
- *Public Transportation Agency Safety Plan Final Rule (49 CFR part 673, 83 FR 34418*) - In July 2018, FTA published a Final Rule requiring transit agencies to develop and implement safety plans using and based on SMS methods and processes, which include identifying safety hazards, assessing the related safety risks, and then establishing methods of risk mitigation. Through the implementation of SMS through agency safety plans, transit agencies that identify rail worker safety risks should develop and adopt solutions to improve safety outcomes and protect workers on their system.
- *Roadway Worker Protection (TRACS 18-02 Final Report)* – As part of its 2018-2020 Charter, TRACS examined Roadway Worker Protection and issued recommendations to FTA for consideration at the end of September 2020[16]. FTA is currently considering appropriate action in light of these recommendations.
- *Safety Risk Assessment* – Using the SRM process, FTA assessed the issue of roadway worker protection using safety incident data. FTA is finalizing its safety risk assessment and is considering further appropriate action. Items currently being considered include technical assistance, training, voluntary standards, and the development of mandatory minimum standards.

PHMSA

PHMSA partners with the FRA to improve rail worker safety with regard to hazardous materials transportation. PHMSA and FRA are currently engaged in a comprehensive review of hazardous materials rail regulations. As part of the review, PHMSA and FRA participated in a RSAC

[16] https://www.transit.dot.gov/regulations-and-programs/safety/roadway-worker-protection-tracs-18-02-final-report

working group and are considering the consensus recommendations issued by the committee for revisions to these regulations. The rulemaking (RIN 2137-AF41) seeks to enhance the safety of hazardous materials transported by rail including covered subjects such as the handling and loading of hazardous materials packages and hazard communication.

RELATED SR UPDATES

SR	OA	Recommendation from NTSB	OA Response
R-12-034	FTA	Issue guidelines to advise transit agencies and state oversight agencies on how to effectively implement, oversee, and audit the requirements of 49 Code of Federal Regulations Section 659.19(r) using industry best practices, industry voluntary standards, and appropriate elements from 49 Code of Federal Regulations Part 214, Subpart C Roadway Worker Protection.	The Federal Transit Administration (FTA) utilizes its Safety Risk Management (SRM) process to identify, assess, and mitigate safety concerns in the transit industry following the principles of Safety Management Systems (SMS). FTA is currently using the SRM process to address Roadway Worker Protection (RWP) and will develop mitigations to reduce the risk associated with workers accessing the rail transit right-of-way if the SRM analysis indicates that such action is warranted.
R-12-035	FTA	Emphasize the effective implementation and oversight of 49 Code of Federal Regulations Section 659.19(r) as part of your safety oversight program audits.	FTA utilizes its SRM process to identify, assess, and mitigate safety concerns in the transit industry following the principles of SMS. FTA is currently using the SRM process to address RWP and will develop mitigations to reduce the risk associated with workers accessing the rail transit right-of-way if the SRM analysis indicates that such action is warranted.
R-13-039	FTA	Issue a directive to all transit properties requiring redundant protection for roadway workers, such as positive train control, secondary warning devices, or shunting. (R-13-39) (Urgent)	FTA utilizes its SRM process to identify, assess, and mitigate safety concerns in the transit industry following the principles of SMS. FTA is currently using the SRM process to address RWP and will develop mitigations to reduce the risk associated with workers accessing the rail transit right-of-way if the SRM analysis indicates that such action is warranted.
R-13-040	FTA	Issue a directive to require all transit properties to review their wayside worker rules and procedures and revise them as necessary to eliminate any authorization that depends solely on the roadway worker to provide protection from trains and moving equipment. (R-13-40) (Urgent)	FTA also issued a final rule on State Safety Oversight (49 CFR Part 674) for rail transit systems on March 16, 2016. The SSO Rule authorizes SSOAs to establish safety standards for rail transit, including for roadway worker safety. In July 2018, FTA published the Public Transportation Agency Safety Plan final rule to require transit agencies to develop and implement safety plans based on SMS methods and processes, which include identifying safety hazards, assessing the related safety risks, and then establishing methods of risk mitigation. 49 CFR part 673 (83 Fed. Reg. 34418 (July 19, 2018)). Through the implementation of agency safety plans and SMS, transit agencies that identify rail worker safety risks should develop and adopt solutions to

			improve safety outcomes and protect workers on their system.
R-14-036	FRA, FTA	Require initial and recurring training for roadway workers in hazard recognition and mitigation. Such training should include recognition and mitigation of the hazards of tasks being performed by coworkers.	FTA utilizes its SRM process to identify, assess, and mitigate safety concerns in the transit industry following the principles of SMS. FTA is currently using the SRM process to address RWP and will develop mitigations to reduce the risk associated with workers accessing the rail transit right-of-way if the SRM analysis indicates that such action is warranted.
R-14-038	FTA	With assistance from the Federal Railroad Administration and the Occupational Safety and Health Administration, establish roadway worker protection rules, including requirements for job briefings.	FTA utilizes its SRM process to identify, assess, and mitigate safety concerns in the transit industry following the principles of SMS. FTA is currently using the SRM process to address RWP and will develop mitigations to reduce the risk associated with workers accessing the rail transit right-of-way if the SRM analysis indicates that such action is warranted.
R-14-039	FTA	Once the action specified in Safety Recommendation R-14-38 is completed, update the state safety oversight program to ensure that rail transit systems are meeting the safety requirements for roadway workers.	In December 2013, FTA issued Safety Advisory 14-1: Right-of-Way Worker Protection in response to two safety recommendations from NTSB labeled as urgent. Issue a directive to all rail transit properties requiring redundant protection for roadway workers, such as positive train control, secondary warning devices, or shunting.
R-14-040	FTA	Establish a national inspection program that specifically includes roadway worker activities.	FTA utilizes its SRM process to identify, assess, and mitigate safety concerns in the transit industry following the principles of SMS. FTA is currently using the SRM process to address RWP and will develop mitigations to reduce the risk associated with workers accessing the rail transit right-of-way if the SRM analysis indicates that such action is warranted.
R-17-001	PHMSA	Evaluate the risks posed to train crews by hazardous materials transported by rail, determine the adequate separation distance between hazardous materials cars and locomotives and occupied equipment that ensures the protection of train crews during both normal operations and accident conditions, and collaborate with the Federal Railroad Administration to revise 49 Code of Federal Regulations 174.85 to reflect those findings.	In April 2019, PHMSA initiated a research project in coordination with the John A. Volpe National Transportation Systems Center (Volpe Center) to help determine the appropriate separation distance of train crews from hazardous materials cars. The project is pending reciprocal peer reviews of collective efforts on separation distance research with Transport Canada, as part of their broader effort to develop guidelines for train marshalling and handling.
R-17-002	PHMSA	Pending completion of the risk evaluation and action in accordance with its findings prescribed in Safety Recommendation R-17-01, withdraw regulatory interpretation 06-0278 that pertains to 49 Code of Federal Regulations 174.85 for	PHMSA believes that withdrawal of its letter of interpretation (Reference Number 06-0279) is premature, given the potential for confusion and the absence of an opportunity to receive comments from the public. Moreover, such a proposed change would require justification through supporting safety and cost-benefit data. PHMSA expects the Volpe Center project described above will help inform any subsequent decision (e.g. on further research) about

		positioning placarded rail cars in a train and require that all trains have a minimum of five nonplacarded cars between any locomotive or occupied equipment and the nearest placarded car transporting hazardous materials, regardless of train length and consist.	the appropriate separation distance between train crews and hazardous materials, and whether a corresponding proposed regulatory change is warranted.
R-17-003	FRA	Evaluate the risks posed to train crews by hazardous materials transported by rail, determine the adequate separation distance between hazardous materials cars and locomotives and occupied equipment that ensures the protection of train crews during both normal operations and accident conditions, and collaborate with the Pipeline and Hazardous Materials Safety Administration to revise 49 Code of Federal Regulations 174.85 to reflect those findings.	In May 2017, FRA responded that it would evaluate the risks rail transportation of hazardous materials pose to train crews, and work with PHMSA to evaluate the appropriate separation distance between occupied locomotives or equipment and the hazardous materials cars in a train. Since NTSB issued Safety Recommendation R-17-03, there have been two more accidents—in Fort Worth, Texas on April 24, 2019; and in Draffin, Kentucky on February 13, 2020— that NTSB believes fall under the purview of the recommendation. FRA continues to collaborate with PHMSA on this recommendation and expects the issue to be addressed in an upcoming rulemaking.
R-17-018	FRA	Require railroads to install technology on hi-rail, backhoes, other independently operating pieces of maintenance-of-way equipment, and on the leading and trailing units of sets of maintenance-of-way equipment operated by maintenance workers to provide dispatchers and the dispatch system an independent source of information on the locations of this equipment to prevent unauthorized incursions by trains onto sections of track where maintenance activities are taking place in accordance with the Congressional mandate under the Rail Safety Improvement Act of 2008.	In a letter to NTSB sent May 3, 2018, FRA responded that it will evaluate the feasibility of implementing this recommendation. FRA is drafting a task statement related to Safety Recommendation R-17-18 and intends to present the task statement to the Railroad Safety Advisory Committee (RSAC). If RSAC votes to approve the task, FRA will form a working group and set meeting dates to begin addressing the recommendation; such efforts would include studies to research existing technologies, collection of related accident data, and consideration of costs.
R-18-016	FRA	Review, and modify if necessary, your current inspection guidance regarding watchman/lookout equipment to verify that it requires railroads to provide the necessary equipment for a watchman/lookout to notify a roadway work group of approaching trains and that this accurately reflects the definition contained in Title 49 Code of Federal Regulations 214.7.	FRA's current guidance requires railroads to provide their watchmen/lookouts with the requisite equipment necessary to provide the warning. This guidance is consistent with the definition of a watchman/lookout in 49 CFR § 214.7, which references equipment needed for all types of train approach warning. FRA is considering tasking the RSAC with developing recommendations for any appropriate changes to the roadway worker rule. Through that process, all stakeholders, including NTSB, could provide input regarding appropriate updates to the regulatory language.

R-18-017	FRA	Review railroads on-track safety programs to determine if the necessary equipment is required and provided for a watchman/lookout to notify roadway work groups of approaching trains. If deficiencies are discovered, use enforcement options to encourage compliance.	FRA is currently reviewing roadway worker protection plans and requires that railroads describe in their on-track safety manual the means of providing the warning. FRA is using enforcement to encourage compliance as needed.
R-18-018	FRA	Revise your guidance for inspectors regarding required watchman/lookout equipment and procedures, train all of your inspectors on the revised guidance, and audit subsequent inspections to verify adherence to the specifications outlined in Title 49 Code of Federal Regulations 214.	FRA currently trains its inspectors to correctly interpret the specifications outlined in Title 49 Code of Federal Regulations Part 214 and to ensure that watchmen/lookouts are provided with the appropriate means of providing a warning, as stipulated in the railroad's on-track safety manual. FRA requested the NTSB close Safety Recommendation R-18-018 in its December 21, 2018 letter to the NTSB.
R-18-019	FRA	Modify the National Inspection Plan to require periodic unannounced inspections for roadway worker protection regulation compliance.	FRA's National Inspection Plan is not the mechanism to require periodic, unannounced inspections for roadway worker protection regulatory compliance. Instead, FRA addresses this concern with its inspectors routinely inspecting railroads for compliance with roadway worker protection regulations on both announced and unannounced inspections and audits.
R-18-024	FRA	Issue a guidance document railroads can use to assess their on-track safety program to ensure it encompasses the role of signal and train control equipment, including redundant protection, such as supplemental shunting devices to protect roadway workers and their equipment.	Per Safety Recommendation R-18-24, FRA does not believe that the application of redundant protection, such as supplemental shunting devices is appropriate or necessary in all circumstances. Accordingly, FRA's RWP regulation at 49 CFR § 214.319(b) requires each railroad to determine how best to provide redundant signal protection given its operations but does not require that a railroad implement a specific mitigation measure. As a result, FRA will review the current guidance in the compliance manual to ensure it is consistent with the regulation, and if necessary, revise the guidance.
R-18-025	FRA	Study available technologies that automatically alert maintenance-of-way workers fouling tracks of approaching trains, then require that such technology be implemented as a redundant protective measure.	Implementing Safety Recommendation R-18-25 depends on such devices being commercially available and reliable. FRA will conduct a study of existing systems to determine their feasibility of use for this purpose. FRA agrees that such technology, if available and reliable, may have prevented the April 2016 accident at Chester, Pennsylvania, as well as several other past RWP fatalities. If the study reveals that such technologies with the requisite reliability are commercially available and feasible to implement, FRA will consider requiring the use of such technologies.
R-20-005	FRA	Revise your oversight inspection process to focus on roadway worker activities, especially when roadway workers are using train	FRA carries out a comprehensive safety inspection and oversight program, including inspecting for compliance with Part 214 requirements related to TAW. FRA devotes a great deal of time and effort to RWP activities, including not only inspections and

		approach warning (TAW) for protection.	audits, but also outreach to railroads and individual railroad employees to emphasize the importance of establishing effective RWP and complying with all applicable RWP rules and regulations. FRA continually evaluates and adjusts its inspection and outreach priorities if any deficiencies are discovered.
R-20-006	FRA	Define when the risks associated with using train approach warning are unacceptable and revise Title 49 Code of Federal Regulations 214.329 to prohibit the use of train approach warning when the defined risks are unacceptable.	FRA believes that TAW, when implemented in accordance with the requirements of the applicable Federal regulations, does provide appropriate protection for roadway workers.
R-20-007	FRA	Promulgate scientifically based hours of service requirements for roadway workers.	NTSB Recommendation R-20-07 would require action outside of FRA's statutory authority. Roadway workers are not covered employees under the hours of service law (49 U.S.C. ch. 211). The regulatory authority in 49 U.S.C. § 21109(a) authorizes FRA to prescribe regulations to modify certain existing requirements for train employees and signal employees, or to require other changes to railroads' operating or scheduling practices. The statute does not authorize FRA to prescribe hours of service requirements for employees performing functions not defined in the statute.

This page was intentionally left blank.