



**National Transportation Safety Board  
Evaluation of  
The US Department of Transportation  
2021 Report to Congress  
on the Regulatory Status of  
the Safety Issue Areas on the  
National Transportation Safety Board's  
Most Wanted List**

**May 2022**

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## NTSB Evaluation

Our current MWL safety issues are these:

- Aviation
  - [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](#)
  
- Highway
  - [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](#)
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  - [Eliminate Distracted Driving](#)
  
- Marine
  - [Improve Passenger and Fishing Vessel Safety](#)
  
- Pipeline
  - [Improve Pipeline Leak Detection and Mitigation](#)
  
- Railroad
  - [Improve Rail Worker Safety](#)

This document includes a summary for each safety issue, identifying important action or inaction on NTSB safety recommendations. The summaries are followed by a table containing the DOT response to each of the related recommendations, followed by our evaluation of the response or action.

## **Require and Verify the Effectiveness of Safety Management Systems in all Revenue Passenger-carrying Aviation Operations**

A safety management system (SMS) is an organization-wide, comprehensive, and preventative approach to managing safety. An SMS includes a safety policy, formal methods for identifying hazards and mitigating risks, and promotion of a positive safety culture. An SMS also provides assurance of the overall safety performance of the organization. Only Part 121 air carriers are currently required to implement an SMS. The NTSB has recommended that the Federal Aviation Administration (FAA) also require Part 135 and Part 91 revenue passenger-carrying operations to use an SMS. Although the FAA recently said that it was initiating a rulemaking project to require SMS in Part 135 and Part 91 revenue passenger-carrying operations, to date, very few such operations have voluntarily implemented an SMS.

The FAA has a formal SMS Voluntary Program through which Part 135 operators can receive FAA assistance with SMS implementation and validation, as well as apply for their SMS to be officially recognized. An SMS developed within this program is subject to ongoing FAA oversight and compliance monitoring to ensure conformance with safety policy, safety risk management, safety assurance, and safety promotion.

Participation in this program has been low, despite the FAA promoting it. A review of FAA data showed that, as of February 2022, of 1,940 certificate holders authorized to conduct Part 135 operations, only 30 have an FAA-accepted SMS. The NTSB believes this shows the importance of an SMS requirement—as opposed to a voluntary program—for all Part 135 operators and all Part 91 revenue passenger-carrying operators. In 2016, we recommended that the FAA require all Part 135 operators to establish SMS programs. We have reiterated this recommendation six times since 2016.

In the fall of 2020, the FAA announced it had initiated a rulemaking project, “SMS for Part 21, 91, 135, and 145,” which would expand the application of the existing regulatory requirements of Title 14 *Code of Federal Regulations (CFR)* Part 5, Safety Management Systems, to Part 135 operations and specific types of air tour operations under Part 91. Any SMS rule will need to address the need for an SMS to be scalable and flexible for operations of various sizes and provide specifics for how it can be implemented. We are encouraged by the FAA’s rulemaking project.

A flight data monitoring (FDM) program can be an effective component of an SMS. An FDM uses devices on board aircraft that record or transmit flight data, allowing operators to use the data to identify and mitigate safety risks and prevent future accidents. The devices that support an FDM program do not need to be full flight data recorders capable of being used in an accident investigation.

More information on FDMs and devices that support them is found under another MWL safety improvement, “Install Crash-Resistant Recorders and Establish Flight Data Monitoring Programs,” below.

**Table 1: Require and Verify the Effectiveness of Safety Management Systems in all Revenue Passenger-Carrying Aviation Operations**

Rec #	Recipient	Rec Text	Response and Evaluation
A-16-34	FAA	Require all 14 <i>Code of Federal Regulations</i> Part 135 operators to install flight data recording devices capable of supporting aflight data monitoring program.	<p><b>FAA Response</b></p> <p>The Federal Aviation Administration (FAA) will conduct a review to determine the feasibility of requiring all Title 14, Code of Federal Regulations (14 <i>CFR</i>) 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).</p> <p><b>NTSB Evaluation</b></p> <p>We have reiterated Safety Recommendation A-16-34 three times (2018, 2019, 2021).</p> <p>We believe the actions reported in the FAA’s response to Safety Recommendations A-13-12 and -13 (also included in this report), including the rulemaking that it is considering and the notice to aviation safety inspectors that has been delayed, are also responsive to Safety Recommendation A-16-34. However, we are concerned by the FAA’s lack of progress. Pending completion of the recommended action, Safety Recommendation A-16-34 remains classified “Open–Unacceptable Response.”</p>

Rec #	Recipient	Rec Text	Response and Evaluation
A-16-35	FAA	<p>After the action in Safety Recommendation A-16-34 is completed, require all 14 <i>Code of Federal Regulations</i> 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.</p>	<p><b>FAA Response</b></p> <p>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.</p> <p><b>NTSB Evaluation</b></p> <p>We have reiterated Safety Recommendation A-16-35 four times (2018, 2019, 2020, 2021).</p> <p>The FAA told us in 2017 that it planned to review Part 135 certificate holders’ level of participation in voluntary FDM programs and evaluate additional action that can increase awareness and participation. In 2020, we expressed our concern that we had not received any further information regarding the FAA’s evaluation and review findings or any planned actions to address this recommendation. Pending our receipt of this information and completion of the recommended action, Safety Recommendation A-16-35 remains classified “Open–Unacceptable Response.”</p>

Rec #	Recipient	Rec Text	Response and Evaluation
A-16-36	FAA	Require all Title 14 <i>Code of Federal Regulations</i> Part 135 operators to establish safety management system programs.	<p><b>FAA Response</b>  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 <i>CFR</i>, 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.</p> <p><b>NTSB Evaluation</b>  We have reiterated Safety Recommendation A-16-36 six times (2017, 2018, 2019, 2020, and twice in 2021).</p> <p>We believe the FAA’s reported rulemaking is encouraging. Although the FAA has promoted Part 135 operators’ participation in its SMS Voluntary Program in advance of any potential rulemaking, the participation level has been low. Pending an SMS requirement for Part 135 operators, Safety Recommendation A-16-36 remains classified “Open–Unacceptable Response.”</p>
A-19-28	FAA	Require all commercial air tour operators, regardless of their operating rule, to implement a safety management system.	<p><b>FAA Response</b>  The FAA will consider rulemaking to require all commercial air tour operators to implement a safety management system (SMS).</p> <p><b>NTSB Evaluation</b>  We have reiterated Safety Recommendation A-19-28 once (2021).</p> <p>We believe the FAA’s reported rulemaking is encouraging. Pending an SMS requirement for all commercial air tour operators, Safety Recommendation A-19-28 remains classified “Open–Acceptable Response.”</p>

<b>Rec #</b>	<b>Recipient</b>	<b>Rec Text</b>	<b>Response and Evaluation</b>
A-21-13 A-21-14	FAA	Require safety management systems for the revenue passenger-carrying operations addressed in Safety Recommendations A-21-9 and -10.  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.	<b>FAA Response</b> 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.  <b>NTSB Evaluation</b> We believe the FAA's reported actions are necessary first steps to addressing this recommendation. Pending our review of the FAA's completed evaluation and a plan for addressing Safety Recommendations A-21-13 and -14, they remain classified "Open–Acceptable Response."

### **Install Crash-resistant Recorders and Establish Flight Data Monitoring Programs**

Flight recorders remain the most critical tool for determining what happened in an accident. Knowing what happened is critical to preventing it from happening again. Currently, flight data recorders (FDRs) and cockpit voice recorders (CVRs) are required in some aviation operations, but are not required in other common types of operations such as air tours. The NTSB has recommended requiring the installation of image recorders as a low cost and low weight alternative to an FDR and CVR.

There is another way to use recorded data in aviation, using routine flight data to improve safety and prevent accidents. Part 121 air carriers have voluntarily established programs that look at routine flight operations data from the recorders that they carry.

For other operations, we have recommended similar programs, called flight data management (FDM) programs. We have recommended that the FAA require that all Part 135 and Part 91 passenger-carrying operations establish a structured FDM program and install devices capable of supporting such a program.

To improve safety, an operator needs both an FDM program and the devices that record data. The devices themselves are necessary, but not sufficient, to confer the safety benefit of an FDM program. An FDM program that analyzes the recorded data to identify safety issues in normal operations must also be implemented. Devices capable

of supporting an FDM program can be crash-hardened recorders, but do not need to be because they are intended to supply routine flight data, not accident data. Because devices that enable FDM can be crash-hardened flight recorders, a rulemaking requiring Part 135 aircraft to have flight recorders can satisfy the NTSB recommendation that Part 135 aircraft carry devices to enable FDM programs.

Most revenue passenger-carrying operations under Parts 91 and 135 are not required to have any recording devices on their aircraft. The lone exception is helicopter air ambulance operations, which are required to have devices needed for an FDM program, but are not required to have an FDM program to analyze and act on the data.

Rather than requiring FDM programs for Part 135 operators, the FAA contends that its "voluntary programs are successful for monitoring and evaluating operational practices and procedures." The FAA states that it 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."

In 2017, the FAA also told us it would undertake this same review. In 2020, we wrote the FAA expressing concern that we have received no further information about this review. Since 2017, we have reiterated the recommendation to require FDM four times.

Regarding the FAA's responses to our recommendations on crash-hardened flight recorders, in 2013, the NTSB recommended the FAA require that all existing and newly manufactured turbine-powered, nonexperimental, nonrestricted category aircraft operated under Parts 91, 121, or 135 be equipped with crash-resistant flight recorders capable of recording cockpit audio, images, and parametric data. In 2015, we recommended the FAA require that all existing and newly manufactured aircraft operated under Parts 135 or 121 be equipped with crash-protected cockpit image recorders.

The FAA has not acted to address any of our open recorder recommendations, which are all classified "Open–Unacceptable Response," and have been reiterated multiple times.

Initially, the FAA informed us that a cost-benefit analysis (CBA) showing greater societal benefits than costs, as required by the Office of Management and Budget (OMB) for any new or proposed federal regulation, would be difficult to develop, because the absence of a recorder will never cause an accident, so the benefits of recorders are difficult to identify and quantify.

We replied that CBAs of recorder mandates did not give recorders credit for societal benefits due to avoiding future accidents caused by safety issues that would not have been identified without recorders, including accidents that the NTSB investigated where the probable cause include "for unknown reasons." Therefore, the

NTSB believes that any valid CBA of a recorder mandate must account for the benefits due to mitigating safety risks that would not have been identified and mitigated if recorder data were not available. The evaluation should also acknowledge the number of investigated accidents in which the probable cause included “for unknown reasons.”

In 2017, the NTSB gave the FAA a list of accidents from 2005 through 2017 that involved turbine-powered, nonexperimental, nonrestricted-category aircraft and in which flight crew were killed. Of the 185 accidents, 159 had no form of recording equipment on the aircraft. All 159 aircraft without recorders were advanced aircraft with complex systems. These accidents are typically much more difficult to investigate without recorded data. Of the 159 accidents involving aircraft without recorders, 18 had probable cause determinations that contained “unknown.” There has not been any improvement since 2017. A recent update of the data review found that in NTSB investigations of aviation accidents between 2005 and 2020 involving turbine-powered, nonexperimental, nonrestricted-category aircraft operating under Part 91 or 135 in which flight crew were killed, 83 percent had no recording equipment installed.

We are disappointed that the FAA has not acted to address any open recommendations under this safety improvement, instead recommending voluntary implementation by operators while it continues to determine the feasibility of a rulemaking.

**Table 2: Install Crash-Resistant Recorders and Establish Flight Data Monitoring Programs**

Rec #	Recipient	Rec Text	Response and Evaluation
A-13-12 A-13-13	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	<p><b>FAA Response</b> 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.</p> <p><b>NTSB Evaluation</b> We have reiterated Safety Recommendation A-13-12 four times (twice in 2017, again in 2018 and 2020).  We have reiterated Safety</p>

Rec #	Recipient	Rec Text	Response and Evaluation
		<p>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.</p> <p>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 <i>Code of Federal Regulations</i> 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</p>	<p>Recommendation A-13-13 six times (2014, twice in 2017, again in 2018, 2020, and 2021).</p> <p>We believe the rulemaking the FAA is considering is positive; however, we are concerned that, since the FAA's last update in 2017, it appears to have made no progress in implementing this recommendation. We were disappointed that the notice, which the FAA had planned to issue in 2018, has still not been issued, especially because we believe it would be useful for developing the CBAs necessary to justify rulemaking, given it would provide the FAA with valuable information about the number of operators who have voluntarily installed FDM systems and how many of those systems are TSO C197 compliant. We believe the FAA should make this safety issue a priority and act now. Pending the FAA taking the recommended action, Safety Recommendations A-13-12 and -13 remain classified "Open–Unacceptable Response."</p>

Rec #	Recipient	Rec Text	Response and Evaluation
		system installation, all as specified in Technical Standard Order C197, Information Collection and Monitoring Systems.	
A-15-7 A-15-8	FAA	<p>Require that all existing aircraft operated under Title 14 <i>Code of Federal Regulations</i> 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 <i>CFR</i> 25.1457. (Supersedes Safety Recommendation A-00-30)</p> <p>Require that all newly manufactured aircraft operated under Title 14 <i>Code of Federal Regulations (CFR)</i> Part 121 or 135 and</p>	<p><b>FAA Response</b> 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 switches.</p> <p>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.</p> <p><b>NTSB Evaluation</b> We have reiterated Safety Recommendations A-15-7 and -8 once (2020).  We previously told the FAA that a crash-protected screen capture recording system is not an acceptable solution to this recommendation. We previously provided the FAA with our evaluation of eight accidents and incidents that were the basis for this and other related recommendations. We determined that screen capture recording systems or Amendment 43 compliant recorders would not have provided accident</p>

Rec #	Recipient	Rec Text	Response and Evaluation
		<p>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 <i>CFR</i> 25.1457. (Supersedes Safety Recommendation A-00-31)</p>	<p>investigators with additional needed information to understand the safety issues associated with the majority of those events. Pending our review of a plan for requiring aircraft to record images of the cockpit per TSO-C 176a, as recommended, Safety Recommendations A-15-7 and -8 remain classified "Open–Unacceptable Response."</p>
A-16-34	FAA	<p>Require all 14 <i>Code of Federal Regulations</i> Part 135 operators to install flight data recording devices capable of supporting a flight data monitoring program.</p>	<p><b>FAA Response</b>  The Federal Aviation Administration (FAA) will conduct a review to determine the feasibility of requiring all Title 14, Code of Federal Regulations (14 <i>CFR</i>) 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</p>

Rec #	Recipient	Rec Text	Response and Evaluation
			<p>final rule).</p> <p><b>NTSB Evaluation</b>  We have reiterated Safety Recommendation A-16-34 three times (2018, 2019, 2021).</p> <p>We believe the actions reported in the FAA’s response to Safety Recommendations A-13-12 and -13 (also included in this report), including the rulemaking that it is considering and the notice to aviation safety inspectors that has been delayed, are also responsive to Safety Recommendation A-16-34; however, we are concerned by the FAA’s lack of progress. Pending completion of the recommended action, Safety Recommendation A-16-34 remains classified “Open–Unacceptable Response.”</p>
A-16-35	FAA	<p>After the action in Safety Recommendation A-16-34 is completed, require all 14 <i>Code of Federal Regulations</i> 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.</p>	<p><b>FAA Response</b>  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.</p> <p><b>NTSB Evaluation</b>  We have reiterated Safety Recommendation A-16-35 four times (2018, 2019, 2020, 2021).</p> <p>The FAA told us in 2017 that it planned to review Part 135 certificate holders’ level of participation in voluntary programs and evaluate additional action that can increase awareness and participation. In 2020, we expressed our concern that we had not received any further information regarding the FAA’s findings of its evaluations and reviews or any planned</p>

Rec #	Recipient	Rec Text	Response and Evaluation
			actions to address this recommendation. Pending our receipt of this information and completion of the recommended action, Safety Recommendation A-16-35 remains classified "Open–Unacceptable Response."

## Implement a Comprehensive Strategy to Eliminate Speeding-related Crashes

Speeding’s impact on fatal crashes is similar to that of alcohol impairment, yet speeding’s role in crashes and crash deaths has been overlooked by comparison. Our 2017 report, *Reducing Speeding-Related Crashes Involving Passenger Vehicles*, demonstrated needs for both public understanding of speeding as a safety problem and for lifesaving policy changes.

We have recommended implementation of the following critical tools and strategies to address this safety problem:

- Installing advanced speed limiters on heavy vehicles
- Use of automated speed enforcement
- Identification and promotion of expert speed analysis tools
- Encouragement of community education campaigns

Although the DOT indicated that improving roadway safety is a top priority, the DOT’s response was silent on the contribution of speeding to overall fatality figures and did not discuss the increase in *speeding-related* roadway fatalities during the pandemic. The DOT modal administrations have not yet fully implemented our safety recommendations related to this issue area.

Consistent with the DOT’s silence on recent trends, the DOT has also been silent regarding its progress on its own Speed Management Program Plan (SMPP). The DOT has not published any periodic status reports on implementing the SMPP, despite our issuance of Safety Recommendation H-17-18 specifically requesting updates. The DOT has also failed to provide the “top priority” status of speeding-related crashes, nor explain its understanding of the Safe System Approach, which in large part depends on safe speeds.

We are pleased that the Speed Management Team, comprising elements of the National Highway Traffic Safety Administration (NHTSA), Federal Motor Carrier Safety Administration (FMCSA), and Federal Highway Administration (FHWA), is updating the DOT SMPP. However, 5 years have passed since we requested that the DOT periodically publish status reports. The lack of timely status updates about the DOT’s actions to publish the status report and plan for periodic updates makes it difficult to evaluate to what extent the planned actions were taken, and how effective such actions were.

The NTSB was also pleased to see the release of the National Roadway Safety Strategy (NRSS) outlining the DOT's comprehensive approach to significantly reducing serious injuries and deaths on our nation's highways, roads, and streets. The strategy provides concrete steps that the DOT plans to take to address the issue systemically. The inclusion of the Safe System Approach in the NRSS is positive.

In some cases, the DOT's modal administrations did not respond to recommendations, but described activities that addressed similar subjects. For example, NHTSA responded to Safety Recommendation H-12-20, regarding advanced speed-limiting technology, by recounting the status of a 2016 notice of proposed rulemaking (NPRM) focused on set-speed systems and indicating that, more than 5 years later, NHTSA and the FMCSA are "evaluating next steps."

In other cases, the DOT or one of its modal agencies has taken actions that the NTSB believes will not satisfy the intent of our recommendations. For example, in relation to Safety Recommendation H-17-27, in which we requested specific changes to the guidance in the Manual on Uniform Traffic Control Devices (MUTCD) on how to set speed limits in speed zones, in 2020 the FHWA published a notice of proposed amendment (NPA) to the MUTCD text that does not address this recommendation. It also does not address Safety Recommendation H-17-28, which would "incorporate the Safe System Approach for urban roads to strengthen protection for vulnerable road users." The FHWA last updated the status of these recommendations in 2018, prior to the publication of its NPA and the NTSB's comments to the docket; our 2018 response classified both recommendations "Open—Acceptable Response." Because the proposed MUTCD amendment is not yet final, there is still an opportunity for the DOT to reconsider its position and take the actions indicated in our NPA comments to satisfy these safety recommendations. The safety improvement, "Protect Vulnerable Road Users Through a Safe System Approach," further discusses the DOT responses to speeding recommendations in a safe system context.

Although a status may remain either "Open—Acceptable Response" or "Open—Acceptable Alternate Response," pending provision of updates, the passage of several years should not be disregarded. The NTSB suggests the DOT and its modal agencies reconsider their positions on these outstanding safety recommendations that are elements included in the DOT's own NRSS.

**Table 3: Implement a Comprehensive Strategy to Eliminate Speeding-related Crashes**

Rec #	Recipient	Rec Text	Response and Evaluation
H-17-18	DOT	Complete the actions called for in your 2014 Speed Management Program Plan, and periodically publish status reports on the progress you have made.	<p><b>DOT Response</b> 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.</p> <p><b>NTSB Evaluation</b> The NTSB has not received a response from the DOT since this recommendation was issued. The response above is based on information sent by NHTSA in 2018. We note that the DOT Intermodal Speed Team continues to work collaboratively to accomplish the goals of the SMPP, which the DOT intended to update by the end of fiscal year 2020. Because we are interested in progress made toward completing these efforts, we encouraged the DOT to publish the recommended periodic status reports prior to the release of the 2020 update, including, as appropriate, an explanation of the methodology used to assess accomplishments. Until such actions are complete, Safety Recommendation H-17-18 is classified "Open–Acceptable Response."</p>
H-17-27 H-17-28	FHWA FHWA	<p>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.</p> <p>Revise Section 2B.13 of the Manual on Uniform Traffic Control Devices to, at a minimum,</p>	<p><b>FHWA Response (from comments on NPA)</b> 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.</p> <p><b>NTSB Evaluation</b> The proposed MUTCD text does not address Safety Recommendation H-17-27, which intends "factors currently listed as optional for all engineering studies are required," and therefore should be elevated to a "Standard" statement. In addition, the proposed MUTCD text does not "remove the guidance that speed limits in speed zones should be within 5 mph of the 85th percentile speed." We ask for this removal because, although using the 85th percentile speed for adjusting speed limits has been a practice since the 1940s, undesirable elements, such as driving faster than the posted speed, have been observed through its use.</p> <p>The proposed MUTCD text does provide</p>

Rec #	Recipient	Rec Text	Response and Evaluation
		incorporate the safe system approach for urban roads to strengthen protection for vulnerable road users.	<p>information about additional resources that are available on the FHWA website to assist in establishing and reevaluating speed limits.</p> <p>The proposed MUTCD text also does not address Safety Recommendation H-17-28, which intends to “incorporate the safe system approach for urban roads to strengthen protection for vulnerable road users.”</p>
H-17-29	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.	<p><b>FHWA Response</b> 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).</p> <p><b>NTSB Evaluation</b> We understand that NHTSA is the lead DOT agency responsible for speed enforcement actions, and the FHWA is working with NHTSA to develop the recommended automated and point-to-point speed enforcement guidance. Until such actions are complete, Safety Recommendation H-17-29 is classified “Open–Acceptable Response.”</p>
H-17-30	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.	<p><b>FHWA Response</b> There is currently no installation of point-to-point automated speed enforcement in the US to be able to conduct a before/after study.</p> <p>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)</p> <p><b>NTSB Evaluation</b> The FHWA response above includes new information not previously submitted to the NTSB. We previously said that we understand that NHTSA is the lead DOT agency responsible</p>

Rec #	Recipient	Rec Text	Response and Evaluation
			for speed enforcement actions, and that the FHWA was working with NHTSA to develop the recommended automated and point-to-point speed enforcement guidance. Until such actions are complete, Safety Recommendation H-17-30 is classified "Open–Acceptable Response."
H-12-20 H-12-21	NHTSA	<p>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.</p> <p>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.</p>	<p><b>NHTSA Response</b> 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.</p> <p><b>NHTSB Evaluation</b> The NPRM's proposed set-speed system does not meet the intent of Safety Recommendations H-12-20 and -21. We continue to believe that advanced speed-limiting technology, such as variable speed limiters and intelligent speed adaptation devices, would reduce the instance and severity of accidents involving heavy vehicles. Pending a final rule that incorporates use of the recommended advanced speed-limiting systems, Safety Recommendations H-12-20 and -21 are classified "Open--Unacceptable Response."</p>
H-17-19	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	<p><b>NHTSA Response</b> NHTSA continues to work with law enforcement partners to establish appropriate performance measures for speeding issues.</p> <p>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</p>

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		<p>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.</p>	<p>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.</p> <p><b>NTSB Evaluation</b>  In 2018 we asked NHTSA to share with us further details of its plan and a proposed timeline for completing these actions. We have not yet received any updates. Pending such updates, Safety Recommendation H-17-19 is classified "Open–Acceptable Response."</p>
H-17-20	NHTSA	<p>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.</p>	<p><b>NHTSA Response</b>  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.</p> <p><b>NTSB Evaluation</b>  Though NHTSA has not updated us since December 2017, we are encouraged by its efforts to work with the IACP to develop the recommended best practices. At that time, NHTSA said that this information would be disseminated to law enforcement agencies through the agency's long-standing partnerships with the IACP, the National Sheriffs' Association (NSA), and using our Law Enforcement Liaison Network, and that NHTSA would develop a state and community speeding awareness action kit. Pending our review of the final products that result from these efforts, Safety Recommendation H-17-20 is classified "Open–Acceptable Response."</p>

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H-17-21	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.	<p><b>NHTSA Response</b> 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.</p> <p><b>NTSB Evaluation</b> The efforts that NHTSA described show progress in completing the recommended action. We look forward to receiving further updates, as well as the projected completion date. Until such action is completed, Safety Recommendation H-17-21 is classified "Open–Acceptable Response."</p>
H-17-22	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.	<p><b>NHTSA Response</b> The DOT Intermodal Speed Management Team is updating the Speed Enforcement Camera Systems Operational Guidelines and renaming them Speed Safety Camera Guidelines.</p> <p><b>NTSB Evaluation</b> In 2018 we said that pending our review of the completed guidance, H-17-22 is classified "Open–Acceptable Response."</p>
H-17-23	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	<p><b>NHTSA Response</b> 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.</p> <p><b>NTSB Evaluation</b> In 2018 we said that our intent in issuing this</p>

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		of that assessment, update the Speed Enforcement Camera Systems Operational Guidelines, as appropriate.	recommendation was to have NHTSA and the FHWA use available data to assess point-to-point enforcement to provide guidance to states prior to their adopting this tool. We asked NHTSA to take a proactive approach and possibly work with a state or community to conduct a pilot program, rather than waiting to react to data from an early adopter. Now, 4 years later, NHTSA did not discuss such a pilot program. Until such actions are taken and the recommended guidance is distributed, Safety Recommendation H-17-23 is classified "Open–Acceptable Alternate Response."
H-17-24	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.	<p><b>NHTSA Response</b> 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.</p> <p><b>NTSB Evaluation</b> NHTSA told us in December 2017 that it was assessing ISA systems as the technology matures and was finding that a consumer information program may be a more appropriate method of encouraging adoption, rather than incentivizing manufacturers. We said that such a program could be an acceptable alternate method of addressing this recommendation. There does not appear to have been significant progress in the 4 years since. Pending the development of incentives or an alternate form of ISA information distribution, such as through consumer education, Safety Recommendation H-17-24 is classified "Open–Acceptable Alternate Response."</p>
H-17-25	NHTSA	Collaborate with other traffic safety stakeholders to develop and implement an ongoing program to increase public awareness of speeding as a	<p><b>NHTSA Response</b> NHTSA's speed prevention campaign materials are available on <a href="http://TrafficSafetyMarketing.gov">TrafficSafetyMarketing.gov</a>.</p> <ul style="list-style-type: none"> <li>- <i>Obey The Sign or Pay The Fine</i> is a campaign built for law enforcement to raise community awareness about laws regarding speed. Stop Speeding</li> <li>- <i>Before It Stops You</i> is a general public education</li> </ul>

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		<p>national traffic safety issue. The program should include, but not be limited to, initiating an annual enforcement mobilization directed at speeding drivers.</p>	<p>campaign to raise awareness about the dangers and consequences of speeding.</p> <p>NHTSA continues to support, through its Regional Offices and the highway safety grant program, the deterrence of speeding through high-visibility enforcement by states and local communities. More information is included in the IACP Traffic Safety Resource Guide referenced in H-17-20.</p> <p><b>NTSB Evaluation</b></p> <p>In 2018, we said that we were encouraged by NHTSA's efforts to revise the speeding enforcement guidelines and to develop a state and community speeding awareness action kit. In addition, we note that, because of funding constraints for a federal mobilization program, NHTSA planned to work with stakeholders to explore approaches to developing a national program—or multiple regional programs—related to speeding awareness. We said these efforts represented an acceptable alternate method of implementing H-17-25, which is classified "Open—Acceptable Alternate Response." It has been over 4 years since NHTSA has provided any further updates.</p>
H-17-26	NHT	<p>Establish a program to incentivize state and local speed management activities.</p>	<p><b>NHTSA Response</b></p> <p>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.</p> <p><b>NTSB Evaluation</b></p> <p>There does not appear to have been any significant progress on this recommendation since NHTSA's December 2017 update. In 2018, we said that, pending our review of the completed program, Safety Recommendation H-17-26 is classified "Open—Acceptable Response."</p>

## **Protect Vulnerable Road Users Through a Safe System Approach**

We are encouraged by the DOT's release of its NRSS, discussed above for the issue area, "Implement a Comprehensive Strategy to Eliminate Speeding-related Crashes." The strategy identified the Safe System Approach (SSA) principles and included actions that the DOT prioritized to address the pillars of the SSA—safer roads, safer drivers, safer vehicles, safer speeds, and post-crash care.

The recent sharp increase in road deaths and injuries confirm what our crash investigations continue to illustrate: there is a vital need for federal regulator action to address the public health crisis on the nation's roads. As the DOT report recognizes, vulnerable road users are particularly at risk. Our recommendations on this safety improvement fall into the following subcategories:

- Connected-vehicle (CV) technology
- Vehicle design
- Reduce speeding
- Mitigating injuries

We currently have 26 open recommendations issued to the US DOT, NHTSA, or the FHWA related to this safety improvement, including 10 that are classified "Open–Unacceptable Response," and 1 to the DOT for which we have not received any response since it was issued in December 2019. The NTSB suggests the DOT re-examine its position on these safety recommendations because they align with the DOT's adoption of the SSA and its NRSS. In addition, the DOT report contains information about a number of vulnerable road user recommendations that has not been previously submitted to the NTSB.

### **Connected-Vehicle Technology**

CV technology has tremendous potential for protecting vulnerable road users, and the MWL contains five recommendations (H-18-30, -31, -37, and H-19-37 and -43) addressing the use of this technology to protect vulnerable road users. However, the NTSB is concerned by recent actions by the Federal Communications Commission (FCC) to re-allocate some of the radio frequency spectrum previously allocated for CV use. In 2021 the FCC reduced the allocated frequency spectrum to 30 MHz, less than half the original allocation. One of the likely consequences of this reduction will be the inability to develop the vehicle-to-everything (V2X) CV technologies needed to protect vulnerable road users. In our recent report about a multivehicle highway crash that discussed this issue, *Multivehicle Crash Near Mt. Pleasant Township, Pennsylvania January 5, 2020*, we issued Safety Recommendations H-22-1 to the DOT and H-22-6 to the FCC to address these issues.<sup>1</sup> It is critical that these issues be resolved, and that V2X

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<sup>1</sup> H-22-1 to the DOT: Implement a plan for nationwide connected vehicle technology deployment that (1) resolves issues related to interference from unlicensed devices, such as those that use wi-fi; (2) ensures sufficient spectrum necessary for advanced connected vehicle applications; and (3) defines

technology be developed considering all vulnerable road users to ensure that the safety benefits will be available.

## Vehicle Design

Since we issued the 2021-2022 MWL, we have closed one recommendation associated with this safety item, Safety Recommendation H-18-44, which is classified "Closed–Acceptable Action." Safety Recommendation H-18-44 asks NHTSA to develop a detailed pedestrian crash data set that represents the current, complete range of crash types and can be used for local and state analysis and to model and simulate pedestrian collision-avoidance systems.

Safety Recommendations H-13-11 and -12, and H-14-1 were issued to NHTSA in our 2013 safety study, *Crashes Involving Single-Unit Trucks that Resulted in Injuries and Deaths*. These recommendations ask NHTSA to:

- Develop performance standards for visibility enhancement systems to compensate for blind spots in single-unit trucks
- Require single-unit trucks to be equipped with systems meeting the performance standards
- Require new truck-tractors to be equipped with visibility enhancement systems to improve the ability of their drivers to detect passenger vehicles and vulnerable road users

These recommendations are currently classified "Open–Unacceptable Response." The DOT states that NHTSA is evaluating the safety potential of a variety of visibility enhancement systems and is also continuing research following an October 10, 2019, advance notice of proposed rulemaking (ANPRM) seeking comment on modifications to Federal Motor Vehicle Safety Standard (FMVSS) No. 111, "Rear visibility," regarding camera-based rear visibility systems, commonly referred to as camera monitor systems (CMSs). The DOT also noted that the FMCSA has granted three exemptions to allow CMSs as an alternative to the required rearview mirrors on heavy vehicles, which would give the agencies insight on how drivers perform with these systems.

As we noted in 2021, we are disappointed that NHTSA's October 10, 2019, ANPRM addressed only the possible use of camera-based rear visibility systems on both light vehicles and heavy trucks as an alternative to traditional inside and outside rearview mirrors. We remain concerned because the ANPRM sought comments on whether the camera-based systems would provide an equivalent level of safety to the

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communication protocols to be used in future connected vehicle deployment. (Currently classified "Open–Await Response")

H-22-6 to the FCC: Implement appropriate safeguards to protect vehicle-to-everything communications from harmful interference from unlicensed devices, such as those that use wi-fi. (Currently classified "Open–Await Response")

traditional FMVSS 111-compliant mirrors. We continue to believe that the camera-based systems would sufficiently enhance visibility so drivers could overcome blind-spot areas and better detect vulnerable road users. We urged NHTSA to reconsider its approach to these recommendations. Pending such action, Safety Recommendations H-13-11 and -12, and H-14-1 remain classified “Open–Unacceptable Response.”

Safety Recommendation H-18-41, which asks NHTSA to develop performance test criteria for vehicle designs that reduce injuries to pedestrians, is currently classified “Open–Unacceptable Response.” We were pleased to see for the first time in the DOT report that NHTSA is developing a proposed rule following a United Nations Economic Commission for Europe (UNECE) global technical regulation for reducing pedestrian traffic injuries. In 2019, we recognized NHTSA’s efforts to research pedestrian automatic emergency braking technology and noted our disappointment that NHTSA’s pedestrian safety research did not also focus on vehicle design. We also clarified that the intent of this recommendation was to improve pedestrian safety through crashworthiness countermeasures, such as incorporating pedestrian injury mitigation into vehicle hood and bumper designs.

Safety Recommendation H-18-42 asks NHTSA to develop performance test criteria for manufacturers to use when evaluating the extent to which automated pedestrian safety systems in light vehicles will prevent or mitigate pedestrian injury. It is currently classified “Open–Acceptable Response.” The DOT reports that NHTSA has performed exploratory research using a modified version of its draft pedestrian automatic emergency braking test procedure on 11 model year 2020 vehicles, and that the testing included higher speeds, day and night lighting conditions, and articulated mannequins. In addition, the DOT reports it is researching an “integrated approach.” As noted in our 2019 response, we continue to be encouraged by NHTSA’s efforts to develop the recommended performance test metrics. Further, we are pleased that NHTSA is exploring testing at higher speeds, various headlight configurations, and a variety of lighting conditions. We also look forward to reviewing the analysis of the data from the testing of MY2020 vehicles and the exploratory research.

## **Reduce Speeding**

Safety Recommendations H-17-27 and -28 to the FHWA address mitigating the risks of speeding to vulnerable road users. Both recommendations address needed revisions to Section 2B.13 of the MUTCD. In December 2020, the FHWA published an NPA to the MUTCD in the *Federal Register*. Both recommendations are also on the MWL in the issue area “Implement a Comprehensive Strategy to Eliminate Speeding-Related Crashes” and are discussed above in that issue area. In our comments on the NPA, we said that the proposed revisions to the MUTCD did not address Safety Recommendations H-17-27 or -28.

## **Mitigating Injuries**

Safety Recommendation H-19-38 asks NHTSA to:

- (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 its website

Although NHTSA’s response in the DOT report does not provide any new information, nor indicate any progress that has been made since this recommendation was issued 2 1/2 years ago, NHTSA’s planned actions should meet the intent of Safety Recommendation H-19-38, which is currently classified “Open–Acceptable Response.”

Safety Recommendation H-19-39 asks NHTSA to, after Safety Recommendation H-19-38 is completed, include the model all-ages bicycle helmet law in Countermeasures That Work [CMTW]: A Highway Safety Countermeasure Guide for State Highway Safety Offices. NHTSA previously told the NTSB that it needed to research state all-age bicycle helmet laws because research was needed covering the use and implementation of these laws in practice. We replied that the intent of this recommendation is to provide or reference a model all-age helmet law within the CMTW as a resource for states and communities interested in implementing such an effective countermeasure, and classified Safety Recommendation H-19-39 “Open–Unacceptable Response.”

The DOT report contains new information from NHTSA, including that NHTSA is currently working on the tenth edition of the CMTW, which will include “Bicycle Helmet Laws for Children,” as well as “Bicycle Helmet Laws for Adults,” as effective highway safety countermeasures. Further, NHTSA said that once a model all-ages bicycle helmet law is enacted, it will be referenced within the CMTW. This information has not been submitted to the NTSB, and the NTSB will reach out to NHTSA to obtain more information about these activities and determine if the classification should be changed.

**Table 4: Protect Vulnerable Road Users Through a Safe System Approach**

<b>Rec #</b>	<b>Recipient</b>	<b>Rec Text</b>	<b>Response and Evaluation</b>
H-18-37	FHWA	Work with the National Highway Traffic Safety Administration to incorporate motorcycles in the development of performance standards for connected vehicle-to- infrastructure systems.	<b>FHWA Response</b> 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

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			<p>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 (V2I) systems.</p> <p><b>NTSB Evaluation</b> The FHWA response above includes new information not previously submitted to the NTSB. We previously said that we understand the FHWA was working with NHTSA, and that these actions showed positive movement toward addressing the intent of this recommendation; accordingly, pending the FHWA incorporating motorcycles in connected V2I performance standards as recommended, Safety Recommendation H-18-37 is classified "Open-Acceptable Response."</p>
H-19-41 H-19-42	FHWA	<p>Include separated bike lanes and intersection safety treatments on the list of Proven Safety Countermeasures</p> <p>Include separated bike lanes and intersection safety treatments in the Every Day Counts program.</p>	<p><b>FHWA Response</b> 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.</p> <p>The Office of Safety is soliciting ideas and considering various safety innovations for EDC7.</p> <p><b>NTSB Evaluation</b> The FHWA response above includes new information not previously submitted to the NTSB. In our 2020 response, we said that we understood that the FHWA was assessing the safety effects of implementing separated</p>

Rec #	Recipient	Rec Text	Response and Evaluation
			<p>bicycle lanes and evaluating innovative intersection designs for pedestrians and bicyclists, including protected intersections, and that we looked forward to seeing the results of these analyses added to the proven countermeasures. Pending completion of the FHWA's efforts, Safety Recommendations H-19-41 and -42 were classified "Open–Acceptable Response."</p>
H-19-43	FHWA	<p>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.</p>	<p><b>FHWA Response</b>            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&amp;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 &amp; 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.</p> <p><b>NTSB Evaluation</b>            In our 2020 response, we said that we were encouraged that the test bed research included both pedestrians and bicycles as part of the CV testing. Pending completion of these efforts, Safety Recommendation H-19-43 is classified "Open–Acceptable Response."</p>

Rec #	Recipient	Rec Text	Response and Evaluation
H-13-11, H-13-12, H-14-1	NHTSA	<p>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.</p> <p>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.</p> <p>Require that newly manufactured truck-tractors with gross vehicle weight ratings over 26,000 pounds be equipped with visibility enhancement systems to improve</p>	<p><b>NHTSA Response</b></p> <p>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.</p> <p><b>NTSB Evaluation</b></p> <p>The NHTSA response above includes new information not previously submitted to the NTSB. In our 2021 response, we said that we were disappointed that NHTSA's October 10, 2019, ANPRM addressed only the possible use of camera-based rear visibility systems on both light vehicles and heavy trucks as an alternative to traditional inside and outside rearview mirrors. We were also concerned because the ANPRM sought comments on whether the camera-based systems would provide an equivalent level of safety to the</p>

Rec #	Recipient	Rec Text	Response and Evaluation
		the ability of drivers of tractor-trailers to detect passenger vehicles and vulnerable road users, including pedestrians, cyclists, and motorcyclists.	traditional FMVSS 111-compliant mirrors. We do not believe that the camera-based systems would sufficiently enhance visibility so drivers could overcome blind-spot areas and better detect vulnerable road users. We urged NHTSA to reconsider its approach to these recommendations. Pending such action, Safety Recommendations H-13-11 and -12, and H-14-1 remain classified "Open–Unacceptable Response."
H-18-29 H-18-30	NHTSA	<p>Incorporate motorcycles in the development of performance standards for passenger vehicle crash warning and prevention systems.</p> <p>Incorporate motorcycles in the development of performance standards for connected vehicle-to-vehicle systems.</p>	<p><b>NHTSA Response</b> 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.</p> <p><b>NTSB Evaluation</b> In our 2019 response, we noted that NHTSA’s ongoing research to develop passenger vehicle crash warning and prevention system standards included a study describing motorcycle precrash scenario characteristics. We encouraged NHTSA to move forward with this research and to include motorcycle targets and scenarios in its testing and development of passenger vehicle crash warning and prevention standards.</p> <p>This recommendation was subsequently referenced in our 2020 response to a NHTSA request for comments to evaluate design and consumer information improvements to the</p>

Rec #	Recipient	Rec Text	Response and Evaluation
			<p>Government 5-Star Safety Ratings section of the Monroney label, in which we urged NHTSA to incorporate performance ratings of crash-avoidance technologies and vulnerable road user protection systems on the Monroney labels, thus fully informing the public. Pending publication of the recommended standards that incorporate motorcycles, Safety Recommendation H-18-29 is classified "Open–Acceptable Response."</p> <p>The above NHTSA response does not address the safety issue in Safety Recommendation H-18-30. In 2019, we noted that NHTSA was working with the FHWA, as well as the FCC and the National Telecommunications and Information Administration, to ensure the availability of an interference-free spectrum for vehicle safety applications. We agreed that this was an important step toward developing efficient spectrum-sharing methods for safety-critical V2V and V2I communications. NHTSA further indicated that these communications would support connected technologies, which in turn would increase motorcycle conspicuity and enhance the effectiveness of collision-avoidance systems. We further noted that the improved communications offered by connected technologies should also extend the motorcyclist's range of hazard detection and improve crash risk reaction time. Until such actions are complete, Safety Recommendation H-18-30 is classified "Open–Acceptable Response."</p>
H-18-31	NHTSA	Work with the Federal Highway Administration to incorporate motorcycles in the development of performance standards for connected vehicle-to-infrastructure systems.	<p><b>NHTSA Response</b></p> <p>Working with the Collision Avoidance Metric Partnership (CAMP), NHTSA explored potential modifications to CV 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</p>

Rec #	Recipient	Rec Text	Response and Evaluation
			<p>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.</p> <p><b>NTSB Evaluation</b></p> <p>The NHTSA response above includes new information not previously submitted to the NTSB. In 2019, we noted that NHTSA was working with the FHWA, as well as the FCC and the National Telecommunications and Information Administration, to ensure the availability of an interference-free spectrum for vehicle safety applications. We agreed that this was an important step toward developing efficient spectrum-sharing methods for safety-critical V2V and V2I communications. NHTSA further indicated that these communications would support connected technologies, which in turn would increase motorcycle conspicuity and enhance the effectiveness of collision avoidance systems. We further noted that the improved communications offered by connected technologies should also extend the motorcyclist's range of hazard detection and improve crash risk reaction time. Until</p>

Rec #	Recipient	Rec Text	Response and Evaluation
			such actions are complete, Safety Recommendation H-18-31 is classified "Open–Acceptable Response."
H-18-32	NHTSA	Require all new motorcycles manufactured for on-road use in the United States be equipped with antilock braking system technology.	<p><b>NHTSA Response</b>  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.</p> <p><b>NTSB Evaluation</b>  In 2021, we noted that we continued to believe that it is well understood that ABS technology on motorcycles provides a safety benefit across numerous crash scenarios by allowing the rider to maximize braking force and performance, which in turn improves motorcycle stability and control. For more than a decade, there has been a strong and consistent body of research demonstrating the safety benefits of ABS on motorcycles for both novice and experienced riders. Further proof of the safety benefits occurred when the European Union began the process of requiring ABS technology as standard equipment on all motorcycles with an engine displacement over 125 cc starting in 2016 and 2017.<sup>2</sup> We do not believe that further research is necessary to confirm the benefits</p>

<sup>2</sup> OECD (Organisation for Economic Co-operation and Development). 2001. Motorcycles: Common International Methodology for On-Scene, In-Depth Accident Investigation. OECD/DSTI/RTR/RS9/ICC. International Coordinating Committee of the Expert Group for Motorcycle Accident Investigations, Road Transport Research Program, Directorate for Science, Technology, and Industry. Paris, France: OECD.

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			<p>of ABS technology on motorcycles, and we note that NHTSA's delay in requiring ABS technology on all new motorcycles manufactured for on-road use in the US is a missed opportunity to save lives. We urge NHTSA to move forward expeditiously with the recommended requirement. Until such action is complete, Safety Recommendation H-18-32 remains classified "Open–Unacceptable Response."</p>
<p>H-18-33 H-18-34</p>	<p>NHTSA</p>	<p>Conduct or sponsor research to evaluate the effectiveness of stability control systems for motorcycles.</p> <p>Based on the research recommended in Safety Recommendation H-18-33, 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.</p>	<p><b>NHTSA Response</b></p> <p>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.</p> <p>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-18-33 will provide information regarding system effectiveness and potential benefits. This information will guide NHTSA in the determination of appropriate rulemaking in this area.</p> <p><b>NTSB Evaluation</b></p> <p>In 2019, we encouraged NHTSA to complete research that specifically evaluates the effectiveness of stability control systems on motorcycles, and to use the findings of such research and testing to craft performance standards for those systems. Until such actions are complete, Safety Recommendations H-18-33 and -34 are classified "Open–Acceptable Response."</p>

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H-18-39	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.	<p><b>NHTSA Evaluation</b>            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.</p> <p><b>NTSB Evaluation</b>            The NHTSA response above provides the same information provided in NHTSA's 2020 update. In our 2021 response, we recognized NHTSA's efforts to move forward with rulemaking for adaptive driving beam (ADB) headlight systems; however, we noted that the intent of our recommendation was to improve the testing procedures and performance standards for headlight systems on all vehicles and that vehicle headlight systems require an evaluation that is more advanced than bench testing bulb output. We urged NHTSA to reconsider the scope of its ADB rulemaking to include the recommended performance-based standards for all vehicle headlight systems. Pending such action, Safety Recommendation H-18-39 remains classified "Open–Unacceptable Response." We further note that, as of February 17, 2022, the final rule is expected to be published imminently.</p>
H-18-40	NHTSA	Revise Federal Motor Vehicle Safety Standard 108 to allow adaptive headlight systems.	<p><b>NHTSA Response</b>            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.</p> <p><b>NTSB Evaluation</b>            The NHTSA response above provides the same information provided in NHTSA's 2020</p>

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			<p>update. In our 2021 response, we recognized NHTSA's efforts to move forward with rulemaking for adaptive driving beam headlight systems. Pending the publication of a final rule that allows installation of advanced vehicle lighting systems that have been shown to have safety benefits, Safety Recommendation H-18-40 remains classified "Open–Acceptable Response."</p>
H-18-41	NHTSA	<p>Develop performance test criteria for vehicle designs that reduce injuries to pedestrians.</p>	<p><b>NHTSA Response</b>  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 <a href="http://www.reginfo.gov">www.reginfo.gov</a>, RIN2127-AK98).</p> <p><b>NTSB Evaluation</b>  The NHTSA response above includes new information not previously submitted to the NTSB. NHTSA's previous 2019 update discussed research on the effectiveness of pedestrian automatic emergency braking. In our 2019 response, we recognized NHTSA's efforts to research pedestrian automatic emergency braking technology; however, we noted our disappointment that NHTSA's pedestrian safety research did not also focus on vehicle design. We clarified that the intent of this recommendation was to improve pedestrian safety through crashworthiness countermeasures, such as incorporating pedestrian injury mitigation into vehicle hood and bumper designs. Pending NHTSA's development of the recommended performance test criteria, Safety Recommendation H-18-41 is classified "Open–Unacceptable Response."</p>

Rec #	Recipient	Rec Text	Response and Evaluation
H-18-42	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.	<p><b>NHTSA Response</b></p> <p>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.</p> <p>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).</p> <p><b>NTSB Evaluation</b></p> <p>The NHTSA response above includes new information not previously submitted to the NTSB. In our 2019 response, we were encouraged by NHTSA's efforts to work with industry and to develop the recommended performance test metrics. We noted that NHTSA's pedestrian automatic emergency braking research included developing an objective vehicle-to-pedestrian test procedure using both adult and child mannequins,</p>

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			<p>associated performance metrics, and production vehicle evaluations. Pending our receipt and review of the final criteria, Safety Recommendation H-18-42 is classified "Open–Acceptable Response."</p>
H-18-43	NHTSA	<p>Incorporate pedestrian safety systems, including pedestrian collision avoidance systems and other more-passive safety systems, into the New Car Assessment Program.</p>	<p><b>NHTSA Response</b>  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.</p> <p><b>NTSB Evaluation</b>  The NHTSA response above provides the same information provided in previous NHTSA updates. In our 2021 response, we noted that NHTSA recently pulled back the <i>Federal Register</i> notice seeking public comment on planned upgrades to the NCAP, which the agency had previously planned to release in 2020. We expressed our concern that, despite NHTSA's publication of multiple requests for comments regarding which safety systems to include in an NCAP upgrade, and the latest postponed publication of another request for comments, we have yet to see the actual upgrade notice. We believe that NHTSA has collected sufficient information to make the needed revisions to the NCAP, and we urged NHTSA to move forward with the upgrade. NCAPs around the world have had ratings for collision-avoidance, pedestrian safety, and bicycle safety technologies for many years, yet the US NCAP still does not address the performance of these safety systems. Until such action is taken, Safety Recommendation H-18-43 is classified "Open–Unacceptable Response."</p>

Rec #	Recipient	Rec Text	Response and Evaluation
H-18-44	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 pedestrian collision avoidance systems.	<p><b>NHTSA Response</b> This recommendation was reclassified as "Closed-Acceptable Action" by the NTSB on 4/6/2021.</p> <p><b>NTSB Evaluation</b> The NHTSA response is correct. In our 2021 response, we were pleased that NHTSA updated its Crash Injury Research and Engineering Network to develop a more robust framework to collect data on a large range of crash types and provide data support for local and state analyses and modeling. These actions addressed the intent of Safety Recommendation H-18-44, which is classified "Closed-Acceptable Action."</p>
H-19-36	NHTSA	Incorporate into the NewCar Assessment Program tests to evaluate a car's ability to avoid crashes with bicycles.	<p><b>NHTSA Response</b> 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.</p> <p><b>NTSB Evaluation</b> The NHTSA response above provides the same information provided in previous NHTSA updates. In our 2021 response, we noted that NHTSA recently pulled back the <i>Federal Register</i> notice seeking public comment on planned upgrades to the NCAP, which the agency had previously planned to release in 2020. We expressed our concern that, despite NHTSA's publication of multiple requests for comments regarding which safety systems to include in an NCAP upgrade, and the latest postponed publication of yet another request for comments, we have yet to see the actual upgrade notice. We believe that NHTSA has collected sufficient information to make the needed revisions to the NCAP, and we urged NHTSA to move forward with the upgrade. NCAPs around the world have had ratings for collision-avoidance, pedestrian safety, and bicycle safety technologies for many years, yet the US</p>

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			<p>NCAP still does not address the performance of these safety systems. Until such action is taken, Safety Recommendation H-19-36 is classified "Open–Unacceptable Response."</p>
H-19-37	NHTSA	<p>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.</p>	<p><b>NHTSA Response</b>  Please see NHTSA’s response to H-18-31. NHTSA is prioritizing its vehicle-to-everything (V2X) deploymentsupport 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.</p> <p><b>NTSB Evaluation</b>  The NHTSA response above includes new information not previously submitted to the NTSB. In our 2021 response, we noted that we supported NHTSA’s efforts to initiate an NPRM to mandate CV technology for new light vehicles and to standardize the communication requirements of vehicle-to-vehicle messages based on the dedicated short-range communication (DSRC) standard. However, since the 2017 NPRM was published, NHTSA stopped any rulemaking progress, then issued a request for comments, asking whether the DSRC is still the optimal method for CV communication or if new cellular based communication methods may be more appropriate. In our responses to these NHTSA submissions, we stated that “[the US Department of Transportation] should not put existing lifesaving technologies, such as DSRC, on hold while waiting for the next emerging technology to arrive . . .” Our position is still the same; potentially lifesaving technology remains stalled because of NHTSA’s neglectful approach in requiring its use. Connected-vehicle technologies have great potential to save lives and mitigate crash severity, and it is critical that these technologies are developed considering all vulnerable road users to ensure</p>

Rec #	Recipient	Rec Text	Response and Evaluation
			<p>that the resulting systems will be broadly applicable. As we noted in our Rochester, Indiana, report, technology needs to be better used to prevent collisions with pedestrians and mitigate injury severity when a collision occurs. Vehicle-to-everything technology is a vital tool that, with wider use, could prevent crashes similar to the pedestrian crash that occurred in Rochester, or mitigate injuries with other vulnerable road users, such as bicyclists. In addition, we have argued that broadly deploying CV technology in the entire highway vehicle fleet (including heavy vehicles) is necessary to realize the full safety benefits for all road users. Despite recent availability changes in the dedicated safety bandwidth, we urged NHTSA to find ways to connect all roadway users with this important safety technology. Pending such action, Safety Recommendation H-19-37 is classified "Open–Unacceptable Response."</p>
H-19-38	NHTSA	<p>(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.</p>	<p><b>NHTSA Response</b>  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.</p> <p><b>NTSB Evaluation</b>  The NHTSA response above provides the same information provided in NHTSA’s 2020 update. In our 2021 response, we noted that NHTSA’s efforts to compile state bicyclist safety laws and its plans to meet with highway safety stakeholders represent progress toward developing the recommended national strategy. To ensure a comprehensive</p>

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			<p>approach, we encouraged NHTSA to also review county and city helmet laws and to include a balance of stakeholders from all sides of the helmet-use issue in its discussions. Until these actions to develop a strategy and model law, as well as NHTSA's plans to disseminate it to the states, are complete, Safety Recommendation H-19-38 is classified "Open–Acceptable Response."</p>
H-19-39	NHTSA	<p>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</p>	<p><b>NHTSA Response</b>  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.</p> <p><b>NTSB Evaluation</b>  The NHTSA response above includes new information not previously submitted to the NTSB. NHTSA previously said that it needed to research state all-age bicycle helmet laws. In our 2021 response, we noted that the CMTW presents research on bicycle helmet laws for children and adults and determines that both are effective countermeasures. These laws receive the highest effectiveness ratings of all bicycle safety countermeasures listed, and the CMTW encourages states to implement them. The intent of this recommendation was to provide or reference a model all-age helmet law within the CMTW as a resource for states and communities interested in implementing such an effective countermeasure. We urged NHTSA to rethink its approach to this recommendation and consider including the recommended model</p>

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			law in the CMTW. Pending such action, Safety Recommendation H-19-39 is classified "Open–Unacceptable Response."

## Prevent Alcohol- and Other Drug-Impaired Driving

The NTSB appreciates the thorough outline of DOT progress and activities tied to the MWL safety item, "Prevent Alcohol- and Other Drug-Impaired Driving." The topic of alcohol and other drug impairment in transportation has been on every MWL since 1990, and impairment in transportation continues to be a public health concern, with more than 10,000 highway fatalities each year in the United States involving alcohol-impaired drivers. Impairment by over-the-counter medications, prescription drugs, synthetic drugs, illicit substances, and polysubstance use is also a rising concern.

There are five recommendations on the MWL on this topic, three issued to NHTSA and two to the FMCSA, focused on regulatory action. There are three recommendations to states. Actions by NHTSA, the FMCSA, and the states to implement the recommendations can prevent alcohol- and other drug-impaired driving, therefore preventing crashes, reducing injuries, and saving lives.

When it comes to alcohol use, research shows that impairment begins before a person's blood alcohol concentration (BAC) reaches 0.08 g/dL, the current illegal per se limit in every state except Utah, which enacted a 0.05 g/dL per se BAC law in 2017. In fact, by the time a person's BAC reaches 0.08 g/dL, the risk of a fatal crash has more than doubled. We have recommended that states lower the per se BAC threshold to 0.05 g/dL or lower. Further, in Safety Recommendation H-13-1, we recommended that NHTSA seek legislative authority to award incentive grants for states to establish a per se BAC limit of 0.05 g/dL or lower for all drivers not already required to adhere to lower BAC limits. Although NHTSA has not acted on Safety Recommendation H-13-1, we were pleased to see the NHTSA report, *Evaluation of Utah's .05 BAC Per Se Law*, released in February 2022. The data and results showed that a lower BAC limit had demonstrably positive impacts on highway safety in Utah. The crash analyses highlighted large reductions in crash rates and alcohol involvement in crashes associated with the new law that were consistent with, or greater than, those observed or predicted by prior research. The research also found that there were no negative effects on the hospitality industry reported in the research. Unfortunately, though, NHTSA has not taken a public position on a lower BAC limit.

Drugs other than, or in combination with, alcohol also pose an ongoing and increasing threat to highway safety, both for motor carriers and passenger vehicles. In Safety Recommendation H-18-56, issued as a result of our investigation of the 2017 Concan, Texas, crash, we recommended that NHTSA develop and disseminate best practices, identify model specifications, and create a conforming products list for oral fluid drug-screening devices to better assist law enforcement in detecting drivers operating under the influence of drugs. The NTSB is encouraged to see that NHTSA

evaluated various oral fluid drug-screening devices. Although the resulting DOT Office of Drug and Alcohol Policy and Compliance (ODAPC) rulemaking is not associated with a safety recommendation on the MWL, including oral fluid testing for employers to use for DOT-regulated drug tests is a positive step that the NTSB supports.

We are encouraged to see that NHTSA is once again moving forward on developing a common standard of practice for drug toxicology testing, as progress had been stalled in previous years. The incorporation of toxicology liaisons, as well as the state toxicology stakeholder meetings, while not NTSB safety recommendations, can only benefit this work.

The FMCSA has published a final rule at 86 *FR* 55718, "Controlled Substances and Alcohol Testing: State Driver's Licensing Agency Non-Issuance/Downgrade of Commercial Driver's License," to require state driver's licensing agencies (SDLAs) to remove the commercial learner's permit or commercial driver's license privilege from individuals who are prohibited from operating a commercial vehicle due to controlled substance and alcohol program violations, which is progress toward addressing Safety Recommendation H-15-39.

The NTSB understands the FMCSA's requirement to adhere to Section 12020 of the Omnibus Transportation Employee Testing Act of 1991, which is dependent on US Department of Health and Human Services guidelines, as well as the length of time it can take for these steps to be completed. That said, we believe the FMCSA should ensure that motor carriers are aware of their option to use hair testing, and that they understand what is currently allowed as the industry awaits federal action.

**Table 5: Prevent Alcohol- and Other Drug-Impaired Driving**

Rec #	Recipient	Rec Text	Response and Evaluation
H-12-33	NHTSA	<p>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.</p>	<p><b>NHTSA Response</b></p> <p>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.</p> <p><b>NTSB Evaluation</b></p> <p>The NHTSA response above includes new information about a demonstration program and stakeholder meetings not previously submitted to the NTSB. In our 2019 response, we noted that NHTSA continues to develop the recommended standard of practice for drug toxicology testing. We were encouraged by NHTSA’s plans to publish a request for comments in the <i>Federal Register</i> to receive public input on the scope and use of the guidance, and we urged the agency to process this information expediently. In the DOT current report to Congress, NHTSA again suggests that a <i>Federal Register</i> notice is</p>

			forthcoming. Pending our receipt and review of the disseminated guidance, Safety Recommendation H-12-33 remained classified "Open–Acceptable Response." NHTSA sent the NTSB an update to this recommendation in March 2022 indicating that the agency is taking steps to address this issue in response to the requirement in the Bipartisan Infrastructure Law. We are evaluating this new information.
H-13-1	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.	<p><b>NHTSA Response</b></p> <p>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.</p> <p><b>NTSB Evaluation</b></p> <p>The NTSB has not received a response from NHTSA since this recommendation was issued. The response above provides new information not previously submitted to the NTSB. In our 2013 letter, we noted that we were encouraged by NHTSA’s efforts to develop a method to evaluate the effects of lowered state BAC laws, beginning with the 0.05 BAC law recently passed by Utah. We further note NHTSA’s efforts to communicate with Utah and monitor the state’s developments and challenges moving forward. These steps represent progress toward establishing the state incentive grants recommended in Safety Recommendation H-13-1, which is classified "Open–Acceptable Response." We are pleased that, in</p>

			<p>March 2022, NHTSA published the results of its study of Utah’s 0.05 BAC law. NHTSA sent the NTSB an update to this recommendation in March 2022 indicating that the Bipartisan Infrastructure Law did not include the authority for NHTSA to award incentive grants as recommended. The NTSB is evaluating this new information.</p>
H-15-39	FMCSA	<p>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.</p>	<p><b>FMCSA Response</b></p> <p>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.</p> <p>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.</p> <p><b>NTSB Evaluation</b></p> <p>The FMCSA response above includes new information about a recent final rule not previously submitted to the NTSB. In our 2021 response, we were encouraged by the FMCSA’s revised approach to this recommendation and its plan to develop video guidance to educate motor carriers and certified medical examiners, who will in turn educate drivers, about the dangers of impairing substances, including prescription and over-the-counter medications. We look forward to these videos posted on the FMCSA’s website to provide needed guidance about its</p>

			effect on a driver's perception, judgment, and increased crash risk. Pending our review of the completed guidance, Safety Recommendation H-15-39 is classified "Open-Acceptable Response."
H-16-8	FMCSA	Disseminate information to motor carriers about using hair testing as a method of detecting the use of controlled substances, under the appropriate circumstances.	<p><b>FMCSA Response</b></p> <p>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.</p> <p><b>NTSB Evaluation</b></p> <p>The FMCSA response above provides the same information given in the FMCSA's 2020 update. In our 2021 response, we continued to be disappointed that the FMCSA does not intend to communicate hair-testing information until all federal efforts to create standards, guidance, and</p>

			<p>regulations are complete. Although the Department of Health and Human Services published an NPRM in November 2020 to develop mandatory hair-testing guidelines, the publication of a final rule and the DOT's adoption of the guidelines could take several years. We continue to believe that the FMCSA should ensure that motor carriers are aware of their option to use hair testing, and that they have an interim understanding of what is currently allowed as the industry awaits federal action. Pending dissemination of the recommended information, Safety Recommendation H-16-8 remains classified "Open–Unacceptable Response."</p>
H-18-56	NHTSA	<p>Develop and disseminate best practices, identify model specifications, and create a conforming products list for oral fluid drug screening devices.</p>	<p><b>NHTSA Response</b>  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</p>

			<p>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.</p> <p><b>NTSB Evaluation</b></p> <p>The NHTSA response above includes new information about a demonstration program and stakeholder meetings not previously submitted to the NTSB. In our 2019 response, we noted that NHTSA was monitoring developments with these devices to determine future guidance needs. As we noted in our report, although some states have engaged in pilot programs to test the reliability of roadside oral fluid drug screening devices, widespread implementation of the equipment is unlikely without NHTSA support. In addition, we agree that law enforcement can use the devices without NHTSA guidance; however, federal leadership is important in this area and many states are waiting for NHTSA best practices and model specification guidance before using the devices. We encouraged NHTSA to move forward with its development of the recommended guidance. Pending our receipt and review of the documents, Safety Recommendation H-18-56 is classified "Open–Acceptable Response." NHTSA sent the NTSB an update to this recommendation in March 2022 echoing the above information about its research results</p>
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			and indicating that NHTSA plans to form a working group with the National Institute of Standards and Technology to develop performance standards and testing procedures for oral fluid screening devices. The NTSB is evaluating this new information.
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## **Require Collision-Avoidance and Connected-Vehicle Technologies on All Vehicles**

For over 20 years, the NTSB has recommended the use of forward collision-avoidance systems and CV technologies in all highway vehicles to improve highway safety. This improvement has been on our MWL several times in the last two decades. In this recent cycle of the MWL, we continue to urge NHTSA to develop minimum performance standards for these technologies, develop and apply better testing protocols, improve consumer awareness of their capabilities, and require the technologies in all vehicles, including school buses.

The NTSB currently has nine open recommendations issued to NHTSA related to this MWL safety improvement, including six that are classified “Open–Unacceptable Response.” However, movement on our recommendations appears to be slow or, in some cases, has completely stalled. We believe the safety benefits of collision-avoidance and CV technologies have been proven, and collision-avoidance technology is available today. Our crash investigations continue to illustrate the need for vehicle technologies that can compensate for human error.

## **NCAP**

On October 16, 2019, NHTSA announced its plan to propose updates to NCAP, including incorporating collision-avoidance systems into NCAP ratings and assessments, with a planned release in 2020. However, the agency pulled back its planned *Federal Register* notice seeking public comment, and the planned changes to the NCAP are still under development. In March 2022, NHTSA followed up this action with another request for comment, proposing what it called “significant safety updates” to its 5-Star Safety Ratings program.

We are concerned that, despite the publication of multiple requests for comments regarding which safety systems to include in an NCAP upgrade, and the latest postponed publication of yet another request for comment, we have yet to see the actual upgrade notice. We believe the agency has collected sufficient information to make the needed revisions to NCAP, and NHTSA should move forward with the upgrade. NCAPs around the world have had ratings for collision-avoidance, pedestrian safety, and bicycle safety technologies for many years, yet the US NCAP still does not address the performance of these safety systems.

On April 28, 2020, NHTSA 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 planned to conduct research and analysis and would implement a rulemaking process, if necessary. The NTSB has long believed rulemaking is necessary, and no further analysis of the benefits are required. Additionally, the NRSS also calls for rulemaking on the Moroney label. On March 9, 2022, NHTSA published another *Federal Register* notice requesting comments on planned changes to the NCAP program, including updates to the Moroney label. We urge NHTSA to no longer delay addressing this important consumer awareness tool.

### **Performance Standards, Testing, and Deployment**

The NTSB has recommended that NHTSA develop and apply testing protocols to assess the performance of forward collision-avoidance systems in passenger vehicles at various velocities. Additionally, we recommended developing performance standards for automatic emergency braking (AEB) and forward collision warning (FCW) for use in commercial vehicles. Yet, NHTSA's progress in this area continues to be extremely slow. The agency continues "actively researching the development of performance standards," but we believe no further research is needed to develop testing protocols and standards; the technology's benefits have long been proven and are available today.

It is now time to develop the standards, especially as they relate to heavy vehicles, that cause a disproportionate number of fatal crashes compared with passenger vehicles. Although passenger vehicles have moved forward with the adoption of such technologies, commercial fleets will continue to lag in adopting the technology until performance measures are developed.

NHTSA still has not developed performance standards or required this technology for either passenger or commercial vehicles, despite the technology being increasingly incorporated into vehicles. As a result, the implementation of these technologies is uneven, varying between manufacturers and even models from the same manufacturer. It is also confusing for consumers who have to decide if a safety feature is worth paying extra. Safety should be available to all as a standard installation.

### **Connected-Vehicle Technologies**

Connected-vehicle technologies allow vehicles to relay important safety information to each other to avoid crashes. Yet, as discussed above in the Protect Vulnerable Road Users Through a Safe System Approach issue area, a recent regulatory decision by the FCC substantially reduced the radio frequency spectrum available for CV technology. This decision has significantly hurt the potential deployment of CV technologies. The NTSB recently issued Safety Recommendation H-22-1 to the DOT and H-22-6 to the FCC to resolve these impediments to developing and deploying CV

technology.

## School Buses

In this MWL cycle, we expanded our collision-avoidance technology focus to include school buses, based on our recommendation that NHTSA require all school buses to be equipped with collision-avoidance systems and AEB. We have investigated school bus crashes where this technology would have either mitigated or prevented the crash. For several years NHTSA has been studying how next-generation collision-avoidance systems perform on trucks in real-world situations. This research should be expanded to include other heavy vehicles, such as different types of buses. NHTSA’s efforts thus far show progress toward addressing our recommendation.

**Table 6: Require Collision-Avoidance and Connected-Vehicle Technologies on All Vehicles**

Rec #	Recipient	Rec Text	Response and Evaluation
H-13-30 H-13-31	NHTSA	<p>Develop minimum performance standards for connected vehicle technology for all highway vehicles.</p> <p>Once minimum performance standards for connected vehicle technology are developed, require this technology to be installed on all newly manufactured highway vehicles.</p>	<p><b>NHTSA Response</b></p> <p>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 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.</p> <p><b>NTSB Evaluation</b></p> <p>The NHTSA response above includes new information about spectrum research and technology testing not previously submitted to the NTSB. In our 2021 response, we supported NHTSA’s efforts to initiate an NPRM to mandate CV technology for new light vehicles and to standardize the communication requirements of vehicle-to-vehicle messages based on the dedicated short-</p>

			<p>range communication (DSRC) standard. However, since the 2017 NPRM was published, NHTSA stopped any rulemaking progress, then issued a request for comments, asking whether the DSRC is still the optimal method for CV communication or if new cellular-based communication methods may be more appropriate. In our responses to these NHTSA submissions, we stated that “[the DOT] should not put existing lifesaving technologies, such as DSRC, on hold while waiting for the next emerging technology to arrive . . . .”</p> <p>Our position is still the same; potentially lifesaving technology remains stalled because of NHTSA’s neglectful approach in requiring its use. CV technologies have great potential to save lives and mitigate crash severity, and it is critical that these technologies are developed considering all vulnerable road users to ensure that the resulting systems will be broadly applicable. As we noted in our Rochester, Indiana, report, technology needs to be better used to prevent collisions with pedestrians and mitigate injury severity when a collision occurs. Vehicle-to-everything technology is a vital tool that, with wider use, could prevent crashes similar to the pedestrian crash that occurred in Rochester, or mitigate injuries with other vulnerable road users, such as bicyclists. In addition, we have argued that broadly deploying CV technology in the entire highway vehicle fleet (including heavy vehicles) is necessary to realize the full safety benefits for all road users.</p> <p>Despite recent availability changes in the dedicated safety bandwidth, we urged NHTSA to find ways to connect all roadway users with this important safety technology. Pending such action, Safety Recommendations H-13-30 and -31 remain classified “Open–Unacceptable Response.”</p>
H-15-4	NHTSA	Develop and apply testing protocols to assess the	<p><b>NHTSA Response</b> NHTSA has initiated test track research to characterize the automatic emergency</p>

		<p>performance of forward collision avoidance systems in passenger vehicles at various velocities, including high speed and high velocity-differential.</p>	<p>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.</p> <p><b>NTSB Evaluation</b></p> <p>The NHTSA response above includes new information about test track research and technology testing not previously submitted to the NTSB. In our 2021 response, we note that NHTSA was initiating procedures that could also apply to the testing protocols requested in this recommendation. We looked forward to receiving an update on NHTSA's efforts when the agency completed the current phase and determined the next steps to evaluate advanced forward collision-avoidance system performance. We encouraged NHTSA to consider high speed and high velocity differential testing protocols as the agency considered next steps. Although we acknowledge that NHTSA's response reflected some positive movement toward implementing this recommendation, more than 5 years had passed since it was originally issued. Meanwhile, NCAPs around the world have been increasing the difficulty of their testing protocols annually, and our NCAP still does not rate collision-avoidance systems. Pending NHTSA's developing and applying the recommended protocols to assess forward collision-avoidance system performance, Safety Recommendation H-15-4 remains classified "Open–Unacceptable Response."</p>
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H-15-5	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-15-5 supersedes Safety Recommendation H-01-6)	<p><b>NHTSA Response</b>  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.</p> <p><b>NTSB Evaluation</b>  The NHTSA response above is based on information submitted to the NTSB in 2019. In our 2019 response, we noted that NHTSA has moved forward with its frontal collision-avoidance research and was studying how next-generation systems perform on heavy vehicles in real-world situations. We understand that trucks have been the focus of this work, and we encouraged NHTSA to test and evaluate various types of heavy vehicles, including different types of buses, to understand the systems' safety benefits. NHTSA's efforts thus far show progress toward addressing this recommendation. Pending publication of the recommended standards and requirement, Safety Recommendation H-15-5 is classified "Open-Acceptable Response."</p>
H-15-6	NHTSA	Expand the New Car Assessment Program 5-star	<p><b>NHTSA Response</b>  On October 16, 2019, NHTSA announced its plan to propose significant updates to</p>

		<p>rating system to include a scale that rates the performance of forward collision avoidance systems.</p>	<p>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.</p> <p><b>NTSB Evaluation</b></p> <p>The NHTSA response above provides the same information given in previous NHTSA updates. In our 2021 response, we noted that NHTSA recently pulled back the <i>Federal Register</i> notice seeking public comment on planned upgrades to the NCAP, which the agency had previously planned to release in 2020. We expressed our concern that, despite NHTSA’s publication of multiple requests for comments regarding which safety systems to include in an NCAP upgrade, and the latest postponed publication of yet another request for comments, we have yet to see the actual upgrade notice. We believe that NHTSA has collected sufficient information to make the needed revisions to the NCAP, and we urged NHTSA to move forward with the upgrade. NCAPs around the world have had ratings for collision-avoidance, pedestrian safety, and bicycle safety technologies for many years, yet the US NCAP still does not address the performance of these safety systems. Until such action is taken, Safety Recommendation H-15-6 is classified “Open–Unacceptable Response.”</p>
H-15-7	NHTSA	<p>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.</p>	<p><b>NHTSA Response</b></p> <p>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</p>

			<p>Monroneylabel requires a rulemaking, which NHTSA would pursue after the comprehensive consumermarket research effort is complete.</p> <p><b>NTSB Evaluation</b></p> <p>The NHTSA response above includes new information about sharing research results with the public and updating the Monroneylabel not previously submitted to the NTSB. In our 2021 response, we noted that NHTSA recently pulled back the <i>Federal Register</i> notice seeking public comment on planned upgrades to the NCAP, which the agency had previously planned to release in 2020. We expressed our concern that, despite NHTSA’s publication of multiple requests for comments regarding which safety systems to include in an NCAP upgrade, and the latest postponed publication of yet another request for comments, we have yet to see the actual upgrade notice. We believe that NHTSA has collected sufficient information to make the needed revisions to the NCAP, and we urged NHTSA to move forward with the upgrade. NCAPs around the world have had ratings for collision-avoidance, pedestrian safety, and bicycle safety technologies for many years, yet the US NCAP still does not address the performance of these safety systems. Until such action is taken, Safety Recommendation H-15-7 is classified “Open–Unacceptable Response.”</p>
H-17-37	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	<p><b>DOT Response</b></p> <p>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:</p> <p>NHTSA coordinates with domestic and</p>

		<p>and vehicle performance before and during a crash.</p>	<p>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 <i>CFR</i> 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).</p> <p><b>NTSB Evaluation</b></p> <p>The NTSB has not received a response from the DOT since this recommendation was issued. The response above is based on information sent by NHTSA in 2020, in response to a reiteration of this recommendation in our Mountain View, California, report, in which we noted that our experience with crashes involving different levels of driving automation shows that the amount and availability of recorded data varies widely amongst manufacturers. In the more than 2 years since this important safety recommendation was issued, neither the DOT nor NHTSA has taken any substantive action to address it. Although NHTSA replied on February 7,</p>
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			<p>2018, the DOT has not responded to Safety Recommendation H-17-37 since it was issued. Because it is unlikely that crash investigators and regulators will fully understand the causal factors in a crash without easily accessible data from driving automation systems, the NTSB reiterated Safety Recommendation H-17-37 to the DOT and classified it “Open–Unacceptable Response.”</p>
H-18-8	NHTSA	<p>Require all new school buses to be equipped with collision avoidance systems and automatic emergency braking technologies.</p>	<p><b>NHTSA Response</b>  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.</p> <p><b>NTSB Evaluation</b>  The NHTSA response above is based on information in NHTSA’s 2019 update. In our 2019 response, we noted that NHTSA has moved forward with its frontal collision-avoidance research and was studying how next-generation systems perform on heavy vehicles in real-world situations. We understand that trucks have been the focus of this work, and we encouraged NHTSA to test and evaluate various types of heavy vehicles, including different types of buses, to understand the systems’ safety benefits. NHTSA’s efforts thus far showed progress toward addressing this recommendation. Pending</p>

			publication of the recommended standards and requirement, Safety Recommendation H-18-8 is classified "Open–Acceptable Response."
H-20-1	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.	<p><b>NHTSA Response</b>  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.</p> <p><b>NTSB Evaluation</b>  In our 2021 response, we noted that NHTSA is researching and fact gathering from industry to make an informed decision for future areas of NCAP expansion. We were encouraged to note that NHTSA's November 21, 2019, request for comments indicated nine draft test procedures to assess the performance of intersection safety assist systems in cross-traffic and left-turn, across-path driving situations, as well as pedestrian automatic emergency braking systems in daytime scenarios, both of which relate to forward collision-avoidance situations. However, as we</p>

			<p>stated in our response to NHTSA's request for comments, we were very concerned by language used in the request stating that NHTSA's work is intended "for research purposes only" and not to support rulemaking or the NCAP. We urged NHTSA to continue its efforts to develop these testing protocols and to use them toward implementing the recommended NCAP expansion. We acknowledged NHTSA's work thus far as progress, and Safety Recommendation H-20-1 is classified "Open-Acceptable Response."</p>
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### **Eliminate Distracted Driving**

There are no safety recommendations issued to the DOT under this safety issue.

We look forward to new NHTSA studies on specific manifestations of the deadly distractions presently available to drivers, whether through in-vehicle systems or portable devices. Such research is necessary to stop the regular loss of life and injury suffered on American roads every year due to distracted driving.

We encourage NHTSA to continue collaborating with the NTSB and organizations such as the recently formed National Distracted Driving Coalition to encourage action to prevent distracted driving.

### **Improve Passenger and Fishing Vessel Safety**

There are no safety recommendations issued to the DOT under this safety issue.

When the US Coast Guard was transferred from the DOT to the newly established US Department of Homeland Security in 2003, the Coast Guard was no longer subject to the requirements in Title 49 *USC* 1135 that it must respond to NTSB safety recommendations within 90 days or that it provide an annual report to Congress on the status of each recommendation on our MWL.

Because the Coast Guard retained its primary authority to regulate marine transportation safety when it was transferred from the DOT to DHS, we believe that Congress should consider legislation that would apply these same requirements to the Coast Guard, as was the case prior to 2003.

### **Improve Pipeline Leak Detection and Mitigation**

The 2021–2022 MWL safety issue, “Improve Pipeline Leak Detection and Mitigation,” includes the NTSB’s long-standing concern about the lack of standards for rapid shutdown and the lack of requirements for automatic shut-down valves (ASVs) or remote-controlled valves (RCVs) in high-consequence areas (HCAs). As far back as 1971, the NTSB recommended that standards be developed for rapidly shutting down failed natural gas pipelines. In 1995, the NTSB recommended (Safety Recommendation P-95-1) requirements for installing ASVs or RSVs on high-pressure pipelines in urban and environmentally sensitive areas so failed pipeline segments could be rapidly shut down. The NTSB classified Safety Recommendation P-95-1 “Closed–Acceptable Action,” believing that the RSPA 2004 integrity management rulemaking would lead to a more widespread use of ASVs and RCVs. However, it did not.

PHMSA recently issued a final rule, proposed alternative solutions, and conducted further research for Safety Recommendations P-11-10 and -11 for pipeline leak detection and mitigation.

On April 8, 2022, PHMSA issued a final rule, “Pipeline Safety: Amendments to Parts 192 and 195 to Require Valve Installation and Minimum Rupture Detection Standards,” which included some requirements for ASVs and RCVs. However, the final rule is inconsistent with Safety Recommendation P-11-11. Instead of directly requiring ASVs or RCVs in HCAs and class 3 and 4 locations, the final rule adds further requirements that must be met once an operator determines that ASVs or RCVs would be an efficient means of adding protection to an HCA. The additional requirements exclude most of the pipelines that are subject to Title 49 *CFR* 192.935(c), as they are only applicable to newly constructed or entirely replaced onshore gas transmission pipelines that have nominal diameters greater than or equal to 6 inches. One of the additional requirements is to install rupture mitigation valves within specified maximum spacing intervals that extend between 8 and 20 miles for HCAs based on class location. However, the valves are not required to be spaced at intervals that consider the factors indicated in Safety Recommendation P-11-11, such as the swiftness of leak detection and pipe shutdown capabilities, the type of gas being transported, the operating pressure, the rate of potential release, the pipeline profile, the potential for ignition, and the location of nearest response personnel. Although the final rule does not address Safety Recommendations P-11-10 or -11, the NTSB is currently evaluating PHMSA’s proposed alternative actions to determine if these will satisfy the recommendations.

We appreciate Congress’s leadership in addressing this important safety concern in the PIPES Act of 2020, by mandating that the DOT sponsor a National Academy of Sciences study of methodologies and standards for installing ASVs or RCVs on an existing pipeline. This study will consider methodologies that are consistent with our recommendation regarding ASVs and RCVs. However, the NTSB is concerned by PHMSA’s recent interpretation of the statutory prohibition on issuing retroactive design and construction standards. Specifically, Title 49 *USC* § 60104(b) states: “[A] design, installation, construction, initial inspection, or initial testing standard does not apply to a

pipeline facility existing when the standard is adopted." In its January 22, 2020, response to Safety Recommendation P-19-14, PHMSA essentially stated it was limited to issuing advisory bulletins for existing pipeline facilities. Although PHMSA invoked this prohibition in the context of requiring overpressurization protection, the NTSB is concerned that this provision may be interpreted to prohibit the installation of new safety improvements and technologies to all existing pipelines. We believe that PHMSA has the authority to require ASVs or RCVs to be installed on existing pipelines and requests that Congress consider explicitly exempting ASV and RCV installation from that statutory prohibition. We have long advocated for ASV and RCV installation to enable operators to rapidly shut down a pipeline when a rupture occurs so further loss of life and property can be avoided.

We are willing to accept PHMSA's alternate actions to address Safety Recommendations P-19-1 and -2 that will not be subject to OMB review and may achieve similar results, in potentially less time than the recommended action, provided that PHMSA's alternative action includes continuing analysis of the data that it collects to ensure that it shows sustained progress in moving existing indoor regulator sets outside whenever possible, and developing a revised planned action if the data does not show that trend continuing. If, however, PHMSA's plan to encourage operators to voluntarily locate service regulators outside of occupied structures for new and existing installations is unsuccessful, we expect PHMSA to develop a revised plan to achieve the same results that a regulation would.

We are encouraged by PHMSA's proposal, in response to Safety Recommendation P-21-2, 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.

**Table 7: Improve Pipeline Leak Detection and Mitigation**

Rec #	Recipient	Rec Text	Response and Evaluation
P-11-10 P-11-11	PHMSA	<p>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.</p> <p>Amend Title 49 <i>Code of Federal Regulations</i> 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.</p>	<p><b>PHMSA Response</b></p> <p>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 <a href="https://www.reginfo.gov/public/do/eAgendaMain">https://www.reginfo.gov/public/do/eAgendaMain</a>, RIN 2137-AF06).</p> <p>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.</p> <p>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&amp;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>

			<p><b>NTSB Evaluation</b></p> <p>The final rule, based on PHMSA’s NPRM, was published in the <i>Federal Register</i> on April 8, 2022. The criteria in the final rule are not specific to leak detection, and the proposed requirements for installing rupture-mitigation valves exclude most of the systems that are the subject of P-11-10. Although the requirements may enhance safety for new and replacement systems, the final rule excludes the majority of the systems that were the subject of P-11-11 such as existing gas transmission systems) and allows ASVs and RCVs to be spaced at intervals that do not consider the factors indicated in P-11-11.</p> <p>On January 14, 2022, PHMSA acknowledged that the rulemaking does not fully meet the intent of P-11-10 and -11, but it believes the intent can be met through alternate actions. The NTSB is currently evaluating PHMSA’s proposed alternative actions.</p>
P-19-1 P-19-2	PHMSA	<p>Require that all new service regulators be installed outside occupied structures.</p> <p>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.</p>	<p><b>PHMSA</b></p> <p>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.</p> <p>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.</p> <p>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</p>

		<p>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.</p> <p>PHMSA is conducting R&amp;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.</p> <p>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> <p><b>NTSB Evaluation</b> PHMSA believes that, in some cases, there are compelling safety reasons that justify placing service regulators inside a new or renovated occupied structure. Among these</p>
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			<p>reasons is that service regulators located outside are at risk of damage from vehicular traffic. PHMSA believes that operators should be allowed to evaluate each service installation to determine the appropriate location of the service regulators.</p> <p>PHMSA said that developing a cost-benefit analysis showing a positive cost benefit, as required by OMB for all new and revised federal regulations, would be difficult or impossible. PHMSA believes that the intended results of these recommendations can be achieved without developing and issuing a new requirement. Because existing PHMSA regulations for indoor regulators are more stringent than for outdoor regulators, locating service meter and regulator sets inside structures is more costly and presents access challenges for operators. As a result, even without a requirement for placement outside, most new or renovated regulators are placed outside unless no safe and suitable outside space exists.</p> <p>PHMSA believes that, because of existing regulations and policies for inside regulators, the intended results can be achieved faster than waiting for the completion of rulemaking. To encourage operators to move service units outdoors whenever possible, PHMSA plans to change the distribution inspection forms to emphasize compliance with existing service regulator requirements, and to revise the state program evaluation form to verify that states check operator compliance with existing PHMSA regulations for inside regulators. PHMSA also plans to issue an advisory bulletin alerting operators to the existing requirements for inside meters and regulators. To help operators recover the costs of moving service units outside, you plan to encourage states to provide a rate rider.</p> <p>These activities may represent an acceptable alternate action to satisfy these recommendations. Pending implementation of PHMSA's plan, NTSB review of the data demonstrating that the plan is successful,</p>
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			and development of a revised plan if the data do not show that the alternative is achieving the same results as a regulation would, Safety Recommendations P 19-1 and -2 are classified "Open–Acceptable Alternate Response."
P-21-2	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.	<p><b>PHMSA Response</b> 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> <p><b>NTSB Evaluation</b> Pending completion of PHMSA's planned actions, Safety Recommendation P-21-2 is classified "Open–Acceptable Response."</p>
P-21-3	PHMSA	Assist the Railroad Commission of Texas in conducting the audit recommended in Safety Recommendation P-21-4.	<p><b>PHMSA Response</b> 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.</p>

			<p><b>NTSB Evaluation</b>  Pending the completion of the audit, Safety Recommendation P-21-3 is classified "Open–Acceptable Response."</p>
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**Improve Rail Worker Safety**

The NTSB appreciates the detailed description from the FRA, FTA, and PHMSA about their activities to improve rail worker safety. However, the slow action by these agencies to fully implement our recommendations to establish adequate roadway worker and operations crew protections continues to create safety deficiencies that put rail workers at unnecessary risk of injury and death.

Of the 21 recommendations associated with this safety item issued to DOT modal agencies, 7 are currently classified as unacceptable. One recommendation to PHMSA–Safety Recommendation R-17-2–stemming from our investigation in Casselton, North Dakota, and six recommendations to the FRA–Safety Recommendations R-18-16 through -19 (Edgemont), R-18-24 (Chester), and R-20-6 and -7 (Queens Village)–are classified "Open–Unacceptable Response." We urge the DOT to reconsider its position on these open recommendations.

In response to Safety Recommendation R-20-6, the NTSB is disappointed to learn that the FRA believes that train approach warning (TAW) systems provide appropriate protection for roadway workers. In her September 2021 letter to Secretary Buttigieg about our investigation into the April 2018 fatal Amtrak accident in Bowie, Maryland, Chair Homendy communicated that the FRA disagrees with our recommendation because it rejected our investigative findings from the Queens Village accident. We believe that the circumstances of the Bowie accident provide further evidence of the need for the FRA to change its position and implement Safety Recommendation R-20-6. In our final investigative report for Bowie, we not only reiterated Safety Recommendation R-20-6, but took our recommendation a step further and asked the FRA to prohibit the use of a TAW system in controlled track territory during planned maintenance and inspection activities. Our investigations show that roadway worker fatalities continue to occur when a TAW system is used for on-track safety. Multiple breakdowns in safety observed in these accidents in which TAW protection was used included failures in communicating critical on-track safety information, providing incorrect information during job briefings, calculating inadequate sight distances, positioning watchmen poorly, inadequately assessing risk, and inadequately supplying required equipment. The accidents that involve TAW show it is susceptible to human error in many ways. The NTSB strongly believes that TAW is an inadequate system of on-track safety that fails to protect roadway workers, including watchmen, in controlled track territory. Because the FRA has taken no action on Safety Recommendation R-20-6, it remains classified "Open–Unacceptable Response."

We have not heard from the FTA since 2015 on many recommendations we issued, including six of the eight that are on the MWL. The NTSB has recently worked

with the FTA to get updates on all open recommendations, and on January 18, 2022, the FTA informed us of its completed actions for Safety Recommendations R-12-34 and -35. On April 1, 2022, these recommendations were classified “Closed–Acceptable Action.” We look forward to more updates from the FTA on its actions to implement the remaining six recommendations on the MWL.

**Table 8: Improve Rail Worker Safety**

Rec #	Recipient	Rec Text	Response and Evaluation
R-12-34 R-12-35	FTA	<p>Issue guidelines to advise transit agencies and state oversight agencies on how to effectively implement, oversee, and audit the requirements of 49 <i>Code of Federal Regulations</i> section 659.19(r) using industry best practices, industry voluntary standards, and appropriate elements from 49 <i>Code of Federal Regulations</i> Part 214, Subpart C Roadway Worker Protection.</p> <p>Emphasize the effective implementation and oversight of 49 <i>Code of Federal Regulations</i> section 659.19(r) as part of your safety oversight program audits.</p>	<p><b>FTA Response</b></p> <p>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.</p> <p>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.</p> <p><b>NTSB Evaluation</b></p> <p>On January 18, 2022, the FTA updated the NTSB on its actions to satisfy these recommendations. On April 1, 2022, the NTSB classified Safety Recommendations R-12-34 and -35 “Closed–Acceptable Action.”</p>
R-13-39 R-13-40	FTA	Issue a directive to all transit properties requiring redundant protection for roadway workers,	<p><b>FTA Response</b></p> <p>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</p>

Rec #	Recipient	Rec Text	Response and Evaluation
		<p>such as positive train control, secondary warning devices, or shunting. (Urgent)</p> <p>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. (Urgent)</p>	<p>accessing the rail transit right-of-way if the SRM analysis indicates that such action is warranted.</p> <p>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)).</p> <p>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.</p> <p><b>NTSB Evaluation</b></p> <p>The FTA has never responded to these urgent recommendations. On March 18, 2014, the NTSB informed the FTA that, to satisfy these recommendations, the FTA needed to issue a directive requiring the recommended protection, review, and revision. Pending issuance of such a directive, Safety Recommendations R-13-39 and -40 are classified "Open—Acceptable Response."</p> <p>However, R-13-39 and -40 are urgent recommendations, and the NTSB expects actions to address urgent recommendations to be implemented within 1 year. These recommendations are now over 8 years old. The NTSB will be examining these recommendations to determine the appropriate classification.</p>
R-14-36 R-14-38 R-14-40	FRA, FTA FTA FTA	Require initial and recurring training for roadway	<p><b>FTA Response</b></p> <p>FTA utilizes its SRM process to identify, assess, and mitigate safety concerns in the</p>

Rec #	Recipient	Rec Text	Response and Evaluation
		<p>workers in hazard recognition and mitigation. Such training should include recognition and mitigation of the hazards of tasks being performed by coworkers.</p> <p>With assistance from the Federal Railroad Administration and the Occupational Safety and Health Administration, establish roadway worker protection rules, including requirements for job briefings.</p> <p>Establish a national inspection program that specifically includes roadway worker activities.</p>	<p>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.</p> <p><b>NTSB Evaluation</b> Safety Recommendation R-14-36 was issued to both the FRA and FTA. It was classified "Closed–Acceptable Action" for the FRA on January 19, 2018.</p> <p>The FTA has not updated the NTSB about any of these recommendations since January 2015. Safety Recommendations R-14-36, -38, and -40 are currently classified "Open–Acceptable Response."</p>
R-14-39	FTA	<p>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.</p>	<p><b>FTA Response</b> 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.</p> <p><b>NTSB Evaluation</b> Although Safety Recommendation R-14-39 is currently classified "Open–Acceptable Response," the FTA has not updated the NTSB on this recommendation since January 2015. The safety advisory the FTA discussed was</p>

Rec #	Recipient	Rec Text	Response and Evaluation
			issued almost a year before this recommendation was issued. The NTSB has not evaluated if Safety Advisory 14-1 satisfies this recommendation, nor has the action in Safety Recommendation R-14-38 been completed.
R-17-1	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.	<p><b>PHMSA Response</b> 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.</p> <p><b>NTSB Evaluation</b> In February 2021, PHMSA told us that the research at the Volpe Center had been delayed due to the COVID-19 pandemic, but was expected to be completed during 2021. On January 7, 2022, during a meeting with PHMSA and FRA staff, we were disappointed to learn that there were significant delays, and Volpe has not yet completed its research; however, PHMSA and the FRA continue to work toward implementing this recommendation and completing the research. Pending completion of the research at the Volpe Center and PHMSA collaborating with the FRA to revise 49 CFR 174.85 to reflect those findings, Safety Recommendation R-17-1 remains classified "Open-Acceptable Response."</p>
R-17-2	PHMSA	Pending completion of the risk evaluation and action in accordance with its findings prescribed in Safety Recommendation R-17-1,	<p><b>PHMSA Response</b> 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</p>

Rec #	Recipient	Rec Text	Response and Evaluation
		<p>withdraw regulatory interpretation 06-0278 that pertains to 49 <i>Code of Federal Regulations</i> 174.85 for 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.</p>	<p>further research) about the appropriate separation distance between traincrews and hazardous materials, and whether a corresponding proposed regulatory change is warranted.</p> <p><b>NTSB Evaluation</b>  We believe that withdrawing Regulatory Interpretation 06-0278 will change the practice of how many cars are used as a minimum separation distance to align with existing regulations. We disagree that such a change would require justification through supporting safety and cost data. The letter of interpretation has lessened safety by allowing industry to use less than a five-car separation in more conditions than was intended by the regulation; in our understanding, the only exception to 49 <i>CFR</i> 174.85 is when the train is too short to achieve a five-car separation from the first placarded car. Regulatory Interpretation 06-0278, in practice, removes the requirements for trains carrying high-hazard flammable materials. Pending the withdrawal of Regulatory Interpretation 06-0278, Safety Recommendation R-17-2 remains classified "Open– Unacceptable Response."</p>
R-17-3	FRA	<p>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</p>	<p><b>FRA Response</b>  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.</p> <p>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.</p>

Rec #	Recipient	Rec Text	Response and Evaluation
		<p>conditions, and collaborate with the Pipeline and Hazardous Materials Safety Administration to revise 49 <i>Code of Federal Regulations</i> 174.85 to reflect those findings.</p>	<p><b>NTSB Evaluation</b>  The FRA is working with PHMSA on a research project at the Volpe Center to help determine the appropriate separation distance of train crews from hazardous materials cars. The Volpe Center project was also working with Transport Canada to review the collective efforts on separation distance research. In February 2021, PHMSA told us that this effort had been delayed due to the COVID-19 pandemic, but was expected to be completed during 2021. On January 7, 2022, during a meeting with PHMSA and FRA staff, we were disappointed to learn that there were significant delays, and Volpe has not yet completed its research; however, the FRA continues to work with PHMSA toward implementing this recommendation and completing the research. Pending the completion of the research followed by a revision of 49 <i>CFR</i> 174.85 that reflects the research findings, Safety Recommendation R-17-3 remains classified "Open–Acceptable Response."</p>
R-17-18	FRA	<p>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</p>	<p><b>FRA Response</b>  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.</p> <p><b>NTSB Evaluation</b>  In response to the FRA's May 3, 2018, letter, we pointed out that existing technology can be used or modified for rail environments and installing this available hardware and software would satisfy this recommendation. Pending a requirement that railroads install the recommended technology, Safety Recommendation R-17-18 is classified</p>

Rec #	Recipient	Rec Text	Response and Evaluation
		<p>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.</p>	<p>"Open–Acceptable Response."</p>
R-18-16	FRA	<p>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 <i>Code of Federal Regulations</i> 214.7.</p>	<p><b>FRA Response</b>  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 <i>CFR</i> § 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.</p> <p><b>NTSB Evaluation</b>  On December 21, 2018, the FRA told us that it disagreed with the finding in our investigation that is the basis for this recommendation, and that it believed Safety Recommendation R-18-16 was based on incorrect conclusions that are not supported by the facts outlined in our report. We disagree and urge the FRA to take action to protect vulnerable roadway workers. Safety Recommendation R-18-16 is currently classified "Open–Unacceptable Response." The FRA has not informed the NTSB of a plan in response to this recommendation to task the RSAC with developing recommendations</p>

Rec #	Recipient	Rec Text	Response and Evaluation
			for any appropriate changes to the roadway worker rule.
R-18-17	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.	<p><b>FRA Response</b> 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.</p> <p><b>NTSB Evaluation</b> On December 21, 2018, the FRA told us that it disagreed with our finding that failure to provide the watchman/lookout with the necessary equipment to alert the work group of oncoming trains and equipment, or FRA enforcement of regulations requiring railroads to equip watchmen/lookouts, contributed to the accident. The FRA believed that R-18-17 is based on incorrect conclusions and is not supported by the facts outlined in our report. The NTSB disagrees that the recommendation is not supported or applicable. We urged the FRA to take action to protect vulnerable roadway workers. Safety Recommendations R-18-17 is currently classified "Open–Unacceptable Response."</p>
R-18-18	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.	<p><b>FRA Response</b> 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.</p> <p><b>NTSB Evaluation</b> On December 21, 2018, the FRA told us that it disagreed with our findings from the Edgemont, South Dakota, accident investigation. We continue to believe that the recommendation is needed. Safety Recommendation R-18-18 is currently classified "Open–Unacceptable Response."</p>

Rec #	Recipient	Rec Text	Response and Evaluation
R-18-19	FRA	Modify the National Inspection Plan to require periodic unannounced inspections for roadway worker protection regulation compliance.	<p><b>FRA Response</b>  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.</p> <p><b>NTSB Evaluation</b>  On December 21, 2018, the FRA told us that it disagreed with our findings in the Edgemont, South Dakota, investigation. The FRA believes that Safety Recommendation R-18-19 is not applicable because the National Inspection Plan is not the correct mechanism through which to require periodic, unannounced inspections for roadway worker protection regulatory compliance. We disagree. In our Edgemont investigation, we found that the FRA’s 2008 unannounced audit of railroads’ RWP programs identified safety-critical defects, deterred rules violations, and encouraged safe practices, likely contributing to the reduction of the number of roadway worker fatalities; and that the possibility of an unannounced FRA audit led to railroads making compliance with roadway worker protection regulations a higher priority. Safety Recommendation R-18-19 is currently classified “Open–Unacceptable Response.”</p>
R-18-24	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	<p><b>FRA Response</b>  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 <i>CFR</i> §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.</p>

Rec #	Recipient	Rec Text	Response and Evaluation
		to protect roadway workers and their equipment.	<p><b>NTSB Evaluation</b></p> <p>In response to Safety Recommendation R-08-6, the FRA told us that, as part of the National Safety Program Plan, the FRA was conducting an audit as an enforcement activity to follow up with relevant railroads regarding their adoption of redundant signal protection. The FRA acknowledged that some railroads had implemented, or were actively implementing, redundant signal protection systems or procedures. On April 22, 2019, we classified Safety Recommendation R-08-6 "Open–Unacceptable Response" because the FRA did not provide us the summary of its audit results. We believe that the FRA’s audit results are relevant to this recommendation. We requested that the FRA share the audit findings with us. Pending our receipt and review of such a summary, Safety Recommendation R-18-24 is classified "Open–Unacceptable Response."</p>
R-18-25	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.	<p><b>FRA Response</b></p> <p>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.</p> <p><b>NTSB Evaluation</b></p> <p>We are pleased that the FRA is studying alerting technologies, as recommended. Pending completion of these efforts and any subsequent action to require the use of such technology, Safety Recommendation R-18-25 is classified "Open–Acceptable Response."</p>
R-20-5	FRA	Revise your oversight inspection process to focus on	<p><b>FRA Response</b></p> <p>FRA carries out a comprehensive safety inspection and oversight program, including inspecting for compliance with Part 214</p>

Rec #	Recipient	Rec Text	Response and Evaluation
		<p>roadway worker activities, especially when roadway workers are using train approach warning (TAW) for protection.</p>	<p>requirements related to TAW. FRA devotes a great deal of time and effort to RWP activities, including not only inspections and 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.</p> <p><b>NTSB Evaluation</b>  During meetings between FRA and NTSB staff, the FRA explained that it cannot determine exactly how many RWP inspections and activities were conducted because they are conducted as part of other inspections. The FRA staff said that a system that will track roadway worker inspections and activities is being developed that will provide the data needed to establish safety trends and support needed analysis. The FRA will use the data to determine the RWP problems that are occurring and need to be addressed. Pending the FRA developing that system and using it to determine the RWP problems that are occurring and need to be addressed, Safety Recommendation R-20-5 is classified "Open–Acceptable Response."</p>
R-20-6	FRA	<p>Define when the risks associated with using train approach warning are unacceptable and revise Title 49 <i>Code of Federal Regulations</i> 214.329 to prohibit the use of train approach warning when the defined risks are unacceptable.</p>	<p><b>FRA Response</b>  FRA believes that TAW, when implemented in accordance with the requirements of the applicable Federal regulations, does provide appropriate protection for roadway workers.</p> <p><b>NTSB Evaluation</b>  On April 21, 2021, the FRA replied that it disagreed with Safety Recommendation R-20-6. The FRA stated that the findings from the Queens Village accident, which were the basis for this recommendation, were faulty. The FRA said that roadway workers involved in the Queens Village accident did not comply with basic requirements of FRA regulations governing TAW because they failed to occupy or even discuss a predetermined place of safety from</p>

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			<p>oncoming trains.</p> <p>In June 2018, the Fatality Analysis of Maintenance-of-Way Employees and Signalmen (FAMES) Committee issued a report that estimated that between 1997 and February 1, 2017, of the 55 roadway worker fatalities, 13 fatal accidents occurred where TAW was being used as the method of on-track safety, resulting in 16 fatalities. Roadway worker fatalities continue to occur when TAW is used for on-track safety. TAW is a weak system of on-track safety that fails to protect roadway workers, including watchmen, in controlled track territory. Because the FRA was unresponsive to Safety Recommendation R-20-6, it is classified "Open-Unacceptable Response."</p>
R-20-7	FRA	Promulgate scientifically based hours of service requirements for roadway workers.	<p><b>FRA Response</b></p> <p>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.</p> <p><b>NTSB Evaluation</b></p> <p>The NTSB believes that fatigued roadway workers pose a risk both to the workers and to the traveling public. The NTSB evaluated FRA's belief that the hours of service law does not give the FRA authority to take the recommended action, and concluded that roadway workers may in fact be covered by the law in limited circumstances. Nonetheless, we believe Congress needs to grant broader authority to the FRA to develop hours of service regulations for roadway workers.</p>