



NATIONAL TRANSPORTATION SAFETY BOARD

An independent federal agency

**The Honorable Christopher Hart
Vice Chairman**

Before the

**Subcommittee on Highways and Transit
Committee on Transportation and Infrastructure
United States House of Representatives**

Hearing on

**Improving the Effectiveness of the
Federal Surface Transportation Safety Grants Programs**

**Washington, DC
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Good morning Chairman Petri, Ranking Member Norton, and Members of the Subcommittee. Thank you for the opportunity to address you today concerning the National Transportation Safety Board's (NTSB) perspective and recommendations on legislation to improve transportation safety overall.

Introduction

The National Transportation Safety Board (NTSB) is an independent Federal agency charged by Congress with investigating every civil aviation accident the United States and significant accidents in other modes of transportation – railroad, highway, 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 to provide assistance to victims and their family members impacted by major transportation disasters.

One of our keystone products is our Most Wanted List that we issue each year. Earlier this month we issued our list for 2014, a copy of which is attached to this statement. I appreciate the opportunity to be here today to discuss many of the issues we are highlighting. Our 2014 Most Wanted List consists of the following 10 priority transportation safety issues:

- Address Unique Characteristics of Helicopter Operations
- Advance Passenger Vessel Safety
- Eliminate Distraction in Transportation
- Eliminate Substance-Impaired Driving
- Enhance Pipeline Safety
- Improve Fire Safety in Transportation
- General Aviation: Identify and Communicate Hazardous Weather
- Implement Positive Train Control Systems
- Promote Operational Safety in Rail Mass Transit
- Strengthen Occupant Protection in Transportation

Today's hearing provides the opportunity to highlight many of the issues on the 2014 Most Wanted List and the NTSB's ongoing efforts to address them.

Surface Transportation Safety – In General

Highway travel remains the deadliest form of transportation, with more than 30,000 fatalities annually. In 2012, 33,561 people died and 2.36 million were injured in crashes on our nation's roadways. Eliminating distraction, reducing impaired driving, and improving occupant protection are on our Most Wanted List to make true reductions in these numbers. Improved motor carrier oversight, combatting driver fatigue, improving technology, and improvements in highway design can also have lasting impacts on reducing deaths and injuries.

During the past year, our highway and railroad accident investigators have been very busy. Responding to the Skagit River bridge collapse on Interstate 5 in Washington State; a

highway/railroad grade crossing accident in Baltimore County, Maryland, that resulted in a train derailment and major explosion; and several multiple fatality commercial motor vehicle crashes.

The other mode of transportation under this Subcommittee's jurisdiction, mass transportation, is very safe, but last year, the NTSB launched investigations into a Chicago Transit Authority accident in which a train moved along the tracks without a train operator; and a Bay Area Rapid Transit accident that resulted in 2 roadway worker fatalities. Also, from May to December of last year, Metro-North Railroad had four events with 5 fatalities and 135 injuries that we are investigating. Additionally, we continue to work with the Washington Metropolitan Area Transit Authority (WMATA) to monitor the implementation of our recommendations following the fatal 2009 Ft. Totten crash. As many rail systems have realized, a temporary hiatus in the number of accidents does not mean a safe system.

Commercial Motor Vehicle Safety Oversight Issues

In November of last year, the NTSB issued a set of recommendations to the Department of Transportation (DOT) regarding an area of continued concern – Commercial Motor Vehicle safety and the effectiveness of oversight activities by the Federal Motor Carrier Safety Administration (FMCSA). For decades, the NTSB has made recommendations and emphasized the importance of identifying and removing unsafe motor carriers and drivers from our highways before they crash. However, during the past year we repeatedly noted motorcoach and trucking companies continuing to operate despite being unsafe and presenting an imminent hazard to the traveling public -- even after being subjected to FMCSA compliance reviews that should have identified the safety lapses. As a result of four commercial vehicle accidents we investigated, causing 25 deaths and 83 injuries, the NTSB identified problems with both the thoroughness and quality of FMCSA's compliance reviews. Consequently, the NTSB issued two safety recommendations to the DOT recommending audits on oversight activities and actions to address problems uncovered by the audits.^{1 2}

After investigating several fatal accidents in the 1990s, the NTSB recommended that the FMCSA change its safety fitness rating methodology so that an adverse rating on either the vehicle or the driver alone would be sufficient to result in an overall "unsatisfactory" rating for a carrier.³ In these accidents we saw that the FMCSA continued to allow an unsafe operator to travel the highways despite multiple inspections. We later investigated additional motorcoach accidents that involved this same issue, including a 3-fatal school bus/truck collision in Mountainburg, Arkansas, a 5-fatal motorcoach accident in Victor, New York in 2002; a 23-fatal motorcoach fire near Wilmer, Texas in 2005; a 17-fatal motorcoach accident in Atlanta, Georgia

¹ To DOT: Conduct an audit of the compliance review processes used by the Federal Motor Carrier Safety Administration (FMCSA) to determine (1) why inspectors are not identifying all violations of safety regulations by motor carriers undergoing review, and (2) why the FMCSA's quality assurance efforts are not fully effective in assessing the accuracy and completeness of compliance reviews; once these determinations have been made, require the FMCSA to revise its processes to correct these deficiencies. (H-13-39)

² To DOT: Conduct an audit of the effectiveness of focused compliance reviews and, upon the completion of the audit, require the Federal Motor Carrier Safety Administration to take action to resolve any safety issues raised by the audit. (H-13-40)

³ To FMCSA: Change the safety fitness rating methodology so that adverse vehicle or driver performance-based data alone are sufficient to result in an overall unsatisfactory rating for a carrier. (H-99-6)

in 2007; and a motorcoach rollover accident in Victoria, Texas 2008. To date, the FMCSA has not satisfactorily acted on this recommendation.

With over 500,000 motor carriers operating in the U.S., it is important that adequate resources be dedicated, and sufficient data are available, at the Federal and State levels to identify those trucks, buses and drivers who pose a risk to the motoring public. It is also essential that the FMCSA finalize the Compliance, Safety, and Accountability rulemaking; and NTSB recommendations could, if implemented, help FMCSA improve its Safety Fitness Determination process.

Impaired Driving

One of the greatest tragedies on our nation's roadways is the entirely preventable deaths and injuries caused by impaired driving. In 2012, more than 10,000 deaths—31 percent of all motor vehicle fatalities—involved an alcohol-impaired driver. That is more than one fatality per hour due to alcohol impairment. Although substantial progress was made on this issue during the 1980s and 1990s, since 1995 the percentage of motor vehicle deaths that involve an alcohol-impaired driver has remained stubbornly stuck at about one-third.

In an effort to tackle the impaired driving epidemic, the NTSB commenced a year-long examination of the problem in 2012. In May 2012, we held a forum to identify the most effective data-driven, science-based actions needed to eliminate crashes from substance-impaired driving. In December 2012, we issued a special investigation report on wrong-way driving that revealed that more than 60 percent of fatal wrong-way crashes involve impaired drivers. We issued recommendations in the report calling for expanded use of technology such as ignition interlocks.⁴

In May of 2013, our review culminated with the release of “Reaching Zero: Actions to Eliminate Alcohol-Impaired Driving.” The report addresses the necessity of providing strong laws, improved enforcement strategies, innovative adjudication programs, and use of technology to prevent alcohol-impaired driving crashes and their deadly consequences. The report includes 19 new and reiterated safety recommendations calling for:

- Incorporating passive alcohol sensing technology into high visibility enforcement efforts⁵
- Expanding the use of in-vehicle devices to prevent operation by an impaired driver⁶

⁴ To 33 States, the Commonwealth of Puerto Rico, and the District of Columbia: Enact laws to require the use of alcohol ignition interlock devices for all individuals convicted of driving while intoxicated (DWI) offenses. (H-12-45)

⁵ To the 50 States, the Commonwealth of Puerto Rico, and the District of Columbia: Include in your impaired driving prevention plan or highway safety plan provisions for conducting high-visibility enforcement of impaired driving laws using passive alcohol-sensing technology during law enforcement contacts, such as routine traffic stops, saturation patrols, sobriety checkpoints, and accident scene responses. (H-13-6)

⁶ To NHTSA: Work with the Automotive Coalition for Traffic Safety, Inc., to accelerate widespread implementation of Driver Alcohol Detection System for Safety (DADSS) technology by (1) defining usability testing that will guide driver interface design and (2) implementing a communication program that will direct driver education and promote public acceptance. (H-12-43)

- Developing best practices for DWI courts and using other programs to reduce recidivism by repeat DWI offenders⁷
- Establishing measurable goals for reducing impaired driving and tracking progress toward these goals⁸
- Reducing the per se blood alcohol concentration (BAC) limit for all drivers to 0.05 or lower and urging the National Highway Traffic Safety Administration (NHTSA) to seek legislative authority to award incentive grants for states to establish a lower BAC⁹

Tackling the epidemic of impaired driving required a shared commitment and collective efforts by policy makers, law enforcement, and organizations like Mothers Against Drunk Driving (MADD) and Remove Intoxicated Drivers (RID). The next big reductions in fatalities and injuries will require reinvigorating these efforts. The status quo is not acceptable.

Driver Distraction

For over a decade, the NTSB has completed investigation after investigation in which distracted driving was a contributing factor in the cause of crashes. We made our first recommendation to restrict cell phone use by novice drivers following a 2002 five-fatal median crossover accident in Largo, Maryland in which the driver was inexperienced and distracted.

We made our next set of recommendations to prohibit cell phone use by passenger-carrying commercial drivers following a 2004 motorcoach accident in Alexandria, Virginia, in which a driver using a hands-free device ran into an arch bridge that was too low for the bus to clear. Despite being familiar with the roadway, the driver was distracted by the cognitive aspects of his conversation. In 2010 we investigated a crash that resulted in 11 fatalities after a cell phone-distracted truck driver crossed over a median and struck a 15-passenger van head-on. We recommended that cell phone use be prohibited for all commercial drivers.

Finally, in 2010 we investigated a major collision in Gray Summit, Missouri in which a pick-up truck driver was texting, having sent 11 text messages in the 11 minutes immediately prior to the crash. Traveling at highway speed, he failed to see that traffic had slowed due to construction and collided with a truck tractor, creating a chain reaction involving two school buses. The crash resulted in the death of the driver who was texting and a student on one of the school buses. This accident prompted the NTSB to recommend a ban on the use of all portable electronic devices while behind the wheel for all drivers.¹⁰

⁷ To NHTSA: Develop/disseminate to the states best practices for driving while intoxicated (DWI) courts. (H-13-4)

⁸ To the 50 States, the Commonwealth of Puerto Rico, and the District of Columbia: Take the following steps to move toward zero deaths from impaired driving: (1) set specific and measurable targets for reducing impaired driving fatalities and injuries, (2) list these targets in your impaired driving prevention plan or highway safety plan, and (3) provide a mechanism for regularly assessing the success of NTSB Safety Report implemented countermeasures and determining whether the targets have been met. (H-13-8)

⁹ To 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. (H-13-1)

¹⁰ To the 50 States and the District of Columbia: (1) Ban the nonemergency use of portable electronic devices (other than those designed to support the driving task) for all drivers; (2) use the National Highway Traffic Safety

The safety community has directed considerable interest toward the topic of distracted driving. A 2013 survey conducted by the American Automobile Association's (AAA) Foundation for Traffic Safety identified a number of disturbing trends; for example, nearly 70 percent of drivers reported talking on cell phones while driving in the past 30 days, about 25 percent of the drivers admitted to typing text and e-mail messages while driving, and about 35 percent reported reading text or e-mail messages while driving. According to a NHTSA 2013 report, when drivers engage in visual-manual tasks, such as dialing or texting, the risk of a crash increases by a factor of three. In another 2013 AAA Foundation report, researchers found that a driver's level of cognitive distraction is about the same when using hands-free cell phones as when using hand-held cell phones.

We believe there are 3 aspects to reducing the dangers of using a cell phone while driving: effective laws and regulations, strong and consistent enforcement, and pervasive education. We also need to build a social infrastructure that dissuades distracted operations at all times, starting with new and existing drivers who are the agents of change, extending through their family and community support systems to reinforce appropriate behaviors, to the local and regional educational systems and enforcement to ensure proper guidance and corrections for behaviors.

Driver Fatigue

In addition to substance-impaired driving and distracted driving, the issue of driver fatigue remains a high priority and an area in which action is needed to reduce crashes, injuries, and deaths on our highways. The NTSB has a long history of issuing recommendations to prevent fatigue-related highway accidents, and preventing human fatigue was on the NTSB's Most Wanted List from 1990 – 2011. Additionally, fatigue has been identified as a contributing factor in numerous major commercial motor vehicle crashes investigated by the NTSB including recent investigations involving a fatal school bus crash in Chesterfield, New Jersey, a four-fatal motorcoach crash in Doswell, Virginia, and a fifteen-fatality bus crash in New York City, New York.

While hours-of-service regulations for commercial motor vehicle operators are important, electronic onboard recorders are needed to help enforce the regulations and provide accurate feedback to motor carriers; fatigue management programs are needed to educate operators and drivers about the dangers of fatigue and help operators make safety-minded scheduling decisions; medical screening of drivers at high risk for obstructive sleep apnea is needed for both the health of the driver and the safety of the motoring public; and deployment of technologies, such as drowsy driver warning systems that measure eye movement or steering behavior and lane departure warning systems, in commercial vehicles should be required.

Administration model of high visibility enforcement to support these bans; and (3) implement targeted communication campaigns to inform motorists of the new law and enforcement, and to warn them of the dangers associated with the nonemergency use of portable electronic devices while driving. (H-11-39)

The NTSB has numerous long-standing open recommendations focused on fatigued driving that could help mitigate this dangerous problem.

Recommendations include:

- Incorporating scientifically-based fatigue mitigation strategies into the hours-of-service regulations for passenger-carrying drivers¹¹
- Requiring commercial vehicle carriers to use electronic onboard recorders¹²
- Requiring motor carriers to adopt a fatigue management program¹³¹⁴
- Implementing a program to identify commercial drivers at high risk for obstructive sleep apnea¹⁵¹⁶
- Deploying technologies in commercial vehicles to reduce fatigue-related crashes¹⁷

Forward Collision Warning Systems

Passive safety technologies such as airbags, anti-lock brake systems and electronic stability control systems have been associated with a sizable reduction in fatalities on the road. We believe that collision avoidance technologies can also reduce fatalities and injuries and that they can and should be more broadly available.

Since 1995, the NTSB has advocated collision warning systems and adaptive cruise control to prevent bus and truck accidents. In 2001, as part of its study on Vehicle- and Infrastructure-Based Technology for the Prevention of Rear-End Collisions, the NTSB investigated nine commercial vehicle rear-end collisions in which 20 people died and 181 were injured. Common to all nine accidents was the degraded perception of traffic conditions ahead by the driver. The NTSB recommended that NHTSA issue performance standards for adaptive

¹¹ To FMCSA: Incorporate scientifically based fatigue mitigation strategies into the hours-of-service regulations for passenger-carrying drivers who operate during the nighttime window of circadian low. (H-12-30)

¹² To FMCSA: Require all interstate commercial vehicle carriers to use electronic onboard recorders that collect and maintain data concerning driver hours of service in a valid, accurate, and secure manner under all circumstances, including accident conditions, to enable the carriers and their regulators to monitor and assess hours-of-service compliance. (H-7-41)

¹³ To 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. (H-10-9)

¹⁴ To FMCSA: Establish an ongoing program to monitor, evaluate, report on, and continuously improve fatigue management programs implemented by motor carriers to identify, mitigate, and continuously reduce fatigue related risks for drivers. (H-12-29)

¹⁵ To FMCSA: Implement a program to identify commercial drivers at high risk for obstructive sleep apnea and require that those drivers provide evidence through the medical certification process of having been appropriately evaluated and, if treatment is needed, effectively treated for that disorder before being granted unrestricted medical certification (H-9-15)

¹⁶ To FMCSA: Develop and disseminate guidance for commercial drivers, employers, and physicians regarding the identification and treatment of individuals at high risk of obstructive sleep apnea (OSA), emphasizing that drivers who have OSA that is effectively treated are routinely approved for continued medical certification. (H-9-16)

¹⁷ To FMCSA: to develop and implement a plan to deploy technologies in commercial vehicles to reduce the occurrence of fatigue-related accidents. (H-8-13)

cruise control and collision warning systems for new vehicles and recommended that all new vehicles be equipped with a collision warning system.¹⁸¹⁹²⁰

In 2003, the NTSB investigated a multivehicle accident near Hampshire, Illinois, in which a tractor-trailer failed to slow for the stopped or slow-moving traffic on the approach to the Interstate 90 toll plaza, and the tractor-trailer struck the rear of a specialty bus, killing eight passengers and injuring 12. As a result, the NTSB reiterated the recommendations and asked NHTSA again to move quickly on a forward collision warning system rulemaking. These recommendations remain open.

We continue to investigate accidents in which this technology could save lives. Accidents in 2008 (Osseo, WI and Miami, OK) and in 2011 (Gray Summit, MO) could have been prevented or mitigated by collision warning systems. In the past two years alone, the NTSB investigated an additional six rear-end collisions which resulted in a total of 29 fatalities and 47 passenger injuries. Investigative teams at the NTSB are currently working on a special investigation report encompassing the lessons learned from these recent crashes.

Connected Vehicle Technologies

In addition to vehicle-based solutions such as forward collision warning systems, development and field testing is ongoing for connected vehicle technologies (vehicle-to-vehicle (V2V) and vehicle-to-infrastructure (V2I)). The connected vehicle technology program relies upon on dedicated short-range communication (DSRC) radios sending and receiving information between vehicles and traffic devices. For the V2V system to work, all vehicles require a DSRC radio connected to a GPS device. The radio transmits vehicle position to allow the cars receiving the information to predict the path and speed of surrounding vehicles. The range of the system is currently about 300 meters. The system interface warns a driver if one of the nearby vehicles is expected to encroach on the driver's projected path.

The V2I system communicates between approaching vehicles and an intersection or infrastructure to provide information such as whether the gap between vehicles on a cross road is sufficient for safe crossing. NHTSA analyses show that DSRC-based connected vehicle technology could address approximately 80 percent of the crash scenarios involving non-impaired drivers. Given the progress that has been made by government and industry leaders in this area, such an outcome is a realistic possibility and could radically reduce the number of roadway fatalities.

Recognizing the benefits of these technologies, the NTSB recently recommended that NHTSA develop minimum performance standards for connected vehicle technology for all highway vehicles so they may be installed on all new vehicles.²¹²²

¹⁸ To NHTSA: Complete rulemaking on adaptive cruise control and collision warning system performance standards for new commercial vehicles. At a minimum, these standards should address obstacle detection distance, timing of alerts, and human factors guidelines, such as the mode and type of warning. (H-1-6)

¹⁹To NHTSA: After promulgating performance standards for collision warning systems for commercial vehicles, require that all new commercial vehicles be equipped with a collision warning system. (H-1-7)

²⁰ To NHTSA: Complete rulemaking on adaptive cruise control and collision warning system performance standards for new passenger cars. At a minimum, these standards should address obstacle detection distance, timing of alerts, and human factors guidelines, such as the mode and type of warning. (H-1-8)

The NTSB's advocacy for intelligent vehicle technologies dates back to the 1990s. The NTSB first addressed this technology during its investigation of a 1995 multivehicle collision in Menifee, Arkansas. A commercial vehicle entered dense fog, slowed from 65 mph to between 35 and 40 mph, and was then struck from behind. Subsequent collisions occurred as other vehicles crashed into the wreckage. This accident, which involved eight loaded truck-tractor semitrailer combination units, resulted in five fatalities.

Even then—before today's wirelessly connected world existed—the need to establish dedicated communication airwaves for technologies that could prevent such collisions was recognized. As a result of the Menifee accident, the NTSB issued a recommendation to the Federal Communications Commission (FCC) requesting rulemaking action on the allocation of frequencies that would enhance the development possibilities of collision warning systems.²³ By 1999, the FCC had successfully allocated spectrum for collision avoidance systems.

This spectrum allocation is in the 5 gigahertz (GHz) band. Recently, there have been ongoing activities to potentially accommodate spectrum sharing in this band. The NTSB is not opposed to spectrum sharing in principle, but careful attention must be paid when considering spectrum sharing. Much is still unknown about frequency interference when it comes to vast numbers of connected vehicles in motion, and the implementation of this technological opportunity to improve transportation safety so significantly must not be compromised by issues associated with interference in the 5 GHz band.

Occupant Protection

The NTSB seeks to prevent crashes from occurring through measures such as improved oversight, driver education and training, high visibility enforcement, and the deployment of collision avoidance technologies. However, when a crash is not avoided, occupant protection is critical. For highway users, wearing a seatbelt, properly using a child safety seat, and wearing a motorcycle helmet are some of the best means for occupant protection. Unfortunately, far too many people do not use these lifesaving devices.

The NTSB has recommended mandatory seat belt laws since 1988 as one of the most effective means of preventing highway fatalities. Enforcement of those laws is an important component of increasing seatbelt use. Primary enforcement laws equip law enforcement with the tools to stop a vehicle for a seat belt violation. The NTSB supports primary enforcement laws for those states that do not already have it.²⁴

²¹ To NHTSA: Develop minimum performance standards for connected vehicle technology for all highway vehicles. (H-13-30)

²² To NHTSA: Once minimum performance standards for connected vehicle technology are developed, require this technology to be installed on all newly manufactured highway vehicles. (H-13-31)

²³ To FCC: Expedite rulemaking action on the allocation of frequencies that would enhance the development possibilities of collision warning systems. (H-95-46)

²⁴ To the Governor, and the Legislatures of the 50 States, the U.S. Territories, and the District of Columbia: Enact legislation that provides for primary enforcement of mandatory seatbelt use laws, including provisions such as the imposition of driver license penalty points and appropriate fines. Existing legal provisions that insulate people from the financial consequences of not wearing a seatbelt should be repealed. (H-97-2)

In regard to motorcoach occupant protection, the NTSB first called for seat belts to be installed on motorcoaches over four decades ago. Last month NHTSA announced a long-awaited final rule requiring seat belts on motorcoaches. The final rule requires adjustable seat belts for all passenger seats on new motorcoaches starting in 2016. The NTSB applauds NHTSA for moving forward on this lifesaving initiative.

In the past decade, the NTSB has investigated more than 30 motorcoach accidents that have resulted in over 140 fatalities, over 100 injuries, and over 250 bus passengers who were ejected. The structural integrity of a motorcoach is critical to maintaining a survivable occupant space for passengers, because intrusion into the occupant area can cause fatalities and injuries. Following our 1999 study of motorcoach passenger protection, we issued recommendations to NHTSA regarding roof strength and window glazing standards.^{25 26} We have reiterated these recommendations numerous times over the years. NHTSA should move immediately on this rulemaking.

Although highway fatalities have been trending downward over the last several years, motorcycle fatalities have been a marked exception. At the same time, there has also been a reduction in the number of states with helmet laws. The NTSB held a public forum in September 2006 to (1) review current issues in motorcycle safety, (2) gather information about ongoing motorcycle safety research and initiatives, and (3) discuss safety countermeasures that may reduce the likelihood of motorcycle accidents and fatalities. Unfortunately, our recommendations to the States to require the use of approved helmets have not been productive.^{27 28 29}

Highway Barrier Design Improvements

NTSB accident investigations have revealed the need to invest in our nation's aging infrastructure and make improvements to better protect motorists operating on our highways. One specific area that deserves attention is the need to update many of the barriers—barriers bordering our highways, in our medians, and on our bridges—to prevent the types of catastrophic accidents involving commercial motor vehicles in which the roadside barriers fail to redirect

²⁵ To NHTSA: Develop performance standards for motorcoach roof strength that provide maximum survival space for all seating positions and that take into account current typical motorcoach window dimensions. (H-99-50) Once performance standards have been developed for motorcoach roof strength, require newly manufactured motorcoaches to meet those standards. (H-99-51)

²⁶ To NHTSA: Expand your research on current advanced glazing to include its applicability to motorcoach occupant ejection prevention, and revise window glazing requirements for newly manufactured motorcoaches based on the results of this research. (H-99-49)

²⁷ To the three states with no motorcycle helmet laws: Require that all persons shall wear a Department of Transportation Federal Motor Vehicle Safety Standard 218-compliant motorcycle helmet while riding (operating), or as a passenger on any motorcycle. (H-07-38)

²⁸ To the 27 states and 1 territory with partial motorcycle helmet laws: Amend current laws to require that all persons shall wear a Department of Transportation Federal Motor Vehicle Safety Standard 218-compliant motorcycle helmet while riding (operating), or as a passenger on any motorcycle. (H-07-39)

²⁹ To the 8 states, DC, and the 4 territories not specifically requiring FMVSS 218-compliant helmets: Amend current laws to specify that all persons shall wear a Department of Transportation Federal Motor Vehicle Safety Standard 218-compliant motorcycle helmet while riding (operating), or as a passenger on any motorcycle. (H-07-40)

larger commercial vehicles. With these vehicles becoming a greater percentage of traffic, especially on our heavily traveled interstates, barriers need to be improved and the NTSB has made a series of recommendations to FHWA to address this issue.³⁰³¹³²³³

Highway Safety – Summary

The number of deaths and injuries from crashes on our highways continues to be a national tragedy. Too many lives are lost in events that could be easily prevented. The NTSB continues to highlight lessons learned from the catastrophes we investigate and recommends a holistic and strategic approach that addresses driver impairment, vehicle design and safety, improvements to our infrastructure, and technological solutions. The safety of the motoring public needs to be a top priority.

Rail Mass Transit Safety

Federal safety oversight of public transportation has long been a key concern for the NTSB. In 1971, for example, the NTSB issued a special study on rapid rail transit safety that recommended the Urban Mass Transportation Administration – the predecessor agency to the Federal Transit Administration (FTA) -- require transit authorities' applications for capital improvement, demonstration, and research and development grants include a system safety plan for the project for which funds were sought. In a 1981 study, the NTSB recommended that DOT

[p]ropose legislation to explicitly authorize the secretary of transportation to regulate the safety of rail rapid transit systems which receive federal financial assistance. Such legislation should include the authority to establish federal minimum safety standards, to enforce compliance, to conduct inspections, to conduct investigations of accidents and incidents, and such other general powers and duties as are necessary to provide for effective safety oversight.³⁴

³⁰ To the FHWA: Establish, in conjunction with the American Association of State Highway and Transportation Officials, performance and selection guidelines for bridge owners to use to develop objective warrants for high-performance Test Level Four, Five, and Six bridge railings applicable to new construction and rehabilitation projects where railing replacement is determined to be appropriate. (H-09-17)

³¹ To the FHWA: Work with the American Association of State Highway and Transportation Officials to develop guidance for a bridge pier protection program that will allow state transportation agencies to conduct risk-based assessments of bridges located within highway interchanges. At a minimum, the program should consider each structure's redundancy, continuity, and the distance of bridge pier columns from the edge of traveled ways. Additionally, consider traffic volumes, traffic type, and the percentage of commercial vehicles transporting bulk liquid hazardous materials in identifying and prioritizing initiatives for preventing vulnerable bridges at high-risk interchanges from collapsing if struck or otherwise damaged by a heavy vehicle. (H-11-16)

³² To the FHWA: Work with the American Association of State Highway and Transportation Officials to establish warrants and implementation criteria for the selection and installation of Test Level Four and Test Level Five median barriers on the National Highway System. (H-11-21)

³³ To the FHWA: Work with the American Association of State Highway and Transportation Officials to establish performance and selection guidelines for state transportation agencies to use in developing objective warrants for high-performance barriers applicable to new construction and rehabilitation projects where barrier replacement has been determined to be appropriate. (H-12-23)

³⁴ R-81-1.

Although the 1991 surface transportation authorization act – the Intermodal Surface Transportation Efficiency Act – created the state safety oversight program, over the next 20 years, the NTSB continued to find that state safety oversight of mass transit systems was ineffective, fragmented, and suffered from inadequate resources and untrained personnel. As a result of the NTSB’s investigation of the WMATA accident near the Fort Totten station on June 22, 2009 (discussed further below), the NTSB again recommended that DOT

continue to seek the authority to provide safety oversight of rail fixed guideway transportation systems, including the ability to promulgate and enforce safety regulations and minimum requirements governing operations, track and equipment, and signal and train control systems.³⁵

The Moving Ahead for Progress in the 21st Century Act (MAP-21) authorized fundamental changes in federal safety oversight of public transportation. It established minimal Federal safety standards for rail transit systems and provided FTA with the authority to regulate safety for all modes of public transportation. The NTSB welcomes these new legislative mandates and looks forward to assisting FTA in implementing the new Public Transportation Safety Program. In issuing our 2014 Most Wanted List, we state:

The FTA should consider the elements of safety culture, crew resource management, fatigue risk management, and technology, as well as lessons learned from the rail industry, as it moves forward with this new authority. Identifying and implementing these will be key to saving lives and preventing injuries.

Metro-North Railroad

On Friday, May 17, 2013, at the height of the evening rush hour, an eastbound Metro-North Railroad (Metro-North) passenger train, derailed and was struck by a westbound Metro-North Railroad passenger train Bridgeport, Connecticut. At the time of the accident, Metro-North estimated there were about 250 passengers on each train. As a result of the collision, 48 passengers, 2 engineers, and a conductor were transported to local hospitals. Fortunately, there were no fatalities. Metro-North estimated damage as a result of this accident at \$18.5 million.

On May 28, eleven days later, Metro-North suffered a roadway worker fatality when Metro-North Railroad passenger train 1559, traveling westbound at 70 mph, struck and killed a track foreman working on the New Haven Line in West Haven, Connecticut.

As a result of the West Haven accident, on June 17, 2013, the NTSB issued an urgent recommendation to Metro-North and reiterated a recommendation to the Federal Railroad Administration (FRA) to require redundant protection, such as shunting, for maintenance-of-way work crews who depend on the train dispatcher to control access to occupied sections of track. A shunt is a device that crews can attach to the rails in a work zone to alert the dispatcher or

³⁵ *Railroad Accident Report, Collision of Two Washington Metropolitan Area Transit Authority Metrorail Trains Near Fort Totten Station*, June 22, 2009, R-10-3, pp. 109-110.

controller and provides a stop signal for approaching trains. Metro-North subsequently implemented this recommendation; however, to date, the FRA has not taken action on this recommendation that was originally issued in 2008 following roadway worker fatalities in Woburn, Massachusetts. As a result of these two accidents, on November 6 and 7, 2013, the NTSB conducted an investigative hearing that examined the following issues: track maintenance and inspection, railroad passenger car crashworthiness, operational protection of on-track work areas, and organizational safety culture.

On December 1, 2013, a southbound Metro-North passenger train on the Hudson Line derailed in The Bronx, New York. Train movements on this line are governed by a traffic control system. The train originated in Poughkeepsie, New York with a destination of Grand Central Station in New York City. It consisted of seven passenger cars and one locomotive at the rear pushing the train. As a result of the derailment, 4 passengers died and 59 persons were transported to local hospitals for injuries. Metro-North estimated there were about 115 passengers on the train at the time of the derailment. Damage was estimated by Metro-North to be in excess of \$9 million. Although NTSB's investigative work on the Bronx accident is continuing, our preliminary report issued on January 14, 2014, indicated the derailment occurred in a 6 degree left hand curve where speed was limited to 30 mph; the estimated train speed at the time of the derailment was 82 mph.

A positive train control system could have prevented two of these accidents and all five fatalities. More findings from these accidents will be revealed later this year as the NTSB completes all its on-going Metro-North investigations.

Chicago Transit Authority

On September 30, 2013, an unoccupied Chicago Transit Authority (CTA) train, moving under power from the Forrest Park Repair Terminal, collided with a revenue service train stopped at the Harlem Station on the Blue Line. There were 40 passengers on the train at the time of the collision, of which 33 were transported to local hospitals. Damage was estimated by CTA to be in excess of \$6 million.

As a result of this accident, the NTSB issued urgent safety recommendations to CTA and FTA. The urgent safety recommendations to CTA included reviewing its operating and maintenance procedures for parked unoccupied cars to insure the propulsion and brake systems are left in a condition that would not facilitate unintended movement and to implement a redundant means of stopping unintended rail car movements, such as wheel chocks or a derail. The urgent recommendation to FTA was to issue a safety advisory to all transit properties requesting they review their procedures and implement similar requirements. CTA subsequently implemented this recommendation and FTA issued a "Dear Colleague" letter to all transit properties.

Additional findings and recommendations will be revealed as the NTSB completes its on-going investigation into this accident.

Washington Metropolitan Area Transit Authority

On Monday, June 22, 2009, WMATA Metrorail train 112 struck the rear of stopped Metrorail train 214. The accident occurred on aboveground track on the Metrorail Red Line near the Fort Totten station in Washington, D.C. When train 112 struck the rear car of train 214, the lead car of train 112 suffered a loss of occupant survival space of about 63 feet (about 84 percent of its total length). Nine people aboard train 112, including the train operator, were killed. Emergency response agencies reported transporting 52 people to local hospitals. Damage to train equipment was estimated to be \$12 million.

The NTSB determined that the probable cause of the collision was (1) a failure of the track circuit modules that caused the automatic train control system to lose detection of the struck train and thus failed to transmit speed commands to the striking train, and (2) WMATA's failure to ensure that the enhanced track circuit verification test (developed following near-collisions at the 2005 Rosslyn, Virginia Metrorail station) was institutionalized and used systemwide, which would have identified the faulty track circuit before the accident.

Contributing to the accident were (1) WMATA's lack of a safety culture, (2) WMATA's failure to effectively maintain and monitor the performance of its automatic train control system, (3) GRS/Alstom Signaling Inc.'s failure to provide a maintenance plan to detect spurious signals that could cause its track circuit modules to malfunction, (4) ineffective safety oversight by the WMATA Board of Directors, (5) the Tri-State Oversight Committee's ineffective oversight and lack of safety oversight authority, and (6) the FTA's lack of statutory authority to provide federal safety oversight.

Also contributing to the severity of passenger injuries and the number of fatalities was WMATA's failure to replace or retrofit the 1000-series railcars after these cars were shown in a previous accident to exhibit poor crashworthiness.

Since 2006, 29 safety recommendations have been issued to WMATA as a result of accidents. To date, 21 of these are closed, having been acted upon in an acceptable manner; 8 of these recommendations remain open, but WMATA is making progress toward implementing them.

Conclusion

The safety issues and the accidents discussed today are a reminder that there is much to be done to improve the safety of highway transportation and mass transit operations. Accidents provide a unique opportunity to identify real world issues, and we can and should learn from our mistakes. We do not need to go to another accident scene to relearn the same lessons. We have the facts; we only need the will.

Mr. Chairman, this completes my statement, and I will be happy to respond to any questions you may have.