Testimony of

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National Transportation Safety Board

Before the

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Committee on Transportation and Infrastructure
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— On —

FAST Act Implementation: Improving the Safety of the Nation's Roads

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An Independent Federal Agency

Good morning Chairman Graves, Ranking Member Norton, and the Members of the Subcommittee. Thank you for inviting the National Transportation Safety Board (NTSB) to testify before you today.

The NTSB is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant accidents in other modes of transportation—highway, rail, marine, and pipeline. We determine the probable cause of the accidents we investigate and we issue safety recommendations aimed at preventing future accidents. In addition, we conduct special transportation safety studies and coordinate the resources of the federal government and other organizations to assist victims and their family members who have been impacted by major transportation disasters.

More than 35,000 people were killed in crashes on US highways in 2015; an increase of 7 percent from the previous year.[1] This represents more than 90 percent of all transportation-related deaths in the United States. Early estimates for the first nine months of 2016 suggest that the upward trend is continuing, with an 8-percent increase in fatalities over the first nine months of 2015.[2] As a country and as individuals, we need to prioritize safety to reverse this trend.

On November 14, 2016, NTSB announced our Most Wanted List of Transportation Safety Improvements for 2017–2018.[3] This list identifies ten focus areas for transportation safety improvements, and we have developed it based on safety issues we have identified in our investigations. Our 2017–2018 list includes the following seven areas that affect highway safety:

- End Alcohol and Other Drug Impairment in Transportation
- Eliminate Distractions
- Strengthen Occupant Protection
- Reduce Fatigue-Related Accidents
- Require Medical Fitness
- Increase Implementation of Collision Avoidance Technologies
- Expand Recorder Use to Enhance Safety

This testimony briefly will address each of these areas along with several specific provisions of the FAST Act that relate to previous NTSB safety recommendations: drug-free commercial drivers, passenger vehicle tire safety, and the Compliance, Safety, Accountability Program. It will also describe two topical studies underway that NTSB staff will present for the Board's consideration soon: Reducing Speed-Related Crashes and Pedestrian Safety. The

[1] National Highway Traffic Safety Administration, *2015 Motor Vehicle Crashes: Overview* (Washington, DC: NHTSA, 2016).

[2] National Highway Traffic Safety Administration, *Early Estimate of Motor Vehicle Traffic Fatalities for the First 9 Months of 2016* (Washington, DC: NHTSA, 2017).

[3] National Transportation Safety Board, *2017-2018 Most Wanted List* (Washington, DC: NTSB, 2016).

testimony will conclude with a status update on our investigation of the first fatal automated vehicle crash.

Most Wanted List of Transportation Safety Improvements

End Alcohol and Other Drug Impairment in Transportation

The issue area of alcohol and other drug impairment in transportation has been on every Most Wanted List we have published since 1990, and we have made hundreds of recommendations to address this issue. Impairment in transportation continues to be a public health concern, with more than 10,000 highway fatalities each year in the United States involving an alcohol-impaired driver. Impairment by over-the-counter medications, prescription drugs, synthetic drugs, and illicit substances is also a rising concern.

We have recommended a comprehensive approach to address substance-impaired driving to prevent crashes, reduce injuries, and save lives. When it comes to alcohol use, research shows that impairment begins before a person's blood alcohol concentration (BAC) level reaches 0.08 percent, the current illegal *per se* limit in every state. In fact, by the time BAC reaches that level, the risk of a fatal crash has more than doubled.[4] We have recommended that states lower the *per se* BAC threshold to 0.05 percent or lower, in order to separate the activities of drinking and driving. In 2017, several states introduced bills to lower their state's illegal *per se* BAC level to .05 (from .08) and Utah passed a .05 BAC law. To further deter driving after drinking, we have recommended high-visibility enforcement of impaired driving laws using passive alcohol-sensing technology, as well as encouraged the development of technology that will enable vehicles to detect driver impairment. We have also made recommendations to reduce recidivism for driving while intoxicated (DWI) offenders, such as requiring ignition interlocks for all convicted DWI offenders and making special efforts to target repeat offenders.[5]

In recent years, we have found impairment from other drugs to be causal or contributing factors in highway crashes. For example, on September 26, 2014, a truck-tractor in combination with a semitrailer crossed a median and collided with a 32-passenger medium-size bus transporting 15 members of a college softball team near Davis, Oklahoma. Four people were killed on the bus. We determined that the probable cause of this crash was the truck driver's incapacitation, likely due to his use of synthetic drugs, and we recommended the Federal Motor Carrier Safety

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[4] Compton, R.P., R.D. Blomberg, H. Moskowitz, M. Burns, R.C. Peck, and D. Fiorentino. 2002. "Crash Risk of Alcohol-Impaired Driving." *Alcohol, Drugs and Traffic Safety–T2002. Proceedings of the 16th International Conference on Alcohol, Drugs and Traffic Safety (August 4–9, 2002)*. Montreal, Canada: International Council on Alcohol, Drugs and Traffic Safety. Blomberg, Richard D., Raymond C. Peck, Herbert Moskowitz, Marcelline Burns, and Dary Fiorentino. 2005. *Crash Risk of Alcohol Involved Driving: A Case-Control Study.* Stamford, CT: Dunlap and Associates, Inc.

[5] National Transportation Safety Board, *Reaching Zero: Actions to Eliminate Alcohol-Impaired Driving*, Rpt. No. SR-13/01 (Washington, DC: NTSB, 2013).

Administration (FMCSA) and the trucking industry take steps to prevent commercial drivers from using these substances.[6]

Eliminate Distractions

Drivers and operators in all modes of transportation must keep their hands, eyes, and minds focused on operating their vehicles. In commercial operations, all safety-critical personnel must minimize distractions and companies must develop policies to ensure employees are not distracted. In 2015, 3,477 people died and 391,000 were injured in distracted-driving crashes on US roadways.[7]

On August 5, 2010, in an active work zone in Gray Summit, Missouri, a truck-tractor was struck in the rear by a pickup truck, which was then struck in the rear by a school bus carrying 23 passengers, which was then struck by another school bus carrying 31 passengers. The driver of the pickup and one passenger seated in the rear of the lead school bus were killed. A total of 35 passengers from both buses, the two bus drivers, and the driver of the truck-tractor sustained injuries ranging from minor to serious. We determined that the probable cause of the initial collision was the pickup driver's distraction, likely due to his ongoing text messaging conversation. As a result of this investigation, we recommended that the 50 states and the District of Columbia ban the nonemergency use of portable electronic devices (other than those designed to support the driving task) for all drivers, and to use high-visibility enforcement and targeted communication campaigns.[8] In the seven years since we made these recommendations, we continue to encounter crashes where use of personal electronic devices played a part. Real change will require a three-pronged approach that includes strict laws, proper education, and effective enforcement. In April 2017, we held a roundtable to discuss these issues with families and victims to look at ways to further advance advocacy efforts to end distracted driving.[9]

Strengthen Occupant Protection

We have investigated many crashes in which improved occupant protection systems, such as seat belts, child restraints, and other vehicle design features, could have reduced injuries and saved lives. Recent investigations have highlighted the importance of proper use of the safety equipment, effective design, and readily accessible and identifiable evacuation routes on larger passenger vehicles, such as limousines, school buses, motor coaches, and other commercial vehicles. Since 1995, we have recommended that states enact legislation providing for the primary enforcement of seat belt laws, which would allow law enforcement officers to stop a vehicle solely because occupants are not wearing seat belts. Currently, 34 states and the District of Columbia

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[6] National Transportation Safety Board, *Truck-Tractor Semitrailer Median Crossover Collision with Medium-Size Bus on Interstate 35 in Davis, Oklahoma on September 26, 2014*, Rpt. No. HAR-15/03 (Washington, DC: NTSB, 2015).

[7] https://www.nhtsa.gov/risky-driving/distracted-driving.

[8] National Transportation Safety Board, *Multivehicle Collision, Interstate 44 Eastbound, Gray Summit, Missouri, August 5, 2010*, Rpt. No. HAR-11/03 (Washington, DC: NTSB, 2011).

[9] https://www.ntsb.gov/news/events/Pages/2017-distraction-RT.aspx.

have primary enforcement seat belt laws for passenger cars, but only 17 states apply the law to all passenger seating positions. In 2015, as a result of the Davis, Oklahoma, investigation (discussed earlier), we recommended that states enact legislation for primary enforcement of a mandatory seat belt use law for all vehicle seating positions equipped with a passenger restraint system. This recommendation covers all motor vehicles, including buses.

The NTSB has a long history of investigating school bus crashes, most recently two fatal crashes that occurred in Baltimore, Maryland and Chattanooga, Tennessee in November 2016 for which the investigations are ongoing. We have found compartmentalization to be effective in frontal collisions, but have also identified the limitations of no restraints or lap belt only restraints. Modern school bus seat technology has overcome previous capacity issues, and the installation and proper use of passenger seat belts, particularly lap/shoulder belts, has made school buses safer in severe side impacts and rollovers. On December 2, 2014, a school bus transporting 18 students and a teacher's aide from a primary school in Knoxville, Tennessee, and a school bus transporting 22 students from another school in Knox County, Tennessee, collided, causing one of the buses to overturn. Two student passengers and the teacher's aide in the overturned bus were killed. The rollover caused passengers to be ejected from their seating positions, contributing to the severity of injuries in the overturned bus.[10] As a result of an investigation into a school bus and truck collision near Chesterfield, New Jersey, in February 2012, we recommended that school transportation associations help schools train bus drivers, students, and parents on the importance and proper use of school bus seat belts and that they advise states or school districts to consider lap/shoulder belts when purchasing new school buses.[11] The investigation for a school bus roadway departure crash in Anaheim, California, in April 2014, found that lap/shoulder belts reduced injury and reiterated the above cited recommendations.[12]

Reduce Fatigue-Related Accidents

On March 20, 2016, a passenger car, driven by an 18-year-old and carrying three passengers ranging in age from 17 to 19, crossed a median and collided with a truck-tractor in combination with a semitrailer in Robstown, Texas. The three teenage passengers were killed. We determined the probable cause of this crash was the car driver's loss of control due to fatigue-induced inattention.[13] The National Highway Traffic Safety Administration (NHTSA) reported that, in 2015, more than 72,000 police-reported crashes involved drowsy driving, and

[10] National Transportation Safety Board, *Collision of Two School Buses with Subsequent Rollover*, Rpt. No. HAB-16/04 (Washington, DC: NTSB, 2015).

[11] National Transportation Safety Board, *School Bus and Truck Collision at Intersection Near Chesterfield, New Jersey, February 16, 2012*, Rpt. No. HAR-13/01 (Washington, DC: NTSB, 2013).

[12] National Transportation Safety Board, *School Bus Roadway Departure*, Rpt. No. HAB-16/06 (Washington, DC: NTSB, 2016).

[13] National Transportation Safety Board, *Passenger Vehicle Median Crossover Crash, US Highway 77, Robstown, Texas, March 20, 2016*, Rpt. No. HAB-16/09 (Washington, DC: NTSB, 2016).

those crashes resulted in 41,000 injuries and 846 deaths;[14] however, NHTSA has acknowledged that these numbers likely are underestimated. Other research conducted by the AAA Foundation for Traffic Safety estimated that more than 6,000 people are killed in drowsy-driving related crashes each year.[15]

Fatigue is also a significant safety issue in commercial trucking operations, and for more than 25 years we have advocated the use of electronic logging devices (ELDs) to allow for better hours-of-service (HOS) and driver fatigue monitoring. In 2007, following a crash in Chelsea, Michigan, we recommended that the FMCSA require all interstate commercial vehicle carriers to use electronic on-board devices that collect and maintain data concerning driver HOS to enable monitoring and assess compliance.[16] On December 16, 2015, the FMCSA published its final rule, "Electronic Logging Devices and Hours of Service Supporting Documents."[17] Although this rule is not the universal mandate that we recommended, it represents significant progress toward improving HOS compliance and safety by mandating ELDs in most motor carrier operations. Carriers must comply with this requirement by December 18, 2017. Accordingly, we classified our safety recommendations for this issue "Closed—Acceptable Alternate Action," but we will continue to encourage further expansion of ELD requirements to the remaining commercial driver population.

As a result of an investigation into a multivehicle accident in Miami, Oklahoma, on June 26, 2009, we recommended that the FMCSA require all motor carriers to adopt a fatigue management program based on the North American Fatigue Management Program guidelines for the management of fatigue in a motor carrier operating environment.[18] We remain concerned that FMCSA's policy of voluntary adoption of guidelines with no monitoring of results does not adequately address the problem of fatigued drivers and that we will continue to see preventable catastrophic crashes. We have issued more than 200 safety recommendations addressing fatigue-related problems across all modes of transportation. Tackling the problem of fatigue in highway transportation requires a comprehensive approach focused on research, education, training, technology, sleep disorder treatment, HOS regulations, and on- and off-duty scheduling policies and practices. Some of our earliest recommendations called for research to better understand the problem of fatigue in transportation, and over the past three decades, several studies have been done. But research only goes so far; we must now implement what we have learned.

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[14] National Highway Traffic Safety Administration, *Asleep at the Wheel: A National Compendium of Efforts to Eliminate Drowsy Driving*. March 2017, DOT HS 812 352.

[15] AAA Foundation for Traffic Safety, *Prevalence of Motor Vehicle Crashes Involving Drowsy Drivers*, United States, 2009–2013, November 2014.

[16] NTSB Safety Recommendations H-07-41 and -42, December 17, 2007.

[17] 80 Federal Register 78292.

[18] National Transportation Safety Board, *Truck-Tractor Semitrailer Rear-End Collision Into Passenger Vehicles on Interstate 44, Miami, Oklahoma, June 26, 2009*, Rpt. No. HAR-10/02 (Washington, DC: National Transportation Safety Board, 2010).

Require Medical Fitness

Commercial drivers operate vehicles that may weigh up to 80,000 pounds, and much more under certain circumstances. To safely control a vehicle of this size requires skill, constant vigilance, and physical stamina. This is why it is so important that all commercial drivers meet minimum fitness standards, and why the medical professionals that examine these drivers be qualified to make decisions on fitness. The FMCSA and some states have made significant strides in addressing recommendations we made 16 years ago to improve the medical oversight of commercial drivers. But, as illustrated by a recent crash in Baltimore, Maryland, on November 1, 2016, work is still needed to ensure that only those drivers who are medically qualified are able to obtain and retain a commercial driver's license.

In this crash, a Baltimore City school bus struck the rear of a passenger car, crossed into the opposite travel lane, and collided with a Maryland Transit Administration bus. Six people were killed, including both drivers, and several others were injured. The investigation is ongoing, but according to information obtained by NTSB investigators, the school bus driver had a history of various medical conditions. Also, in the past 5 years, he had been involved in at least 12 crashes or incidents while operating a school bus or personal vehicle, many of which were medically related. In one of these crashes, the driver passed out while driving a school bus, resulting in personal injury to a teacher aide, yet neither the police, emergency medical technicians, or the school itself referred the driver to the proper licensing authority for a medical evaluation.[19] These are among the issues we are examining as we continue our investigation into this crash.

Increase Implementation of Collision Avoidance Technologies

More than 90 percent of crashes on the United States roadways can be attributed to driver error.[20] For more than two decades, the NTSB has been advocating implementation of various technologies to help reduce driver error. Vehicle-based collision avoidance technologies, such as forward collision warning (FCW) and autonomous emergency braking (AEB) systems, are important for avoiding or mitigating the impact of rear-end crashes, which represent nearly half of all two-vehicle crashes. Other driver assist and collision avoidance technologies, such as adaptive cruise control, advance lighting, blind spot detection, and lane departure warning systems can aid drivers and help reduce the occurrence of other types of crashes. These technologies improve visibility, help maintain safe distance between vehicles, alert drivers to impending hazards and potential crashes, or even automatically brake to mitigate the consequence of a crash.

In 2015, we issued a special investigation report regarding the use of forward collision avoidance systems to prevent and mitigate rear-end crashes. The report was based on the examination of current research into the effectiveness of collision avoidance systems and investigations of nine crashes—that resulted in 28 fatalities and injuries to 90 vehicle occupants—

[19] National Transportation Safety Board, *Shortcomings of Driver Qualification Processes for Baltimore City Public Schools and of the Disqualified Driver Database for All Maryland School Districts*, Rpt. No. HSR-17/02 (Washington, DC: National Transportation Safety Board, 2017).

[20] National Highway Traffic Safety Administration, *Critical Reasons for Crashes Investigated in the National Motor Vehicle Crash Causation Survey*. February 2015, (DOT HS 812 115).

involving passenger or commercial vehicles striking the rear of another vehicle. As part of this report, we recommended that passenger and commercial vehicle manufacturers install FCW and AEB as standard equipment, and, in order to incentivize manufacturers, that NHTSA expand the New Car Assessment Program (NCAP) to include ratings for various collision avoidance technologies.[21] Most recently, on the night of January 19, 2016, a motorcoach occupied by a driver and 21 passengers collided with an unmarked crash attenuator and concrete barrier on a highway in San Jose, California, during low visibility conditions. Two passengers were ejected and died, and the driver and 13 passengers were injured. Upon later testing, we determined that had the bus been equipped with a collision avoidance system, the system could have detected the crash attenuator and alerted the driver to the hazard to mitigate or prevent the crash.[22]

Expand Recorder Use to Enhance Safety

Recorders—data, audio/voice, and video—capture and store critical information that can help investigators determine the cause of a crash and guide companies and operators to take proactive steps toward prevention. Yet, most trucks and buses are still not equipped with these critical technologies, even though recorders are readily available, easily installed, and largely affordable.

Various types of recorders can be useful. Event data recorders (EDRs) capture critical information for a brief period of time (seconds, not minutes) before, during, and after a crash. EDRs may record a wide range of data elements, such as whether the brakes were applied, vehicle speed leading to impact, steering angle, and whether seat belts were used. Image/video event recorders—both inward- and forward-facing—show the critical events immediately before, during, and after a crash. We routinely use video and recorder data after a crash to determine vehicle performance, occupant kinematics, and environmental aspects critical to the investigation. We have seen many cases, however, in which a lack of a data recorder hampered our understanding of all phases of a crash.

Other devices that may still record critical crash-related information often are used to help companies and operators establish effective safety management strategies to identify risks before crashes occur. Data from these devices can be used to adjust procedures and enhance training to reduce or eliminate these risks. Although some operators have implemented or are in the process of implementing these safety management programs and systems, many are slow to do so without regulatory requirements.

On March 3, 2015, the NTSB released a safety report regarding onboard video systems in commercial vehicles, focusing on two crashes involving large buses, one of which was a school bus. Pre- and post-crash data recorded from the onboard video systems significantly helped the investigative process. In addition, the video data provided in the school bus crash was the first such documentation of lap-belted children involved in a severe side-impact collision and provided

[21] National Transportation Safety Board, *The Use of Forward Collision Avoidance Systems to Prevent and Mitigate Rear-End Crashes*, Rpt. No. SIR-15/01 (Washington, DC: NTSB, 2015).

[22] National Transportation Safety Board, *Motorcoach Collision With Crash Attenuator in Gore Area, US Highway 101*, Rpt. No. HAR-17/01 (Washington, DC: NTSB, 2017).

valuable and extremely detailed information about occupant movement, seat belt use, restraint performance, and evacuation which will help improve transportation safety.[23]

We frequently have expressed our concern about the lack of federal requirements for heavy commercial vehicle EDRs and video event recorders. After our investigation into the accident in Miami, Oklahoma (discussed earlier), we recommended that NHTSA develop and implement minimum EDR performance standards for trucks with gross vehicle weight ratings over 10,000 pounds, and that the agency require all such vehicles be equipped with EDRs meeting the standards. On April 10, 2014, a tractor-trailer crossed a median and collided with a motorcoach in Orland, California, killing 10 people and injuring 40 others. We determined the probable cause of the crash was the truck driver's unresponsiveness—for reasons that could not be established—which led to his loss of control of the vehicle. However, our ability to fully understand why and how this crash occurred was impeded by the lack of an event data recorder, and we reiterated our recommendations to NHTSA.[24] In December 2015, NHTSA informed us that it intended to take no further action on these recommendations, and they are currently classified "Open—Unacceptable Response."

Fixing America's Surface Transportation (FAST) Act

The FAST Act included several provisions that address safety issues included on our Most Wanted List and other safety issues identified through our investigations and recommendations. The National Priority Safety Program and the High Visibility Enforcement Program provide critical resources to help states reduce highway deaths and injuries by focusing on improving seat belt use, enhancing impaired and distracted driving countermeasures, and motorcyclist safety and graduated driver licensing laws. I want to mention several other specific provisions of the FAST Act that we are monitoring based on previous safety recommendations.

Drug-Free Commercial Drivers

Section 5402 of the FAST Act authorized the use of hair testing as an alternative to urine testing during pre-employment screening of commercial motor vehicle operators, and for random testing if the operator was subject to hair testing for preemployment screening. The US Department of Health and Human Services (HHS) was directed to issue scientific and technical guidelines for hair testing within one year of enactment, but has not done so yet. We have found that hair testing may provide some benefits over current drug testing techniques because it allows for a longer detection window—from days to months and, in some instances, for up to a year. Hair testing also could have a stronger deterrent effect than traditional testing methods.

We investigated a multivehicle work zone crash that occurred on Interstate 75 near Chattanooga, Tennessee, on June 25, 2015, in which a truck-tractor in combination with a

[23] National Transportation Safety Board, *Commercial Vehicle Onboard Video Systems*, Rpt. No. SR-15/01 (Washington, DC: National Transportation Safety Board, 2015).

[24] National Transportation Safety Board, *Truck-Tractor Double Trailer Median Crossover Collision With Motorcoach and Postcrash Fire on Interstate 5, Orland, California, April 10, 2014*, Rpt. No. HAR-15/01 (Washington, DC: NTSB, 2015).

semitrailer collided with the rear of several cars. Six people died and four were injured. Our investigation found that the truck driver had used methamphetamine prior to the crash, and its effects degraded his driving performance. If the commercial truck operator had used preemployment hair drug tests, it likely would have identified the truck driver's methamphetamine use based on the driver's history of using the drug. We recommended that the FMCSA disseminate information to motor carriers about using hair testing as a method of detecting controlled substance use, under the appropriate circumstances. [25] The FMCSA responded in February 2017 that it would not disseminate this information until HHS issued its guidelines. Our intent in issuing this recommendation was to ensure that carriers are aware of how they can currently use hair testing to identify controlled substances, and we have classified this recommendation to the FMCSA "Open—Unacceptable Response."

Passenger Vehicle Tire Safety

On October 27, 2015, we adopted a special investigation report on passenger vehicle tire safety, summarizing our investigative efforts concerning tire-related passenger vehicle crashes. In the report, we made recommendations to prevent or mitigate the severity of similar crashes.[26] The FAST Act contained several provisions that addressed our recommendations to NHTSA to ensure that consumers were aware of tire recall information. Section 24333 of the act required independent tire dealers to create and maintain a system of records for tires sold or leased that would include the name and address of the purchaser and any other information deemed appropriate by the Secretary of Transportation. Section 24335 also would require the Department of Transportation (DOT) to establish a publicly available electronic database of tire recall information that is searchable by the tire identification number. In May 2016, NHTSA initially responded to our recommendations from this report, telling us that it was determining how to move forward on all FAST Act mandates, including those addressing our recommendations.

Compliance, Safety, Accountability Program

The FAST Act required the FMCSA to commission a study of its Compliance, Safety, Accountability (CSA) program and its Safety Measurement System (SMS), which identify high-risk carriers and predict future crash risk, to focus compliance resources on those carriers. On March 23, 2017, the FMCSA referred to this requirement when it withdrew its January 21, 2016, proposed rulemaking. This rulemaking proposed a revised methodology for issuing a safety fitness determination (SFD) for motor carriers.[27] The study was completed and released last month.[28]

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[25] National Transportation Safety Board, *Multivehicle Work Zone Crash on Interstate 75, Chattanooga, Tennessee, June 25, 2015*, Rpt. No. HAR-16/01 (Washington, DC: NTSB, 2016).

[26] National Transportation Safety Board, *Selected Issues in Passenger Vehicle Tire Safety*, Rpt. No. SIR-15/02 (Washington, DC: NTSB, 2015).

[27] 82 *Federal Register* 14848.

[28] National Academies of Sciences, Engineering, and Medicine. *Improving Motor Carrier Safety Measurement*. (Washington, DC: The National Academies Press, 2017).

Many of our investigations have identified shortcomings in the FMCSA's oversight of commercial truck and bus operations. We have found instances in which deficiencies in the FMCSA compliance review program allowed companies with serious safety problems to continue operations. Therefore, in November 2013, we recommended that the DOT conduct an internal audit of the FMCSA's compliance review processes. This audit was completed and the recommendations are classified "Closed—Exceeds Recommended Action."[29] The FMCSA's SFD rulemaking was intended to remedy the issues identified in the DOT's audit by revising the current methodology for issuing SFDs for motor carriers and relying more on roadside inspection and violation data in the SMS rather than on-site compliance reviews.

We have long supported a risk-based intervention approach, such as the withdrawn SFD rule, to identify those carriers that pose the greatest risk to the motoring public. More than 17 years have passed since we first called attention to problems with the FMCSA's compliance review process in 1999, and the oversight program remains dysfunctional. The task facing the FMCSA is enormous and its resources are limited; therefore, it is critical that the FMCSA use a data-driven approach to address the highest risk motor carriers, drivers, and vehicles. Prolonged deferral of a revised SFD methodology will allow many unsafe, high-risk carriers to operate on our highways without intervention, posing a significant risk to the motoring public.

Reducing Speed-Related Crashes

Speeding—either exceeding the speed limit or driving too fast for the conditions—is one of the most common factors in motor vehicle crashes in the United States. Fatality Analysis Reporting System data show that in 2015, 9,557 people were killed in crashes in which at least one driver was speeding. This represents 27 percent of the traffic fatalities that year, and was a 3-percent increase from 2014.[30] Speed increases the likelihood of being involved in a crash, and it increases the severity of injuries sustained by all road users in a crash.

We have completed 49 major highway accident investigations in which speed was found to be a causal or contributing factor. Most of our recent speeding-related investigations have primarily involved large trucks and buses. On March 12, 2011, in New York City, a motorcoach departed from interstate highway travel lanes, struck a guardrail, overturned, and struck a highway signpost, resulting in 15 fatalities. The motorcoach was traveling 64 miles per hour (mph) on a highway with a posted speed limit of 50 mph. As a result of our investigation, we identified a need for heavy vehicle speed limiters and issued recommendations to NHTSA to develop performance standards for advanced speed-limiting technology for heavy vehicles and to require this technology on newly manufactured heavy vehicles.[31]

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[29] NTSB Safety Recommendations H-13-39 and -40, November 5, 2013.

[30] National Highway Traffic Safety Administration, *Traffic Safety Facts, 2015 Data: Speeding*, (Washington, DC: US Department of Transportation, NHTSA, 2017).

[31] National Transportation Safety Board, *Motorcoach Run-Off-the-Road and Collision With Vertical Highway Signpost, Interstate 95 Southbound, New York City, New York, March 12, 2011*, Rpt. No. HAR-12/01 (Washington, DC: NTSB, 2012).

On September 7, 2016, NHTSA and the FMCSA published a joint notice of proposed rulemaking, which proposed a new Federal Motor Vehicle Safety Standard (FMVSS) requiring that each new multipurpose passenger vehicle, truck, bus, or school bus with a gross vehicle weight rating of more than 26,000 pounds be equipped with a speed-limiting device.[32] The proposed standard also would require each vehicle, as manufactured and sold, to have its device set to a speed not greater than a specified speed and to be equipped with means of reading the vehicle's current speed setting and the two previous settings through its on-board diagnostic connection. In addition, the FMCSA is proposing a complementary Federal Motor Carrier Safety Regulation to require devices to meet the requirements of the proposed FMVSS. Motor carriers operating such vehicles in interstate commerce would be required to maintain the speed-limiting devices for the service life of the vehicle. We are pleased that NHTSA and the FMCSA are working together to develop regulations to limit heavy vehicle speed as a way to reduce the severity of crashes and the number of resulting fatalities and injuries. We support the proposed rulemaking as an interim step toward an eventual requirement that all newly manufactured heavy vehicles be equipped with advanced speed-limiting technology, and we urge prompt adoption of the rulemaking.

On July 25, 2017, our Board will consider a safety study on reducing speeding-related crashes involving passenger vehicles. This study examines speeding-related passenger vehicle crashes and countermeasures to prevent them. Once the Board adopts this study and any associated recommendations, we will be happy to provide this Committee with more information.

Pedestrian Safety

Until 2010, the number of pedestrians killed in highway accidents decreased for 35 years, but then reversed course. In 2015, the number of pedestrians who died in traffic crashes was 5,376; a 9.5-percent increase over 2014 and the highest number of pedestrians killed in a single year since 1996. The number of injured pedestrians in 2015 was estimated to be approximately 70,000.[33] Pedestrian deaths in recent years account for 15 percent (or roughly one in seven) of all highway fatalities.

In May 2016, we hosted a pedestrian safety forum, bringing together federal and state officials and experts to discuss key aspects of the issue. This roundtable considered recent trends; federal, state, and local urban planning and policy as it relates to pedestrian safety and progress that has been made implementing "Complete Streets"; highway design countermeasures; and vehicle-based solutions to improve pedestrian safety, including collision avoidance and vehicle-detection technology being deployed in current and future model vehicles.[34] Additionally, between April and November 2016, we worked with local law enforcement partners to initiate 15 investigations into fatal pedestrian crashes. We currently are completing the investigative work on these crashes, which illustrate a variety of pedestrian safety issues, and we will be developing

[32] 81 *Federal Register* 61942.

[33] National Highway Traffic Safety Administration, Traffic Safety Facts: Pedestrians, 2015 Data, February 2017, DOT HS 812 375.

[34] National Transportation Safety Board, *Forum: Pedestrian Safety*, (Washington, DC: National Transportation Safety Board, 2016).

a special investigation report that will include the completed investigations, a review of the literature, and information about promising countermeasures.

Automated Vehicles

The use of automated vehicle controls and systems is increasing in all modes of transportation. In the highway mode, automated vehicle development is accelerating rapidly. The basic function of current automated vehicle systems is to aid a driver in performing driving tasks. Categorically, some automated systems, such as FCW, alert a driver to a potentially hazardous situation; others, such as AEB, take momentary control of vehicle functions; and other automated systems may be considered convenience systems that supplement or fully control driving tasks, such as parking assist systems. In 2016, SAE International published a *Taxonomy and Definitions for Terms Related to Driving Automation Systems for On-Road Motor Vehicles*, which defines six levels with increasing automation capabilities.[35] Levels 0 through 2 are those in which the human driver monitors the driving environment, and levels 3 through 5 include highly automated vehicles (HAVs) in which the system monitors the driving environment.

The DOT has stated that automated vehicles hold enormous potential benefits for safety, and it has issued a federal automated vehicle policy focused on HAVs.[36] We have monitored automated vehicle development and we have a long history of calling for automation to provide an increased margin of safety, such as collision avoidance systems.

We are completing our investigation of the May 7, 2016, fatal crash involving a 2015 Tesla Model S 70D car that struck a refrigerated semitrailer powered by a 2014 Freightliner Cascadia truck tractor near Williston, Florida. System performance data downloaded from the Tesla revealed that the driver was operating the car using two automated vehicle control systems: traffic-aware cruise control and autosteer lane-keeping assist (a level 2 system).[37] That event is the first known fatal crash of a highway vehicle operating under automated control systems.

Last month, we released our factual docket for the Williston, Florida investigation, which included over 500 pages of material covering various aspects of the crash, including vehicle performance, highway design, human performance, and motor carrier factors.[38] The docket also includes the crash reconstruction report, which describes the crash sequence; interview transcripts and summaries; photographs; and other investigative material. We anticipate convening the Board to discuss the findings, probable cause, and recommendations associated with this investigation in

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[35] SAE International. 2016. Surface Vehicle Recommended Practice J3016—Taxonomy and Definitions for Terms Related to Driving Automation Systems for On-Road Motor Vehicles. See SAE Standards webpage.

[36] http://standards.sae.org/j3016_201609/ accessed July 10, 2017.

[37] Level 2 vehicles have automated driving systems that provide lateral control (lane-keeping) and longitudinal control (adaptive cruise control). When operating a level 2 vehicle, the driver is responsible for monitoring the driving environment.

[38] The docket material for the Williston, Florida crash investigation is available at: https://go.usa.gov/xNvaE.

September of this year. Once the Board adopts this report and any associated recommendations, we will be happy to provide this Committee with more information.

Thank you for the opportunity to testify before you today. I look forward to responding to your questions.