NATIONAL TRANSPORTATION SAFETY BOARD

An independent Federal agency

Testimony of the Honorable Christopher A. Hart
Chairman
National Transportation Safety Board
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Committee on Commerce, Science, and Transportation
United States Senate
on
Continuing to Improve Safety on our Nation's Highways
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Good afternoon Chairman Fischer, Ranking Member Booker, 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 and significant incidents in the United States and significant accidents and incidents in other modes of transportation— highway, rail, marine, and pipeline. The NTSB determines the probable cause of accidents and other transportation events and issues safety recommendations aimed at preventing future accidents. In addition, the NTSB carries out special studies concerning transportation safety and coordinates the resources of the Federal government and other organizations assisting victims and their family members impacted by major transportation disasters.

Since its inception, the NTSB has investigated more than 1,400 highway accidents, including accidents that involved commercial trucks. On call 24 hours a day, 365 days a year, NTSB highway investigators travel throughout the country to investigate significant accidents and develop factual records and safety recommendations with one aim—to ensure that such accidents never happen again.

To date, we have issued more than 2,400 safety recommendations as a result of highway accident investigations, with approximately 80 percent adopted or implemented. Because we have no authority to regulate the transportation industries, our effectiveness depends on our reputation for conducting thorough, accurate, and independent investigations and for producing timely, well-considered recommendations to enhance transportation safety.

On November 14, 2016, the NTSB announced its Most Wanted List of transportation safety improvements for 2017-2018.[1] This list identifies our top 10 areas for transportation safety improvements. We develop our Most Wanted List based on safety issues we identify as a result of our accident investigations. While we removed "Strengthen Commercial Trucking Safety" from our 2016 Most Wanted List, our 2017-2018 priority areas include seven items that affect the safety of commercial trucking operations:

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

Each of these Most Wanted List issues emphasizes the need for critical actions by the U.S. Department of Transportation (DOT), the Federal Motor Carrier Safety Administration (FMCSA), the National Highway Traffic Safety Administration (NHTSA), states, manufacturers, operators,

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

associations, and others. Commercial trucking is integral to our economy, yet crashes, injuries, and deaths involving commercial trucks have been increasing over the past several years. In 2015 alone, more than 4,000 people were killed in crashes involving large trucks, 4.1 percent more fatalities than in 2014, and the highest since 2008.[2] Our 2017-2018 Most Wanted List demonstrates that more needs to be done to ensure the safety of commercial truck operations.

Commercial trucking safety gained national media attention on June 7, 2014 when comedian Tracy Morgan was critically injured and another passenger died in a crash in Cranbury, New Jersey.[3] The limousine bus in which they were traveling was struck by a truck-tractor and semitrailer combination vehicle, due to the truck driver's fatigue and excessive speed. While it was the uncommon involvement of a celebrity that focused national attention on this crash, crashes involving commercial trucks are all too common.

Other NTSB investigations completed in the past four years involving commercial trucks include:

- On June 25, 2015, a truck-tractor in combination with a semitrailer collided with the rear of several cars on Interstate 75 in a work-zone, near Chattanooga, Tennessee. Of the 18 vehicle occupants, six died and four were injured. Our investigation determined the probable cause of the crash to be the truck driver's fatigue, drug use, and excessive speed.[4]

- On September 26, 2014, a truck-tractor in combination with a semitrailer crossed a median and collided with a 32-passenger -size bus—transporting 15 members of a college softball team—near Davis, Oklahoma, resulting in four fatalities. We determined that the probable cause of this accident was the truck driver's incapacitation likely due to his use of synthetic drugs.[5]

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[2] National Center for Statistics and Analysis, *2015 Motor Vehicle Crashes: Overview*, Report No. DOT HS 812 318 (Washington, DC: National Highway Traffic Safety Administration, 2016).

[3] National Transportation Safety Board, *Multivehicle Work Zone Crash on Interstate 95 in Cranbury, New Jersey on June 7, 2014*, Rpt. No. HAR-15/02 (Washington, DC: National Transportation Safety Board, 2015).

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

[5] 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: National Transportation Safety Board, 2015).

- On April 10, 2014, a tractor-trailer crossed a median and collided with a motorcoach in Orland, California, that took 10 lives and injured 40 others. Our investigation into the probable cause of this accident was impeded by the lack of an event data recorder.[6]

- On May 28, 2013, a three-axle roll-off straight truck did not stop at a highway-railroad grade crossing in Rosedale, Maryland and was struck by a freight train, causing a derailment. A postcrash fire resulted in an explosion that shattered windows and damaged property as far as approximately one-half mile from the site. The truck driver was seriously injured in the collision, and three others received minor injuries as a result of the explosion. Among the probable causes of the accident were the truck driver's distraction due to a hands-free cell phone conversation and inadequate oversight of the carrier by the FMCSA.[7]

- On March 3, 2013, truck-tractor in combination with a semitrailer struck the rear of an SUV and pushed it into another passenger vehicle on Interstate 65, near Elizabethtown, Kentucky. A postcrash fire ensued, killing six of the SUV's eight occupants. A review of the truck driver's logbook indicated that he had driven beyond the legal hours of service and was likely fatigued at the time of the crash.[8]

The NTSB has a long history of calling on the regulators, the FMCSA and NHTSA, to improve their oversight of operators, drivers, and vehicles. It starts with improving the system for determining a trucking company's safety compliance, including both driver and vehicle factors. Stronger oversight is needed to ensure that carriers address any safety deficiencies in a timely manner and are swiftly placed out of service if they fail to improve. To address vehicle factors, regulators must promote proper fleet maintenance and proven life-saving technology. Vehicle inspections should be required during compliance reviews, and vehicle safety equipment and technology, such as collision avoidance systems, should be mandated across the entire industry.

Oversight of Commercial Truck Operations

Many of our investigations have identified shortcomings in the FMCSA's oversight of commercial truck operations. We have found instances in which deficiencies in the FMCSA compliance review program allowed companies with serious safety problems to continue operations. The NTSB readily acknowledges the FMCSA's efforts to make improvements to its oversight of commercial truck operations. Yet, the crashes that the NTSB investigates attest to the fact that more oversight improvements and additional resources are needed to prevent future crashes involving commercial trucks.

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

[7] National Transportation Safety Board, Highway-Railroad Grade Crossing Collision in Rosedale, Maryland on May 28, 2013, Rpt. No. HAR-14/02 (Washington, DC: National Transportation Safety Board, 2014).

[8] NTSB public docket (HWY13FH008).

The two most important areas related to safe motor carrier operations are the performance of drivers and the condition of vehicles. The NTSB believes that the FMCSA should emphasize both of these critical elements in its compliance reviews and disqualify an operator that receives an unsatisfactory rating in either vehicle or driver areas. The current compliance review process is inadequate and limits the FMCSA's ability to remove unsafe carriers from our highways before they are involved in catastrophic crashes.

In 2013, the NTSB investigated four commercial motor vehicle crashes, which together resulted in 25 deaths and 83 injuries. Data collected for each motor carrier presented "red flags" that should have led to strong intervention by the FMCSA. In each case, FMCSA safety investigators had visited the company prior to the crash and given it a clean bill of health. Immediately following each crash – and after an NTSB investigation – the FMCSA found significant safety deficiencies. In three of the four cases, declared the company an imminent hazard, and placed it out of service. As a result of these NTSB investigations, we made two recommendations to the DOT in November 2013 to conduct an internal audit of the FMCSA's compliance review processes.[9]

On February 3, 2014, the DOT convened an independent review team (IRT) comprised of members of the DOT's Safety Council to conduct a review of the FMCSA's compliance review process. NTSB leaders met with IRT members on several occasions to assist them in their review. The final report was released on July 15, 2014.[10] Among its recommendations to the FMCSA, the IRT urged that it make changes to the Compliance, Safety, Accountability Program (CSA), improve the Safety Measurement System (SMS), and move beyond a compliance-centric enforcement model. The IRT report provided actionable information in response to our recommendations, but it also provided insights and perspectives on other ways the FMCSA can improve motor carrier safety.

The IRT report confirmed that the FMCSA needs to better align compliance and enforcement processes with the safety risks that cause crashes. We recognize that the CSA program is designed to do that, but it has been only partially implemented. In some instances, compliance reviews focus on issues quite different from those that may have triggered the need for greater scrutiny. This disconnect affects the FMCSA's everyday operations.

The FMCSA's safety fitness determination (SFD) rulemaking is intended to remedy this disconnect. On January 21, 2016, the FMCSA published a Notice of Proposed Rulemaking (NPRM), "Carrier Safety Fitness Determination," proposing to amend the Federal Motor Carrier Safety Regulations (FMCSRs) to revise the current methodology for issuing SFDs for motor carriers and rely more on roadside inspection and violation data in the SMS rather than on-site compliance reviews.[11] The proposed new methodologies would result in an SFD based on the carrier's SMS data in five of the seven Behavior Analysis and Safety Improvement Categories

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[9] H-13-039 and -040, November 5, 2013.

[10] Independent Review Team Appointed by the Secretary of Transportation, *Blueprint for Safety Leadership: Aligning Enforcement and Risk* (Washington, DC: U.S. Department of Transportation, 2014).

[11] 81 Federal Register 3561.

(BASIC) (unsafe driving, crash indicator, hours of service compliance, vehicle maintenance, controlled substances/alcohol, hazardous materials compliance, and driver fitness), an investigation, or a combination of on-road safety data and investigative information. In addition, the NPRM proposed to eliminate the current three-tier rating system (i.e., satisfactory–conditional–unsatisfactory) for determining safety fitness in favor of a single determination of "fit" or "unfit." SMS data for commercial truck operations are an important risk-management tool, and, if made publicly available, could provide the public with much-needed information about the commercial truck operators that fail to meet safety requirements, much like the FMCSA's "SaferBus" mobile application for bus operators.

The NTSB has long supported a risk-based intervention approach, such as the proposed SFD rule, to identify those carriers that pose the greatest risk to the motoring public. In 1999, we recommended that the safety fitness rating methodology be changed so that adverse vehicle and driver performance-based data alone are sufficient to result in an overall unsatisfactory rating for the carrier.[12] In 2012, following the NTSB's investigation of a 15-fatality motorcoach crash in New York City,[13] we recommended that, as part of CSA, the FMCSA include SMS rating scores in the methodology used to determine a carrier's fitness to operate.[14] The NTSB is very concerned that implementing the SFD proposed rule could be delayed.

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 employ a data-driven approach to address the highest risk motor carriers, drivers, and vehicles. Prolonged deferral of a SFD final rule will allow many unsafe, high-risk carriers to operate on our highways without intervention, posing a significant risk to the motoring public.

Moving Beyond Compliance: Leveraging Technology

The NTSB believes that it is vitally important for the FMCSA to move beyond its focus on conducting compliance reviews and embrace a broader and more balanced portfolio of safety tools. Commercial trucking is a diverse segment of the economy, and trucking companies range from thousands of trucks to single-truck owner operators. The FMCSA and NHTSA regulations establish minimum requirements, not the gold standard. The NTSB has found that crashes happen even when an operator is doing everything "by the book." To manage their safety risks, trucking companies must go beyond securing regulatory compliance from all their employees, and proactively identify operational hazards and potential solutions.

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[12] H-99-006, February 26, 1999.

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

[14] H-12-017, July 12, 2012.

As required by the 2015 Fixing America's Surface Transportation (FAST) Act,[15] the FMCSA published a request for comments on April 20, 2016 on a proposed "Beyond Compliance Program."[16] The Beyond Compliance Program would provide recognition, either through credit recognized by a new Beyond Compliance BASIC or an improved SMS percentile, for a motor carrier that: (1) installs advanced safety equipment; (2) uses enhanced driver fitness measures; (3) adopts fleet safety management tools, technologies, and programs; or (4) satisfies other standards determined appropriate by the FMCSA. The Beyond Compliance Program would incentivize a motor carrier to implement programs or safety interventions that exceed the scope of regulatory requirements and would improve the safety of commercial motor vehicles and drivers operating on the nation's highways.

The NTSB commends the FMCSA for considering the development of a program that looks beyond regulatory mandates to promote highway safety and aims to speed the adoption of lifesaving technologies and safety programs. Currently, many carriers voluntarily implement programs and technologies to enhance the safety of their drivers and the traveling public. A Beyond Compliance Program will reward such companies and encourage others to adopt safer operating practices.

For decades, the NTSB has been investigating highway crashes and making recommendations for technologies that, if implemented, would save lives and prevent future crashes. These technologies include forward collision avoidance systems, speed limiting devices, electronic logging devices (ELDs), and event data recorders (EDRs). We believe that forward collision avoidance systems and speed limiting devices should be standard on all commercial trucks and have recommended that NHTSA change the Federal Motor Vehicle Safety Standards (FMVSS) to require them. In addition, we have called on the FMCSA to require motor carriers to install ELDs and EDRs. These technologies are among many that can improve commercial truck safety, and including them in a Beyond Compliance Program would be a positive measure. However, the NTSB expects that NHTSA and the FMCSA will continue their efforts to mandate safety technologies so that ultimately those companies that are unwilling to invest in safety voluntarily will be required to use these proven technologies. While working toward requiring these technologies, the FMCSA should also encourage their use through its Beyond Compliance Program.

Forward Collision Avoidance Systems

"Increase Implementation of Collision Avoidance Technologies" is one of the safety improvement issues on our 2017-2018 Most Wanted List, and was carried over from 2016.[17] Broad deployment of forward collision avoidance systems in commercial trucks is necessary to reduce the severity of rear-end crashes. These technologies act as a fail-safe, helping to compensate for driver error, inattention, fatigue or just bad decision making. Forward collision avoidance systems typically consist of (1) collision warning that alerts a driver of the impending crash, and (2)

[15] Pub. L. 114-94, Section 5222.

[16] 81 Federal Register 23351.

[17] National Transportation Safety Board, *Increase Implementation of Collision Avoidance Technologies* (Washington, DC: National Transportation Safety Board, 2016).

autonomous emergency braking (AEB) that automatically applies brakes. Collision avoidance technologies can reduce fatalities and injuries over the long term. In 2012, NHTSA predicted that AEB (meeting certain requirements) could prevent 13,000 to 28,000 minor injuries and 500 to 700 serious injuries from rear-end crashes, and could save as many as 65 lives each year.[18]

The NTSB has long encouraged technological countermeasures to prevent or mitigate crashes. We made our first recommendation pertaining to collision avoidance technologies in 1995 and asked the DOT to begin testing collision warning systems within commercial motor carrier fleets.[19] Due to a lack of progress in addressing this issue, this recommendation was classified "Closed—Unacceptable Action" in 1999. In 2001, we released a special investigative report (SIR) that focused on how collision avoidance technologies could mitigate or prevent passenger and commercial vehicle rear-end crashes.[20] As a result of the SIR's findings, we issued 10 recommendations pertaining to collision avoidance technologies, including a recommendation that NHTSA require that all new commercial vehicles be equipped with a collision warning system after promulgating performance standards for collision warning systems for commercial vehicles.[21]

We updated the SIR in 2015 due to a lack of progress in the implementation of NTSB recommendations intended to mitigate or prevent rear-end crashes, the recent technological advancements in collision avoidance technologies, and the continued prevalence of rear-end crashes.[22] The 2015 report found that currently available forward collision avoidance technologies for passenger and commercial vehicles show clear benefits that could reduce rear-end crash fatalities. However, more must be done to speed up deployment of these technologies in all vehicle types. As a result of these findings, the NTSB made six new recommendations, including calling upon NHTSA to expand or develop protocols for the assessment of forward collision avoidance systems in passenger and commercial vehicles, and calling upon manufacturers to install forward collision avoidance systems as standard features on all newly manufactured passenger and commercial motor vehicles.[23] The NTSB also issued a companion Safety Alert for consumers and commercial fleet owners urging them to consider purchasing vehicles with collision warning and autonomous emergency braking functions.[24]

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[18] National Highway Traffic Safety Administration, *Forward-Looking Advanced Braking Technologies Research Report* (Washington, DC: U.S. Department of Transportation, 2014).

[19] H-95-044, December 13, 1995.

[20] National Transportation Safety Board, *Vehicle- and Infrastructure-based Technology for the Prevention of Rear-End Collisions*, Rpt. No. SIR-01/01 (Washington, DC: National Transportation Safety Board, 2001).

[21] H-01-007, May 25, 2001.

[22] 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: National Transportation Safety Board, 2015).

[23] H-15-005, H-15-008 and -009, June 8, 2015.

[24] National Transportation Safety Board, *Forward Collision Avoidance Systems Can Save Lives*, No. SA-046 (Washington, DC: National Transportation Safety Board, 2015).

Commercial truck manufacturers and operators should not wait to be required by regulators to equip and utilize heavy trucks with forward collision avoidance systems. Rather, a Beyond Compliance Program could provide incentive for operators to use such technologies in their fleet.

Speed Limiting Devices

On September 7, 2016, NHTSA and the FMCSA published a joint NPRM, which proposed a new 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.[25] The proposed FMVSS would also 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 FMCSR to require devices meeting 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.

Crashes, fatalities, and injuries involving heavy commercial vehicles operating at high speed, are the leading driver-related factor in large truck crashes. Between 2012 and 2014, speeding was identified as a factor in 21 to 24 percent of fatal truck crashes in which a driver-related factor was recorded.[26] The NPRM estimates that requiring heavy vehicles to be equipped with a speed limiting device set at 65 mph, would save 63 to 214 lives annually.

Beyond affecting crash severity, excessive speed can influence driver performance. As vehicle speed increases, so does the distance traveled while the driver's brain is processing roadway information. Consequently, the rate at which a driver must process information about the highway and its environment increases directly with increasing travel speed. Once the information processing demands exceed the processing capabilities of the driver, a crash is likely to occur. Additionally, at higher speeds, large trucks and buses become more difficult to maneuver—especially on corners, curves, or where evasive action is required. Compared to passenger vehicles, commercial trucks and buses have reduced maneuverability; greater propensity to roll, due to higher centers of mass; and reduced braking efficiency. The NTSB has investigated numerous large truck and bus crashes in which the initiating event was a mechanical deficiency (for example, tire or brake failure). In such cases, drivers are less likely to regain control of a heavy vehicle after experiencing a mechanical failure when operating at higher speeds.

Managing the top speed of heavy vehicles is also necessary to ensure compatibility with the roadway environment and infrastructure. In several investigations, the NTSB has found that roadside barriers, such as median barriers, were unable to retain or redirect heavy vehicles involved

[25] Federal Motor Vehicle Safety Standards; Federal Motor Carrier Safety Regulations; Parts and Accessories Necessary for Safe Operation; Speed Limiting Devices, 81 Federal Register 61942.

[26] Federal Motor Carrier Safety Administration, *Large Truck and Bus Crash Facts 2014*, No. FMCSA-RRA-16-001 (Washington, DC: Federal Motor Carrier Safety Administration, 2016).

in run-off-road crashes. For example, in 2010, a truck-tractor in combination with a 53-foot-long van semitrailer was traveling south on Interstate 65 near Munfordville, Kentucky, when it departed the left lane, traveled across the median, struck and overrode the median barrier, and entered the northbound travel lanes. The truck collided with a 15-passenger van, killing the truck driver, the van driver, and nine van passengers.[27] We found that the median barrier's inability to retain the truck contributed to the severity of the accident.

Although electronic engine control unit (ECU)-based speed limiters prevent vehicles from exceeding a set maximum speed, they do not (1) prevent speeding in locations where the speed limit is lower than the governed speed, or (2) stop vehicles from exceeding the governed speed when traveling downhill. Furthermore, because the majority of speeding-related heavy vehicle crashes involve heavy vehicles traveling at unsafe speeds for the conditions, such as speed-restricted areas, traffic-congested areas, or poor weather conditions, rather high rates of speed above 65 mph, the NTSB preference would be for NHTSA to develop a rulemaking requiring that all newly manufactured heavy vehicles be equipped with advanced speed limiting technology, such as variable speed limiters and intelligent speed adaption devices. The current NPRM clearly describes how the severity of a heavy vehicle crash increases with travel speed and outlines the safety benefits of ECU-based speed limiters.

The NTSB is pleased that NHTSA and the FMCSA are working together to develop regulations to limit the speed of heavy vehicles as a means of reducing the severity of crashes and the resulting fatalities and injuries. The NTSB supports the proposed rulemaking as an interim step toward an eventual requirement that all newly manufactured heavy vehicles be equipped with advanced speed limiting technology.

Electronic Logging Devices

For more than 45 years, our investigations have identified fatigue as a cause, contributing factor, or finding in crashes across all transportation modes. Fatigue-related accidents can be avoided with a combination of science-based regulations, comprehensive fatigue risk management programs, and individual responsibility. For commercial carriers, the NTSB has advocated the use of logging devices to allow better monitoring of hours-of-service (HOS) and driver fatigue for over 25 years. Most recently, in 2007, the NTSB recommended that the FMCSA require all interstate commercial vehicle carriers to use electronic on-board devices that collect and maintain data concerning driver HOS and, as an interim measure, prevent log tampering and submission of false paper logs.[28] Properly designed, used, and maintained ELDs enable drivers, motor carriers, and authorized safety officials to track on-duty driving hours more effectively and accurately, thus preventing both inadvertent and deliberate HOS violations. Compliance with the HOS regulations helps ensure that drivers have time to obtain restorative rest, enabling them to operate their commercial motor vehicles more safely.

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[27] National Transportation Safety Board, *Truck-Tractor Semitrailer Median Crossover Collision with 15-Passenger Van in Munfordville, Kentucky on March 26, 2010*, Rpt. No. HAR-11/02 (Washington, DC: National Transportation Safety Board, 2011).

[28] H-07-041 and -042, December 17, 2007.

On December 16, 2015, the FMCSA published its final rule, "Electronic Logging Devices and Hours of Service Supporting Documents."[29] Although this rule is not the universal mandate that we recommended, we recognize that it represents significant progress toward improving HOS compliance and safety by mandating ELDs for most motor carrier operations. By extending the population of affected drivers, establishing technical specifications for reliable ELD performance and tamper-resistance, clarifying the supporting documents requirement and making it applicable to all drivers currently required to prepare HOS records of duty status, and adopting anti-harassment provisions to protect drivers, this rule constitutes an acceptable alternate method of satisfying the recommended actions. Accordingly, we classified our Safety Recommendations H-07-41 and -42 "Closed—Acceptable Alternate Action." As we continue to link the cause of fatigue-related crashes to HOS violations, we encourage the FMCSA to consider further expansion of the mandate in the future to include the remaining driver population that is currently exempt from the new ELD requirements, and until then, to include ELD in a Beyond Compliance Program.

Event Data Recorders

Recorders—data, audio/voice, and video—capture and store critical information that can help investigators determine the cause of a crash and help companies and operators 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. For this reason, "Expand Recorder Use to Increase Safety" is one of the safety improvement issue areas on our 2017-2018 Most Wanted List; it was also carried over from our 2016 Most Wanted List.[30]

Various types of recorders can be useful. EDRs capture critical vehicle information about the vehicle and occupants 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 at the time of impact, steering angle, and whether seat belts were being used at the time of the crash. Image/video event recorders—both inward- and forward-facing—show the driver and environment immediately before, during, and after an event.

We routinely use recorder data after an accident to determine what went wrong, how the vehicle occupants died or were injured, and the safety devices and systems employed. We have seen many cases, however, in which a lack of data hampered us from understanding the true cause of the crash. The 2014 Orland, California crash involving a truck-tractor in combination with two trailers, a motorcoach, and a passenger motor vehicle is an example where inward-facing video and vehicle information, such a brake and throttle input, could have given us the information we needed; however, we were ultimately forced to conclude that the crash occurred for reasons that could not be established from available information.

[29] 80 Federal Register 78292.

[30] National Transportation Safety Board, *Expand Recorder Use to Increase Safety* (Washington, DC: National Transportation Safety Board, 2016).

Recorders not only help investigators determine the cause of a crash, but, perhaps more importantly, they help companies and operators establish effective safety management strategies. Data from recorders can be used to adjust procedures and enhance crew training to prevent crashes from happening in the first place. Although some operators have implemented or are in the process of implementing recorder programs and systems, many are slow to do so without regulatory requirements.

The NTSB has a long history of advocating technology to record crash data in highway transportation, dating back to 1990. To date, NHTSA has failed to develop standards or require the use of EDRs for heavy vehicles, including truck-tractor units, despite NTSB safety recommendations to do so.[31] We firmly believe that, due to a lack of standards and requirements for heavy vehicle EDRs, crash data essential to better understanding collisions continue to go unrecorded, thus impeding improvements in highway safety. The NTSB will continue to recommend that NHTSA take action in this important area.

The NTSB has also called on the FMCSA to require motor carriers to install video event recorders (VERs).[32] Additionally, the FMCSA should require all heavy commercial trucks to be equipped with VERs that capture data in connection with the driver and the outside environment, including the roadway, in the event of a crash or sudden deceleration event. The device should create recordings that are easily accessible for review when conducting efficiency testing and system-wide performance monitoring programs. Motor carriers should be required to review and use VER information in conjunction with other performance data to verify that driver actions are in accordance with company and regulatory safety rules and procedures.

The NTSB believes video event recorders are often the best way to determine what happened in a crash. For example, on March 3, 2015, the NTSB released a safety report, "Commercial Vehicle Onboard Video Systems," that discussed two recent crashes where continuous video systems were installed on commercial vehicles and proved to be extremely useful in evaluating the circumstances leading to a crash and providing critical vehicle dynamics and occupant kinematics data for assessing crash survivability.[33] The FMCSA should encourage the use of VER technology in a Beyond Compliance Program.

Conclusion

We rely on commercial trucks to deliver food and goods to our local grocery stores, medical supplies to our pharmacies and hospitals, and packages to our loved ones. Trucks and truckers are integral to our economy. But because of their sheer size, weight and physical properties, commercial trucks introduce a disproportionate hazard to passenger vehicle occupants in a crash. Improving the safety of commercial truck operations will not only save lives, but improve the

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[31] H-99-054, November 2, 2999; H-10-007, July 8, 2010; H-10-014 and H-10-015, October 21, 2010.

[32] H-10-010 and -011, October 21, 2010.

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

public's confidence in this vital and visible industry. Commercial truck safety is a multifaceted issue involving the vehicles, the companies that operate them, the drivers, the oversight agencies, and Congress. Any successful effort to strengthen commercial trucking safety must be a collaborative effort.

The FMCSA has demonstrated enthusiasm to implement positive change. Even while the IRT review was underway, the FMCSA proactively made program changes based on the feedback it was receiving from the IRT. The FMCSA has already fulfilled several IRT recommendations, including enhancing training for its investigators and improving the use of data to better assess motor carrier risk factors. The FMCSA is to be commended for its responsiveness and willingness to learn from tragedy to avoid future tragic accidents. But, much work remains to be accomplished.

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