FAST ACT IMPLEMENTATION: IMPROVING THE SAFETY OF THE NATION'S ROADS

(115–21)

HEARING

BEFORE THE

SUBCOMMITTEE ON
HIGHWAYS AND TRANSIT

OF THE

COMMITTEE ON
TRANSPORTATION AND
INFRASTRUCTURE
HOUSE OF REPRESENTATIVES

ONE HUNDRED FIFTEENTH CONGRESS

FIRST SESSION

JULY 18, 2017

Printed for the use of the
Committee on Transportation and Infrastructure

Available online at: http://www.gpo.gov/fdsys/browse/
committee.action?chamber=house&committee=transportation

U.S. GOVERNMENT PUBLISHING OFFICE

26–374 PDF WASHINGTON : 2017

For sale by the Superintendent of Documents, U.S. Government Publishing Office
Internet: bookstore.gpo.gov Phone: toll free (866) 512–1800; DC area (202) 512–1800
Fax: (202) 512–2104 Mail: Stop IDCC, Washington, DC 20402–0001

COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE

BILL SHUSTER, Pennsylvania, *Chairman*

DON YOUNG, Alaska
JOHN J. DUNCAN, JR., Tennessee, *Vice Chair*
FRANK A. LOBIONDO, New Jersey
SAM GRAVES, Missouri
DUNCAN HUNTER, California
ERIC A. "RICK" CRAWFORD, Arkansas
LOU BARLETTA, Pennsylvania
BLAKE FARENTHOLD, Texas
BOB GIBBS, Ohio
DANIEL WEBSTER, Florida
JEFF DENHAM, California
THOMAS MASSIE, Kentucky
MARK MEADOWS, North Carolina
SCOTT PERRY, Pennsylvania
RODNEY DAVIS, Illinois
MARK SANFORD, South Carolina
ROB WOODALL, Georgia
TODD ROKITA, Indiana
JOHN KATKO, New York
BRIAN BABIN, Texas
GARRET GRAVES, Louisiana
BARBARA COMSTOCK, Virginia
DAVID ROUZER, North Carolina
MIKE BOST, Illinois
RANDY K. WEBER, SR., Texas
DOUG LAMALFA, California
BRUCE WESTERMAN, Arkansas
LLOYD SMUCKER, Pennsylvania
PAUL MITCHELL, Michigan
JOHN J. FASO, New York
A. DREW FERGUSON IV, Georgia
BRIAN J. MAST, Florida
JASON LEWIS, Minnesota
PETER A. DEFAZIO, Oregon
ELEANOR HOLMES NORTON, District of Columbia
JERROLD NADLER, New York
EDDIE BERNICE JOHNSON, Texas
ELIJAH E. CUMMINGS, Maryland
RICK LARSEN, Washington
MICHAEL E. CAPUANO, Massachusetts
GRACE F. NAPOLITANO, California
DANIEL LIPINSKI, Illinois
STEVE COHEN, Tennessee
ALBIO SIRES, New Jersey
JOHN GARAMENDI, California
HENRY C. "HANK" JOHNSON, JR., Georgia
ANDRÉ CARSON, Indiana
RICHARD M. NOLAN, Minnesota
DINA TITUS, Nevada
SEAN PATRICK MALONEY, New York
ELIZABETH H. ESTY, Connecticut, Vice Ranking Member
LOIS FRANKEL, Florida
CHERI BUSTOS, Illinois
JARED HUFFMAN, California
JULIA BROWNLEY, California
FREDERICA S. WILSON, Florida
DONALD M. PAYNE, JR., New Jersey
ALAN S. LOWENTHAL, California
BRENDA L. LAWRENCE, Michigan
MARK DESAULNIER, California

SUBCOMMITTEE ON HIGHWAYS AND TRANSIT

SAM GRAVES, Missouri, *Chairman*

DON YOUNG, Alaska
JOHN J. DUNCAN, JR., Tennessee
FRANK A. LOBIONDO, New Jersey
DUNCAN HUNTER, California
ERIC A. "RICK" CRAWFORD, Arkansas
LOU BARLETTA, Pennsylvania
BLAKE FARENTHOLD, Texas
BOB GIBBS, Ohio
JEFF DENHAM, California
THOMAS MASSIE, Kentucky
MARK MEADOWS, North Carolina
SCOTT PERRY, Pennsylvania
RODNEY DAVIS, Illinois
ROB WOODALL, Georgia
JOHN KATKO, New York
BRIAN BABIN, Texas
GARRET GRAVES, Louisiana
BARBARA COMSTOCK, Virginia
DAVID ROUZER, North Carolina
MIKE BOST, Illinois
DOUG LAMALFA, California
BRUCE WESTERMAN, Arkansas
LLOYD SMUCKER, Pennsylvania, *Vice Chair*
PAUL MITCHELL, Michigan
JOHN J. FASO, New York
A. DREW FERGUSON IV, Georgia
BILL SHUSTER, Pennsylvania *(Ex Officio)*
ELEANOR HOLMES NORTON, District of Columbia
JERROLD NADLER, New York
STEVE COHEN, Tennessee
ALBIO SIRES, New Jersey
RICHARD M. NOLAN, Minnesota
DINA TITUS, Nevada
SEAN PATRICK MALONEY, New York
ELIZABETH H. ESTY, Connecticut
JARED HUFFMAN, California
JULIA BROWNLEY, California
ALAN S. LOWENTHAL, California
BRENDA L. LAWRENCE, Michigan
MARK DESAULNIER, California
EDDIE BERNICE JOHNSON, Texas
MICHAEL E. CAPUANO, Massachusetts
GRACE F. NAPOLITANO, California
DANIEL LIPINSKI, Illinois
HENRY C. "HANK" JOHNSON, JR., Georgia
LOIS FRANKEL, Florida
CHERI BUSTOS, Illinois
FREDERICA S. WILSON, Florida
PETER A. DEFAZIO, Oregon *(Ex Officio)*

CONTENTS

Page

SUBMISSIONS FOR THE RECORD

ADDITIONS TO THE RECORD

[1] This 113-page report can be found online at the National Transportation Safety Board's website at https://www.ntsb.gov/investigations/AccidentReports/Reports/HAR1301.pdf.

[2] This 104-page report can be found online at the National Transportation Safety Board's website at https://www.ntsb.gov/investigations/AccidentReports/Reports/HAR1103.pdf.

Committee on Transportation and Infrastructure
U.S. House of Representatives
Washington DC 20515

Bill Shuster
Chairman

Mathew M. Sturges
Staff Director

Peter A. DeFazio
Ranking Member

Katherine W. Dedrick
Democratic Staff Director

July 14, 2017

SUMMARY OF SUBJECT MATTER

TO:	Members, Subcommittee on Highways and Transit
FROM:	Staff, Subcommittee on Highways and Transit
RE:	Subcommittee Hearing on "FAST Act Implementation: Improving the Safety of the Nation's Roads"

PURPOSE

The Subcommittee on Highways and Transit will meet on Tuesday, July 18, 2017, at 10:00 a.m. in 2167 Rayburn House Office Building to receive testimony related to how the policy provisions in the *Fixing America's Surface Transportation* (FAST) *Act* (P.L. 114-94) are improving the safety and reliability on our Nation's roads. The Subcommittee will hear from representatives of various modal administrations at the U.S. Department of Transportation (DOT), which are tasked with implementing these provisions, and a representative of the National Transportation Safety Board (NTSB).

BACKGROUND

Traffic Safety Data

From 2006-2015, traffic fatalities declined from 42,708 to 35,092. Federal surface transportation safety programs and vehicle improvements have played an important role in helping to reduce the number of fatalities. However, in 2015, there was a 7.2 percent increase in the number of fatalities compared to 2014. While there are several possible explanations for this increase, one worth examining is that there are simply more miles being traveled on the Nation's highways. Indeed, 2015 experienced the largest increase in nearly 25 years.[1]

[1] National Highway Traffic Safety Administration, Traffic fatalities up sharply in 2015, Press Releases (August 29, 2016), https://www.nhtsa.gov/press-releases/traffic-fatalities-sharply-2015.

The FAST Act

The FAST Act was enacted on December 4, 2015, and is the first long-term surface transportation reauthorization bill in a decade. The FAST Act reauthorizes federal surface transportation programs through fiscal year 2020. The FAST Act improves our Nation's infrastructure, reforms federal surface transportation programs, refocuses those programs on addressing national priorities, and encourages innovation to make the surface transportation system safer and more efficient.

The FAST Act provides non-federal partners – states, local entities, law enforcement agencies, among others – with the resources to improve safety of the Nation's roads.

Federal Highway Administration

The FAST Act reforms and provides increased funding for the Highway Safety Improvement Program (HSIP), which is administered by the Federal Highway Administration (FHWA). States may use HSIP funds on projects designed to achieve a significant reduction in traffic fatalities and serious injuries on public roads. The FAST Act reforms HSIP to ensure funds may only be spent on infrastructure related projects that improve safety and to reduce administrative burdens on states concerning the collection of safety data on unpaved roads. The FAST Act also increases the funding set aside under HSIP for projects to improve railway-highway grade crossings and expanded project eligibility.

The FAST Act recognizes the importance of roadway safety in tribal nations and federal lands. In order to prevent tribal fatalities and increase safety awareness, the FAST Act directs the Secretary of Transportation (Secretary) to report to Congress on ways to improve the safety of tribal roads, as well as techniques to improve the collection of safety data on these roads. To address safety on federal lands, the FAST Act increases funding levels for the Federal Lands Transportation Program (FLTP). FLTP provides funds to federal land agencies to make improvements to transportation infrastructure. The performance goals of this program include improving safety and addressing bridge deficiencies.

The FAST Act also establishes a competitive grant program to facilitate the deployment of innovative technologies and techniques that will enhance the safety and efficiency of the Nation's roads.

Federal Motor Carrier Safety Administration

Improves Safety

The FAST Act increases funds for and consolidates Federal Motor Carrier Safety Administration (FMCSA) grants programs, which support states' efforts to improve commercial motor vehicle safety, regulate the qualifications of commercial drivers, and assess the fitness of motor carriers to operate in interstate commerce. It also streamlines the requirements for the programs to reduce administrative cost and regulatory burdens on the states.

The FAST Act incentivizes the adoption of innovative truck and bus safety technologies and accelerates the implementation of safety regulations required by law. The FAST Act also authorizes a new testing method to detect the use of drugs and alcohol by commercial motor vehicle drivers.

Reform of Compliance, Safety, Accountability Program

The FMCSA primarily relies on the Compliance, Safety, Accountability (CSA) program to track unsafe truck and bus operating entities and target them for enforcement action. After audits conducted by the Government Accountability Office and the DOT Inspector General uncovered flaws in the methodology FMCSA used to score the safety of motor carriers under the CSA program, Congress initiated a reform of the program in the FAST Act. Specifically, the FAST Act requires the FMCSA Administrator to commission the National Academies of Sciences, Engineering, and Medicine to conduct a study on ways to improve the CSA program and provide Congress and the Inspector General with a report on the study's findings. The report was recently released and included six recommendations to improve the CSA program. The FAST Act requires the FMCSA Administrator to develop a corrective action plan based on the report and to submit that plan to Congress. The Inspector General is required to review the corrective action plan and certify that it is responsive to the report's findings. Until the Inspector General can make such certification, the FMCSA is required to remove the CSA scores from public view. Enforcement and inspection data reported by states and enforcement agencies will remain available for public view.

Reduces Regulatory Burdens

The FAST Act reforms the regulatory process by requiring FMCSA to use the best available science and data on various segments of the trucking industry when developing rulemakings. Further, it establishes a process under which the public or the motor carrier industry can petition FMCSA to revise or repeal regulations if they are no longer current, consistent, and uniformly enforced.

National Highway Traffic Safety Administration

Improves Safety

The FAST Act reforms the Impaired Driving Countermeasures, Distracted Driving, and State Graduated Driver License incentive grants to reduce unreasonable barriers to state eligibility, while strengthening incentives for states to adopt laws and regulations to improve highway safety. It encourages states to increase driver awareness of commercial motor vehicles. Finally, the FAST Act creates a state grant program to enhance safety for bicyclists, pedestrians, and other non-motorized users.

Prioritizes Emerging Safety Needs

The FAST Act enables states to spend more funds on the pressing safety needs unique to their states by reallocating unspent National Priority Safety Program funds and increasing the

percentage of these funds that can be flexed to each state's traditional highway safety programs. It also requires the Secretary to study the feasibility of establishing an impairment standard for drivers under the influence of marijuana and provide recommendations on how to implement such a standard. Finally, the FAST Act requires National Highway Traffic Safety Administration to take additional actions to improve awareness of the dangers of drug impaired driving.

National Transportation Safety Board

The NTSB was established by Congress in 1967 as an independent agency to promote a higher level of safety in the transportation system. In 1974, Congress moved the NTSB outside of the DOT to ensure that it remained separate and independent from any other mode. Since its creation, the NTSB has made over 13,000 safety recommendations to more than 2,500 recipients. The NTSB has no formal authority to regulate the transportation industry and therefore relies on their reputation of doing accurate and thorough investigations.[2]

WITNESS LIST

Mr. Walter Waidelich, Jr.
Acting Deputy Administrator
Federal Highway Administration

Mrs. Daphne Jefferson
Deputy Administrator
Federal Motor Carrier Safety Administration

Mr. Jack Danielson
Acting Deputy Administrator
National Highway Traffic Safety Administration

The Honorable T. Bella Dinh-Zarr
Member
National Transportation Safety Board

[2] National Transportation Safety Board, History of The National Transportation Safety Board, NTSB History (July 09, 2017), https://www.ntsb.gov/about/history/Pages/default.aspx.

FAST ACT IMPLEMENTATION: IMPROVING THE SAFETY OF THE NATION'S ROADS

TUESDAY, JULY 18, 2017

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON HIGHWAYS AND TRANSIT,
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE,
Washington, DC.

The subcommittee met, pursuant to call, at 10 a.m., in room 2167, Rayburn House Office Building, Hon. Sam Graves (Chairman of the subcommittee) presiding.

Mr. GRAVES OF MISSOURI. We will call the subcommittee to order. And I want to welcome everybody here. Good morning.

We all share the same critical goal of reducing the number of fatalities and serious injuries on our Nation's roads. Over the past years, Federal transportation safety programs, along with other factors, have played an important role in reducing these numbers. When this committee was developing its surface transportation bill a couple years ago, improving safety on our Nation's roads was one of the very key principles. Today, we are here to examine the implementation of the safety provisions in the FAST Act [Fixing America's Surface Transportation Act].

The FAST Act is the first long-term surface transportation bill in a decade. It improves our Nation's infrastructure. It reforms Federal surface transportation programs and refocuses those programs on addressing national priorities. And it encourages innovation to make the surface transportation system safer and more efficient. The FAST Act also provides our non-Federal partners with important resources to improve the safety of our Nation's roads. These resources include but aren't limited to: increasing funding for Federal transportation safety programs across the modal administrations; reforming certain NHTSA safety programs to reduce barriers to State eligibility; improve incentives for roads or for States to adopt laws and regulations to improve highway safety; consolidate nine existing FMCSA grant programs into four; streamlining the program requirements to reduce administrative cost and improve the flexibility for the States; and improving safety by incentivizing the adoption of innovative truck and bus safety technologies and accelerated implementation of safety regulations that are required by law. So I look forward to hearing from our witnesses on the progress that their agencies are making in implementing the safety provisions of the FAST Act.

And I thank you all for being here today. I know some of you traveled farther than others.

And, with that, I will turn to Ranking Member Norton for her opening statement.

Ms. NORTON. Thank you very much, Mr. Chairman.

And, first, I want to say how much I appreciate this hearing on improving the safety of the Nation's roads. This is an issue of critical importance because safety has not been improving. Just yesterday, I was on the floor for the approval of safety for the Metro system here. Safety is becoming a critical concern in transportation.

Since I have been ranking member, our Subcommittee on Highways and Transit has spent considerable time on issues of critical importance, like technology and innovation and automation. As important as those subjects are, I hope we can have more hearings on safety. We have had two hearings on public safety now, and I hope this is another one in what will be a series. I have written requesting a hearing on the oversight and monitoring of motor carrier safety under the CSA program, for example. There are a number of other topics regarding safety that are worthy of exploration.

Mr. Chairman, motor vehicle crashes should be negative, should be going down, decreasing in numbers. You know, that is the American way. Either we want things to go up every year, like the economy, or we want things to go down, like crashes. So I was astounded that, in preparing for this hearing, to learn that pedestrian fatalities have increased—that is an increase I am not looking for—by almost 10 percent, 9.5 percent in 2015. They are at their highest level since 1996. What is wrong with us? What is wrong with what we have been doing that these figures have been getting worse?

I have particular concerns in the District of Columbia where pedestrian deaths represent 56 percent of all traffic fatalities. We are asking people to get out and walk, and then you take your life in your hands as you cross the street. The figures are continuing to get worse. The first 9 months of 2016, we saw an 8 percent higher rate than the figures I have just quoted in 2015, which were already 10 percent higher themselves. So we really can't sit idly by. I think the public wants us to do something. Obviously, these are matters at the local level and State level, but they are surely matters here for this technology.

Now, I am pleased at technology at this hearing. Technology is an important piece of how we would enhance safety, in my regard. And I am fascinated by the work being done to advance innovative solutions for future generations to avoid needless loss of life. But full automation, which I believe would reduce needless deaths, is really not around the corner, as exciting as it is. The three leading causes of death in 2015 were responsible for two-thirds of all deaths, and they were all based on human factors. I am not sure technology—what technology will do about them. We haven't got to this in technology yet. Because these factors were—almost two-thirds were because of alcohol impairment, speeding—maybe we can do something about that with innovation—and distracted driving.

So the question before the House, as they say, is, what steps can be taken now, right now, to bring down auto fatalities and injuries to ensure that, when you get behind a car or a bus or a truck, for

example, that you have the training and education necessary to take on that responsibility, safety.

One of my own major issues as ranking member has been more robust commercial truck and bus driver training. Buses, but particularly trucks, are an increasing mode of transportation in our country. Congress first directed the Department of Transportation to develop training standards for commercial motor vehicle drivers in 1991. That was over 25 years ago. Between 1991 and 2016, the Department failed to produce a rule that provided adequate training standards for drivers. All of that time, no rule.

Late last year, though, the Department of Transportation put out a new rule based on negotiated rulemaking. I was very hopeful, given the negotiated rulemaking. But this rule failed to include a minimum number of hours behind-the-wheel training. So it is all up to the trucking companies how much training they get. And the Congress of the United States is taking no responsibility for those trucks out there where people are driving without adequate training to drive a truck. That rule, which did not have a minimum amount of hours, was the really a missed opportunity and great disappointment.

So I am hoping that today's hearing will be a change from our endless request, which has become the norm, for exemptions and calls to block DOT safety rules. There is room for improvement in many rules of the Federal Government. But rather than cause to simply eliminate regulations, we should be challenging industry, Department of Transportation, stakeholders, all to be more creative and work toward the common goal to utilize their own resources and imagination to create a more safe road for all.

So I am very pleased that we have a National Transportation Safety Board member here. For 50 years, the NTSB has been the leader in setting a high bar for safety and informing Congress of what policy solutions will generate the greatest safety improvements. But bear in mind, the NTSB does not have enforcement authority. It is up to this committee and to the Congress of the United States.

Thank you very much Mr. Chairman.

Mr. GRAVES OF MISSOURI. Now, I am pleased to have Ranking Member DeFazio. Would you like to make an opening statement?

Mr. DEFAZIO. Thank you, Mr. Chairman. I am pleased we are having this hearing today. It is important to hear—in this case, I am pleased we are hearing, actually—from a career staff as opposed to political hacks. So perhaps we will get some good information here today.

You know, we seem to be going the wrong way when it comes to surface transportation. In particular, we had a spike in fatalities. We have twice the rate of fatalities of other high-income countries. You know, obviously, there are some issues here. I believe part of the problem is the state of our infrastructure, in places where it is obsolete, obsolescent, or deteriorated, that that contributes to the fatality rate. And so the lack of investment is part of the problem, and obviously, the same lack of investment has led to reductions in our safety programs of FHWA, FMCSA, and NHTSA are all part and parcel funded through the same process, which, is, you know, the Highway Trust Fund, which is underfunded so that

I believe the solution both for rebuilding our infrastructure and for enhanced safety comes with more robust funding.

Also, you know, we need to, you know, have sensible regulations. But there is, I think, a little bit—in this particular administration, they are going overboard in terms of restraining reasonable and needed safety regulations. And I fear that they will continue to go down that path.

I mean, I did support, in the FAST Act, you know, provisions to require that they revisit and retool some of the CSA system. But we want to take corrective action. We want to update it. We want to make it accurate. And we want it to be a tool that will be useful in terms of identifying areas or operators who need more attention or perhaps even shouldn't be allowed to operate. But, you know, we can't just throw out the whole concept of having a better system, which I fear this administration will do.

So, hopefully, today we will hear some ideas from these career folks, and hopefully Congress will see fit to include that in its oversight and future actions.

Thank you, Mr. Chairman.

Mr. GRAVES OF MISSOURI. Thank you, Ranking Member DeFazio.

With that, I will welcome our panel and introduce them.

We have Mr. Walter Waidelich, who is the Acting Deputy Administrator at the Federal Highway Administration. We have Mrs. Daphne Jefferson, who is the Deputy Administrator at the Federal Motor Carrier Safety Administration. We have Mr. Jack Danielson, who is the Acting Deputy Administrator at the National Highway Traffic Safety Administration. And we have the Honorable T. Bella Dinh-Zarr, who is a member of the National Transportation Safety Board.

With that, I would ask unanimous consent that all witnesses' full statements be included in the record.

Without objection, that is so ordered.

And since your written testimonies have been made a part of the record, the committee would ask that you limit your summary at least to 5 minutes or be pretty close.

And, with that, Mr. Waidelich, you can begin.

TESTIMONY OF WALTER C. "BUTCH" WAIDELICH, JR., ACTING DEPUTY ADMINISTRATOR, FEDERAL HIGHWAY ADMINISTRATION; DAPHNE Y. JEFFERSON, DEPUTY ADMINISTRATOR, FEDERAL MOTOR CARRIER SAFETY ADMINISTRATION; JACK DANIELSON, ACTING DEPUTY ADMINISTRATOR, NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION; AND HON. T. BELLA DINH-ZARR, MEMBER, NATIONAL TRANSPORTATION SAFETY BOARD

Mr. WAIDELICH. Chairman Graves, Ranking Member Norton, and the members of the subcommittee, thank you for inviting me today to talk about FAST Act implementation and ensuring the safety of our roads.

As I am sure you hear often today, safety is the Department's number one priority. At the Federal Highway Administration, we strive every day to ensure that our highways, bridges, and tunnels are safe and reliable for the American people. The recent increase in highway fatalities, after decades of decline, underscores the im-

portance of the coordinated efforts of the agencies represented here today to address road safety.

FHWA is a proud member of the Road to Zero Coalition, and we look forward to working with our sister agencies and this committee on the critical vision of achieving zero fatalities by 2050.

The cornerstones of our efforts to eliminate fatalities and serious injuries on all public roads is our Highway Safety Improvement Program, which provides an estimated average of $2.6 billion of funding per year over the course of the FAST Act.

Through the HSIP and other efforts, FHWA emphasizes a data-driven, performance-based approach to save lives. We estimate that highway safety improvement projects result in $4 to $7 of benefits for every dollar invested. Projects funded through the HSIP must be consistent with the States' strategic highway safety plan which is developed by States in coordination with Federal, local, and Tribal partners. These plans establish each State's individualized safety goals, objectives, and key emphasis areas, and integrate the four E's of highway safety: engineering, education, enforcement, and emergency medical services.

A growing number of States are using HSIP funds for projects on locally owned and rural roads, and more local agencies are participating in the development of strategic highway safety plans.

This local investment is critical to our Road to Zero goal. And in 2015, 19 percent of the U.S. population lived in rural areas, but rural road fatalities accounted for 49 percent of all road fatalities.

In addition to the HSIP, the FAST Act also continued performance management standards first enacted in MAP–21. One of our primary achievements in recent years has been implementing these performance management standards for safety. Beginning this summer, States and metropolitan planning organizations will set data-driven annual safety performance targets for the first time. They will measure, in part, the number and rate of fatalities and serious injuries. And they will use that data to inform future investment choices.

FHWA, in coordination with NHTSA, has provided significant resources to advance implementation of the safety performance management requirements, including delivering target-setting workshops in 45 States. In addition to implementing these core Federal aid programs, FHWA is also looking to the future of safety innovation and research. Through our Every Day Counts initiative, we encourage States to adopt proven but underutilized safety countermeasures.

We are also working with State partners to expand vehicle-to-infrastructure or V2I communications technology, which is now eligible for funding under major Federal aid highway programs. FHWA, in coordination with our sister agencies, is developing a vision statement clarifying our important role in advancing connected automated technologies and preparing our national roadway infrastructure for an automated vehicle future. When leveraged with V2I communications technology, connected automation has the potential to deliver significant safety, mobility, and environmental benefits.

Finally, FHWA continues to invest resources to identify the next generation of safety technology, including through our many re-

search programs run out of the Turner-Fairbank Highway Research Center.

While I focus my remarks today on FHWA's programs with safety in the name, FHWA strives to incorporate safety in the entire $44 billion Federal-aid highway program so all Americans can benefit from safe and reliable roads.

Mr. Chairman, I want to thank you again for the opportunity to appear before you on these critical issues, and I look forward to answering your questions.

Mr. GRAVES OF MISSOURI. Now we will hear from Mrs. Jefferson.

Mrs. JEFFERSON. Good morning.

Mr. GRAVES OF MISSOURI. Good morning.

Mrs. JEFFERSON. Chairman Graves, Ranking Member Norton, and members of the subcommittee, thank you for inviting me to testify about the Federal Motor Carrier Safety Administration's work to improve truck and bus safety and implement the FAST Act. It is an honor to testify alongside my colleagues Jack Danielson and Butch Waidelich.

FMCSA's mission is to save lives by preventing crashes. We oversee more than half a million truck and bus companies and almost 5 million active commercial driver's license holders. Americans depend on the trucking industry to move more than two-thirds of the Nation's freight. The large majority of motor carriers are skilled, committed to safety, and play by the rules. It is our task to identify the small fraction that are at high risk for a crash. Highway fatalities and crashes involving large trucks and buses have dropped in the past decade, but they have been increasing in recent years. In 2015, for example, the number of fatalities involving commercial motor vehicles rose 4.1 percent from the previous year.

We must be vigilant to reduce crashes. This includes conducting data-driven safety compliance and enforcement activities, leveraging safety technologies, ensuring driver qualifications, and expanding partnerships. We rely on our partners in State and local law enforcement to keep our highways safe.

Through the Motor Carrier Safety Assistance Program, the MCSAP program, more than 13,000 law enforcement personnel act as a force multiplier conducting more than 3 million roadside inspections each year. Congressional funding in fiscal year 2015 has allowed us to sharpen our risk-management tools to identify and prioritize high-risk carriers. We revised our algorithm to identify carriers with a crash rate three times higher than the national average. We investigated 90 percent of them within 3 months to help bring them back into compliance.

We commissioned the National Academy of Sciences to take a close look at our Safety Measurement System, or SMS, that we use to prioritize motor carriers. The study made recommendations to further improve SMS. We are taking these recommendations seriously and will submit a corrective action plan to Congress.

Additionally, we are addressing industry concerns about crash preventability. Later this week, we will announce a 24-month demonstration program to review less complex crashes to determine if they were preventable and can be removed from the motor carrier's records.

Under Secretary Chao's leadership, FMCSA is looking to the future. We have been encouraging industry to develop advanced driving systems that improve both safety and economic competitiveness. We are meeting with key players through a series of public meetings and listening sessions to discuss advanced driving systems and truck platooning.

Another example of leveraging technology is the use of electronic logging devices to address hours-of-service compliance and driver fatigue. We are working closely with the industry, law enforcement, and stakeholders to ensure a smooth transition to electronic logging devices as its first compliance date approaches later this year.

We are focused also on driver health and education as key components of safety. Last year, we published a final rule on the Drug and Alcohol Clearinghouse. This new program with a compliance date of 2020 will enable the agency and employers to identify individuals who test positive for use of controlled substances or abuse of alcohol.

To improve driver education, we published the Entry-Level Driver Training rule last December. This was a product of negotiated rulemaking in which our stakeholders worked side by side with us to formulate minimum training requirements for all new drivers. We will establish a registry of training schools with appropriate curriculum standards for classroom and on-road training.

FMCSA is also a member of the Road to Zero Coalition, a partnership with the National Safety Council, NHTSA, and FHWA with the aim of eliminating truck fatalities within 30 years. We have heard from our industry partners and safety advocates that it is important to educate drivers like you and me on how to safely share the road with commercial motor vehicles.

As a result, FMCSA has recently announced its Our Roads, Our Safety campaign that will focus on States with the highest incidence of crashes. This targeted approach will allow us to reach drivers where education and awareness can make the greatest difference.

Mr. Chairman, we must do more to make our roadways safe for the traveling public. Every FMCSA employee, our State partners, our DOT sister agencies, and our stakeholders share this solemn commitment to bring this tragic increase in highway fatalities back down. Together, with your support, we can improve safety for all.

I would be happy to answer any of your questions. Thank you.

Mr. GRAVES OF MISSOURI. Thank you, Mrs. Jefferson.

Mr. Danielson.

Mr. DANIELSON. Good morning, Chairman Graves, Ranking Member Norton, and the distinguished members of the subcommittee. On behalf of the National Highway Traffic Safety Administration, thank you for the opportunity to update you on NHTSA's implementation of the FAST Act and our efforts to improve safety on our Nation's roads. For the last 50 years, NHTSA has diligently worked to fulfill our mission, to save lives, prevent injuries, and reduce the economic cost due to road traffic crashes through education, research, setting safety standards, and enforcement. We could not work toward our mission without the support of this committee and your work on the FAST Act.

In 2015, we lost 35,092 people on our public roads. That was a 7.2-percent spike in traffic fatalities and the largest single-year increase in 50 years. Unfortunately, the preliminary numbers appear to show that roadway fatalities increased further in 2016.

As many know, 94 percent of serious crashes are the result of human choices, such as distraction, alcohol and drug impairment, speeding, and fatigue. The bottom line is the overwhelming majority of crashes result from someone making a poor choice. In the FAST Act, Congress provided more tools to combat unsafe driving behavior, including such persistent challenges as impaired and distracted driving.

How many times have you observed the driver in the car next to you texting or looking down at a phone? How often was that car swerving, falling below the speed limit, or, worse, speeding toward another car? Sending or reading a text takes your eyes off the road for an average of 5 seconds. At 55 miles an hour, that is like driving the length of an entire football field with your eyes closed. Distracted driving is a prime example of the poor choice that can cause crashes. And the FAST Act is helping us address that through grants to States that enact lifesaving distracted driving laws.

In fiscal year 2017, we were able to award 27 grants to States to address distracted driving. These grant funds are available for a variety of safety purposes, including distracted driving enforcement. We look forward to working closely with the States to increase the number of these grants in future years as more States enact these important laws.

In addition to distracted driving grants, the priority safety grants in areas such as occupant protection, impaired driving, and motorcycle safety, the FAST Act added grants to promote pedestrian and bicycle safety, 24/7 sobriety programs to combat drunk driving and racial profiling collection.

Today, technology plays a substantial and growing role to improve roadway safety with a long-term potential of removing the human factor from the crash equation altogether. There is a good deal of excitement over the potential of automation in vehicles to prevent crashes and save lives.

Automated driving systems are capable of addressing critical cause of over 90 percent of serious crashes. Secretary Chao has made the review and improvement of the Federal Automated Vehicles Policy a top priority. The Secretary is focused on establishing a framework that supports innovation and the safe testing and deployment of automated driving systems.

Technology has the potential to greatly improve safety as well as the travel experience. However, technology is a double-edged sword. Over the long term, it promises us an amazing future of safe and convenient mobility. But in the near term, it poses an immediate threat from every other driver on the road who refuses to put down their phone. Sadly, too many of these drivers are young drivers whose inexperience magnifies the risk to themselves and those around them. NHTSA is always looking for creative ways to increase roadway safety and improve driver behavior.

With your continued support, our safety campaigns, such as Click It or Ticket; Drive Sober or Get Pulled Over; and U Text, U

Drive, U Pay will encourage safe driving choices, and these campaigns are changing driver behavior and attitudes for the better.

Safety is NHTSA's highest priority. And I thank the subcommittee and the staff for its continued support and for devoting the resources and time to the important safety challenges that NHTSA confronts. And I look forward to answering any questions you may have.

Mr. GRAVES OF MISSOURI. Ms. Dinh-Zarr.

Ms. DINH-ZARR. Good morning, Chairman Graves——

Mr. GRAVES OF MISSOURI. Good morning.

Ms. DINH-ZARR [continuing]. Ranking Member Norton, and members of the subcommittee. Thank you for inviting me to testify today on behalf of the National Transportation Safety Board.

We have just heard that more than 35,000 people die on our Nation's roads each year. As an independent Government investigative agency, the NTSB is at the scene of some of the worst of these crashes. We provide assistance to families, and we make safety recommendations to prevent these tragedies from happening again.

Our Most Wanted List identifies 10 focus areas that we know firsthand can improve transportation safety. Seven of these areas specifically affect highway safety. They are impairment, distraction, occupant protection, fatigue, medical fitness, collision-avoidance technologies, and event data recorders.

More than 10,000 fatalities each year in the United States involve an alcohol-impaired driver. Impairment by other drugs is also a rising concern. We have recommended a comprehensive approach to address impaired driving including lowering of the per se blood alcohol content, strengthening requirements for ignition interlocks, and taking strong action to prevent commercial drivers from using these substances.

In 2015, more than 3,400 died, and 391,000 people were injured in distracted driving crashes. Effective change requires strict laws, proper education, and effective enforcement. We have recommended banning nonemergency use of portable electronic devices by all drivers, high-visibility enforcement, and targeted communication campaigns.

We have investigated many crashes in which improved occupant protection systems, such as seatbelts, child restraints, and vehicle design features could have reduced injuries and saved lives. Since 1995, we recommended that States require primary enforcement of seatbelt laws for all vehicle seating positions equipped with a passenger restraint system. While schoolbuses generally are safe, we have identified benefits from using lap and shoulder restraints. Thus, we have recommended training for bus drivers, students, and parents on the importance and proper use of seatbelts and that States or school districts consider lap/shoulder belts when purchasing new schoolbuses.

Fatigue is a significant concern, especially in commercial trucking and bus operations. For more than 25 years, we have advocated the use of technology like electronic logging devices. These devices may be used as part of a carrier's fatigue management program. Such programs can reduce fatigue-related crashes and should be required for all carriers.

More than 90 percent of crashes can be attributed to driver error, and increased implementation of vehicle-based and driver-assist collision-avoidance technologies can aid drivers and help reduce the occurrence of certain types of crashes.

Finally, data recorders capture and store critical information that help investigators determine the cause of a crash and guide companies and operators to take proactive steps toward prevention. We have frequently expressed our concern about the lack of requirements for heavy commercial vehicles to have event data recorders.

The FAST Act provides critical resources to help States reduce highway deaths and injuries by focusing on seatbelt use, impaired and distracted driving countermeasures, motorcyclist safety, and graduated driver licensing laws.

We continue to monitor progress on other initiatives, such as hair testing for commercial motor vehicle operators, and ensuring that deficiencies in the FMCSA Compliance, Safety, and Accountability Program are addressed to identify carriers that pose the greatest risk to the public.

The NTSB is also looking at other safety issues. Next week, we will consider a safety study examining speeding-related passenger vehicle crashes. We are also developing a special investigation report regarding pedestrian safety.

Finally, NTSB recognizes that emerging technologies in automated vehicle systems have significant potential safety benefits. We have a history of calling for automation to provide an increasing margin of safety in all modes of transportation. We plan to complete our investigation of the first known fatal crash of a vehicle operating under automated control systems later this year. And, of course, when it is complete, we would be happy to provide you with the findings of this investigation and any crash we have investigated so that it might be helpful to you in your work to make our roads safer.

Thank you again for the opportunity to testify before you today. And I would be happy to take any questions.

Mr. GRAVES OF MISSOURI. Thank you very much to all our witnesses.

Now I will go and start questions. I am going to start with Mr. Gibbs.

Mr. GIBBS. Thank you, Mr. Chairman. I wasn't expecting that right quick.

Mrs. Jefferson, recently the National Academy of Sciences finished their CSA and SMS study, and I was wondering—it said something about FMCSA used a more detailed, structurally sound mathematical model. Does the agency intend to develop a model to—with CSA scores?

Mrs. JEFFERSON. Congressman Gibbs, thank you for that question.

FMCSA appreciates the work that the National Academy of Sciences performed on the FMS study. Our intent is to implement the recommendations of that study. We will be engaging the Academy of Sciences to continue working with us as well as engaging stakeholders as we go about developing our corrective action plan.

Mr. GIBBS. Whatever model is developed or used, will it count—not count against drivers who are not at fault in an accident? Because that has been one of the big problems in the current scoring.

Mrs. JEFFERSON. Well, I can't speak in detail on what the model will entail. We would be happy to keep Congress abreast as we go through the process. But we are looking at opportunities through a crash preventability pilot program to look at crashes that drivers may come back and say those—they were not at fault and provide them an opportunity to provide information so that they can be removed from the record.

Mr. GIBBS. Because I think in this—the Academy of Sciences identified a small number of violations that correlate with crashes, but yet they identified nearly 900 other possible motor safety regulation violations. You know, it would be nice if maybe they focus their attention on the regulations that correlate with crashes. I mean, you know, put more priority to that.

Mrs. JEFFERSON. One of the recommendations was that the 899 potential violations, we review those and focus on the ones that have the greatest correlation to safety. So we will be taking a looking at that.

Mr. GIBBS. Does the agency plan to hold public meetings or invite stakeholders to meet with the agency during this planning period for a formal response to the recommendations of their report?

Mrs. JEFFERSON. Yes, we do. We are working now to figure out how to conduct a public meeting before the 120-day deadline for submitting the corrective action plan. And as a part of our planning, we will engage stakeholders throughout the process.

Mr. GIBBS. OK. Also, you know, the FAST Act included several reforms. One was for process for interested veterans from Active Duty service and women to obtain a commercial driver's license. Have we seen an increase in the number of veterans in that program? What is the status of more veterans and women obtaining the CDLs?

Mrs. JEFFERSON. We are working on rulemaking that will make it easier for men and women who have used heavy commercial vehicles in the military to transition into civilian life. We are also working with the Veterans Administration and the Department of Defense in helping to facilitate transition of veterans coming into the commercial motor vehicle industry.

Mr. GIBBS. Very good.

Mr. Danielson, the FAST Act required DOT to conduct a study about marijuana-impaired driving, submit a report to Congress. Can you provide us an update and status of that report?

Mr. DANIELSON. Of course, sir. The report is in its final agency review, and we hope to have it in your hands very soon.

Mr. GIBBS. Also, NHTSA roadside studies have shown the presence of marijuana among drivers is increased and that marijuana-positive driving now exceeds alcohol-positive driving. What steps is NHTSA taking to address this issue?

Mr. DANIELSON. The role of impairment by drugs is not well understood. There are two basic reasons for that. One is there is not a scientifically acceptable threshold for impairment by drugs. The other is that there is not—there is not a technology to detect drug impairment.

However, what we do know, a couple things, is that marijuana usage has gone up 50 percent from 2007 to 2014, and we also know that, through laboratory studies, that marijuana impairs judgment and impairs your ability to drive, particularly with reaction time. And so what NHTSA—NHTSA addresses this via training of law enforcement through our drug recognition expert program. We have 8,000 law enforcement officials who are trained to go through an extensive battery of tests on the roadside of people who are suspected of impairment by drugs. This is a court-accepted process.

NHTSA is also working on research to develop a drug detection method, a device that we could give to law enforcement using oral fluids.

Mr. GIBBS. I guess I am out time.

I yield back.

Mr. GRAVES OF MISSOURI. Ranking Member Norton.

Ms. NORTON. Thank you, Mr. Chairman.

Mrs. Jefferson, you, perhaps, heard my opening remarks—in my opening remarks, my concern about driver training. Now, Congress has the same concern—expressed that concern in the FAST Act when it directed the FMCSA to give, quote, "safety the highest priority." So I was heartened that, after 25 years, there was a rulemaking that was going to get all of the factors, especially the number of hours of training necessary. And lo and behold, you did. You had negotiated rulemaking. Negotiated rulemaking is consensus rulemaking. So while you had disparate actors, they agreed on 15 to 30 hours of training, depending on other factors. That was a triumph after 25 years.

Now, last year, that rule came out without those minimum number of hours. It seems to me that you have not met the congressional mandate to give safety the highest priority if you have left the most important factor, the number of hours of training, out of the rule.

So how do you reconcile? Why, indeed, were those hours, which the stakeholders agreed upon, not made a part of the rule?

Mrs. JEFFERSON. Ranking Member Norton, safety is our highest priority. The Entry-Level Driver Training rule was a negotiated rulemaking. A key part of that negotiation was developing curriculum that set some minimum standard for commercial driver training.

Ms. NORTON. Mrs. Jefferson, I am going to ask you to answer my question. I didn't say you didn't—that you didn't develop an appropriate curriculum. I thank you for that.

I am asking a very specific question. If you were able to get such disparate stakeholders to agree on the number of hours training necessary, why did the rule not include that since there was agreement on that factor?

Mrs. JEFFERSON. The number of hours——

Ms. NORTON. Fifteen to thirty hours.

Mrs. JEFFERSON. Fifteen to thirty hours, depending on the class of the CDL——

Ms. NORTON. And the license, et cetera, yes.

Mrs. JEFFERSON. And those hours were based on the minimum level of curriculum that was agreed to. That curriculum, that

course requirement, is a part of the rule. There has been no change——

Ms. NORTON. Why was 15 to 30 hours not a part of the rule, Mrs. Jefferson?

Mrs. JEFFERSON. The 15 to 30 hours was used as a minimum to get to those out to those courses. In order to get through the courses and to allow for the flexibility, it is a minimum. It may very well take longer——

Ms. NORTON. Oh, wait a minute. Are you saying that, in order to get through the course, the curriculum that I congratulate you for issuing, that you will have had to have 15 to 30 hours of on-the-road training? On-the-road training.

Mrs. JEFFERSON. It depends on the skill set that somebody brings into the program. We are setting the curriculum that they are required to have. In order to successfully complete entry-level driver training, they will have to complete the curriculum that was agreed to. The curriculum——

Ms. NORTON. Are you saying, Mrs. Jefferson—this is very confusing. Are you saying that the curriculum involved on-the-road driver training or not? Is that your testimony?

Mrs. JEFFERSON. That is a part of the entry-level driving training requirement. We just did not state a minimum number of hours. The curriculum that the industry, as well as the driving training schools and academics, developed is what was included in the rule. That is a minimum level of training that is required for the CDL.

Ms. NORTON. On-the-road driver training.

So you think the rule already incorporates the 15 to 30 hours on the road because of the curriculum and what is necessary to, in fact, pass the curriculum?

Mrs. JEFFERSON. We do. We believe that what is in the final rule is sufficient to provide a level—a standard level of entry-level driver training across the country. It has 20-plus years to get there.

Ms. NORTON. Twenty-five years.

Mrs. JEFFERSON. Twenty-five years, yes.

Ms. NORTON. Mrs. Jefferson, I will take another look at it. The fact that you didn't—that you eschewed the number of hours seems to me to be very strange.

I do want to ask: What is wrong with us, Mr. Danielson? We find that driver accidents, fatalities are going up. And then I was given some figures that show that U.S. traffic fatality rate is twice the average of 19 other high-income countries. Why is that? What are we they doing that we are not doing?

Mr. DANIELSON. Ranking Member Norton, the increase that we saw in 2015 was—by rate—was the highest increase that we saw in 50 years. But it coincided with another historic increase, which was a rate increase of vehicle miles traveled. There is no single cause to the increase in fatalities. However, we do know that over 90 percent of serious crashes are due to human choice and error, and that is why two-thirds of NHTSA's budget goes directly out to the States in the form of formula grants to address these serious behavioral issues, which are the choice to speed, to drink and drive, to send a text from behind the wheel.

But to address your specific question about the comparison, last year, NHTSA joined with FMCSA and Federal Highway, along

with the National Safety Council, to launch of Road to Zero initiative, which is an unprecedented initiative involving over 300 partners of behavioral safety, vehicle manufacturers, and road user groups, with a goal of driving this trend back down and completely eliminating roadway fatalities over the span of 30 years.

This is akin to what other countries have done. The country of Sweden, which is on the other side of many of the charts that you will see from where the U.S. is, embarked on this 20 or 30 years ago, and it has had a tremendous effect by bringing all of these different groups together to address this complicated behavioral question.

Ms. NORTON. So we are now doing what other countries have already done, and you expect that to drive down these fatalities and injuries?

Mr. DANIELSON. That is the goal.

Ms. NORTON. Thank you, Mr. Chairman.

Mr. GRAVES OF MISSOURI. Mr. Bost.

Mr. BOST. Thank you, Mr. Chairman.

Mrs. Jefferson, there is something that concerns me, because I have got a—several of my companies—just so you know, I drove tractor-trailers most of my life. I drove my first tractor-trailer across the lot when I was 9 years old. I come from a family that started in 1933 in the trucking industry. And I believe that safety is vitally important. But I also see some of the rules and the concerns I have as the rules move forward at a time when driver shortages are so bad. And I want safety first. But I need to look and see what we can do to make sure, as we implement certain things, that those things can be implemented and still allow us the opportunity to provide—because we got a lot of people out there needing products and needing to keep products moving.

So what I want to know is, is there anything—whenever we implement the ELD [electronic logging device]—and we are coming up on a deadline when it has to be implemented. Several companies don't have them in place yet. They are trying. The expense is very large. Do we have some kind of mechanism in there that allows leeway for the implementation of this, or are there any things out there that allow you and the rules to allow that to happen and give a wise opportunity for those companies to meet those regulations?

Mrs. JEFFERSON. Congressman, the first implementation date or compliance date for electronic logging devices is December 18 of this year.

Mr. BOST. I know that.

Mrs. JEFFERSON. And we have been working very closely with industry as well as our State and local law enforcement partners towards preparing for that date. We have over 70 providers that have signed up, ELD providers, and we are seeing the cost of equipment come down as we get closer to the date, as we get more and more companies that are providing the equipment.

And there are—the ELD rule was intended to be a performance-based rule to allow for lower cost solutions for small businesses or small carriers up to state-of-the-art fleet management systems for larger systems. Those lower cost systems are compliant with the rule. And we will continue throughout the rest of the summer and

into the fall to get out and meet with drivers and try to understand the issues. But we do see the cost coming down.

Mr. BOST. OK. Let me ask you this, then, because what I really want to know is, if—as they are trying to turn this up and you are limited on the amount of people that can install them and you have all this, now you are hitting their December hard line, after that December hard line, someone is stopped, they are charged, and how are they charged? Is there any way that there can be an extension if they do not have these programs in place?

Mrs. JEFFERSON. We don't have a way to extend it. The compliance date was in the final rule. However, I can assure you that we are working with industry, with our State and local law enforcement partners to make sure that not only are we ready but also, what is the state of the industry as we get closer to that date? And we are seeing, as I said, more and more companies coming in with lower cost solutions. And the companies that have previously equipped with automated onboard recording devices have an additional year to upgrade to the ELD standards.

Mr. BOST. OK. So my question—then is the company, then, the one that is responsible, or is the driver? If all of a sudden a driver gets in one that is not equipped, are they responsible?

Mrs. JEFFERSON. The company is responsible for the vehicle. The driver is responsible for keeping track of their hours of service.

Mr. BOST. So they can use a regular logbook to do that after December 18?

Mrs. JEFFERSON. If they have an exemption to be able to use it.

Mr. BOST. If they have the exemption. OK.

Mrs. JEFFERSON. Yes.

Mr. BOST. All right. So what I also need to know, then, I guess, and because I am running out of time, but as we move forward with this, is there any exemptions for times like, for instance, when we have a very bad cold snap and we have propane drivers and gas haulers that need to get products, is there going to be exemptions for extension of hours? Because once you have an ELD in place, it is no longer based on your manual logbook. Now, all of a sudden, we are on the technology and everything like that. So the same thing for grain season. Same thing for—the list goes on and on of those times when product needs to be moved and people need extra hours to get those products moved.

Mrs. JEFFERSON. Congressman, let's keep in mind that the hours-of-service regulations have not changed. It is just the method of recording hours of service. And so, during heating season, where companies currently can request exemptions——

Mr. BOST. They can still do that.

Mrs. JEFFERSON [continuing]. Hours of service, they can still do that.

Mr. BOST. OK. Thank you very much.

My time has expired.

Mr. GRAVES OF MISSOURI. Mr. DeFazio.

Mr. DEFAZIO. Thank you Mr. Chairman.

Mrs. Jefferson, as you know, part of MAP–21 was that, you know, FMCSA should develop rules that would prevent employers from forcing drivers to drive beyond their authorized hours. You have published a final coercion rule to implement this more than

18 months ago. Luckily, it escaped the Trump ban on safety rules. But I am not aware of any use of this coercion rule. I am very disturbed by a recent series of articles in USA TODAY. This is something that I actually held hearings on back in 2008, as I recall, the abuse of drivers at the ports of Los Angeles and Long Beach. And these are very specific stories. And one employee was terminated after speaking to USA TODAY, and another employee was told "there is the door" when he was told to drive beyond legal limits. And they say this is a pervasive pattern, that one company, Morgan Southern, was particularly mentioned. I think others have problems also.

Have you prosecuted anybody there? Are you following through on any complaints by drivers there using the coercion rule?

Mrs. JEFFERSON. Ranking Member DeFazio, we are investigating complaints that come in under the coercion rule. I can't speak to specifics at this point, but we would be happy to get back to you on specifics. But we do have several that we are investigating.

Mr. DEFAZIO. OK. I hope that you will use this, because, you know, detention time and the port drayage are two areas where we are forcing people to drive beyond their authorized hours. And, you know, we need to be taking meaningful enforcement action of abusive practices.

So thank you.

Mr. Danielson, last year, NHTSA proposed a phase 2 voluntary guideline for distractive electronic devices that are aftermarket, not installed in the car. I have seen—I read an article about devices that will project your email onto your windshield so you can be emailing as you drive or reading your email. Would that be considered a distraction?

Mr. DANIELSON. Yes.

Mr. DEFAZIO. OK. And where are we at with the phase 2 voluntary guidelines? Is that—now, we heard from the Trump administration they weren't going to impede safety rules. So is this one moving forward?

Mr. DANIELSON. These were guidelines, sir, so they were advice to device manufacturers for things for them to consider when they are designing these devices that, when used during driving, would minimize the potential for distraction.

I would point out, without naming any individual companies, that several device manufacturers that are well-known have already begun to roll out optional features where a device owner can elect to turn on this feature and the smartphone can detect if you are driving your car and then delay notifications of text and other things until you are done with your driving trip.

So device manufacturers are already taking a look at this and trying to determine.

Mr. DEFAZIO. Yeah, some. But there is always—I mean, this was actually a heads-up display on the windshield. Now, I would consider that would be fairly distracting. It doesn't have anything to do with the conduct of the vehicle itself.

Ms. Dinh-Zarr, would you—would NTSB have concerns about these sort of devices, and do you think we need something more than voluntary guidelines?

Ms. DINH-ZARR. Thank you, Ranking Member DeFazio. We absolutely have concerns about any type of distracting technology. And that is why we have investigated accidents where we have seen that technology has had an impact.

As far as regulations, we leave that up to the wisdom of your judgment of the DOT. But we have made recommendations to avoid these types of distractions in vehicles.

Mr. DEFAZIO. OK.

Ms. DINH-ZARR. I should add that is in addition to our collision-avoidance type of technologies. And we have made recommendations in support of those.

Mr. DEFAZIO. Right. When we have great collision avoidance or great self-driving cars and people can email or twerp or Twitter to their heart's content while they are driving. But I have real concerns about it going on in the current atmosphere.

I am going to look into this further to see whether or not the voluntary guidance has had an impact and whether or not there are—there is always going to be someone who is going to say: Well, we don't care about the voluntary guidance.

I would like to know if actually someone is marketing these heads-up displays that put your email on the windshield.

Thank you, Mr. Chairman.

Mr. GRAVES OF MISSOURI. Mr. Denham.

Mr. DENHAM. Thank you, Mr. Chairman, and thank you for your work on the FAST Act. I wanted to briefly discuss one aspect of the FAST Act, something that I had championed specifically for the State of California, important to the State of California but many other States as well. And that is the NEPA Reciprocity Act. That was H.R. 2497 when it was a standalone bill. But the legislation proposes changes to title 23. Basically, the NEPA Reciprocity Act would say that a State like California that has CEQA and NEPA, you go with the highest environmental policy. You just don't do it twice. So we are looking for the rule on this. We are looking for the implementation on this.

And, Mr. Waidelich, I wonder if you could give us an update on where we are with the proposed rule.

Mr. WAIDELICH. We are actually working through that process and working on that rule, and we should be seeing something soon. A concern that has been voiced with that particular provision is the statute of limitations of 2 years versus the 120 days. There have been some concerns from the State of California whether that would be an incentive or a disincentive as far as taking on that responsibility. But we are working on that rule, and we should be coming out with that soon.

Mr. DENHAM. You used the word "soon" twice. What is your ballpark on "soon"?

That means a lot of things here in Congress.

Mr. WAIDELICH. It does. But, again, we are working through that process. And we don't have a timeline specifically on that, but soon.

Mr. DENHAM. OK. We are obviously looking for not only to the rule but the implementation quickly. And it is certainly something we want to continue to work with you on, but, you know, we have got summer projects starting up, already ongoing in California, and many have reached out to say: Why are we going through this proc-

ess twice when you have already passed a new law that doesn't force us to do that?

So, whether it is road construction or a variety of other projects, including some of the water storage projects that the President has talked about in California, going through this duplicative process not only slows things down, but it really decreases the amount of people that are willing—or businesses that are willing to bid on these projects going through a long and cumbersome process. That also gives you two opportunities to sue and litigate during the process. So it is certainly something that we want to get done quickly, and we would look forward to working with you not only on the rule but the judicial review process as well.

And "soon" in our book would be quickly, since we are moving—we are hoping that, with the President wanting to get rid of the duplication in Government and cut regulations, since we have already passed this one into law, we would hopefully hope that "soon" is 30 days or less. We have been waiting a while.

I yield back.

Mr. GRAVES OF MISSOURI. Mr. Lowenthal.

Dr. LOWENTHAL. Thank you, Mr. Chair.

And thank you, members of the panel.

I had some questions. But I want to switch to something I heard in the panel's testimony.

And, Ms. Dinh-Zarr, the Honorable Ms. Dinh-Zarr. In your testimony, you mentioned the NTSB's ongoing work to investigate a fatal crash involving autonomous technology, autonomous. And I look forward to the final results and the recommendations of this investigation. I agree with you the technology presents real opportunities to improve safety and save lives. But I want to know, what can we do today to make sure that this technology is developed and deployed safely? What do you see us as really beginning to focus on?

Ms. DINH-ZARR. Thank you, Congressman Lowenthal. A lot of the technology that is available today is actually the building block for complete automation. And Congress has an important role to play because of the wide range of stakeholders. I believe that we have a unique background because we have worked in automation in other modes of transportation, especially aviation. And we have seen the positive and the negative effects——

Dr. LOWENTHAL. Uh-huh.

Ms. DINH-ZARR [continuing]. Of automation, as we have seen with, for example, airline pilots. So, I think that our lesson is that we have to remember that it is not a panacea. It is a whole progress. We have a continuum, as you know, of automation. And as we progress towards more and more complete automation, we have to be aware of where the driver or the operator, in the case of aviation, needs to step in. So I think the biggest issue is that there is a lot of automation that is already being used, collision-avoidance systems, a lot of lighting, emergency braking. All of those are a part of automation. It is not complete automation.

Dr. LOWENTHAL. Uh-huh.

Ms. DINH-ZARR. But I think we shouldn't delay those for fear of other dangers.

Dr. LOWENTHAL. When do you see this rolling out? Can you give us some timeframe?

Ms. DINH-ZARR. I am sorry, sir?

Dr. LOWENTHAL. How do you see this playing out and rolling out, the time that we are going to begin to see much more automation on our streets?

Ms. DINH-ZARR. As you know, we are investigating the Williston, Florida, accident. And as more and more use of it comes along, the NTSB is in a unique position. We only make recommendations based on tragedies that have occurred. So I think that we will be making more recommendations from our end as, unfortunately, we see more. But, at the same time, we hope that the use of automation in the sense of collision avoidance and safety will also be increasing, and that could happen rather quickly. It is happening now, in fact. It is already happening.

Dr. LOWENTHAL. Thank you.

I am going to follow up on Representative DeFazio's comments, Mrs. Jefferson, to the FMCSA's coercion rule that the Representative brought up just a little earlier. I represent the Port of Long Beach. So I have seen this over—and I have represented it since I was on the city council and the State. And so I have seen this issue about drayage drivers and misclassification and potential wage theft for now over 20 years that has been going on. And so there have been many port drivers, drayage drivers, and have brought up many of these wage theft and misclassification cases. And in California, our labor commissioners received hundreds of these claims.

I would just like to know how FMCSA is coordinating with the State of California's Department of Industrial Relations or with the Department of Labor here at the Federal level to disseminate information about driver's rights under the coercion. How are we coordinating?

Mrs. JEFFERSON. Thank you, Congressman Lowenthal. I have also seen the recent reports out of USA TODAY and other publications. And it is concerning.

Dr. LOWENTHAL. I was actually on the docks while this was all taking place.

Mrs. JEFFERSON. We have not, at this point, coordinated with the State of California or the Department of Labor. We will take a look and follow up as necessary and be happy to get back with you.

Dr. LOWENTHAL. Well, I would like that, if you could get back to me.

And thank you, and I yield back.

Mr. GRAVES OF MISSOURI. I now recognize Ranking Member Norton for a motion.

Ms. NORTON. Thank you, Mr. Chairman.

Mr. Cummings of this committee is not able to be here but had a special interest in safety and has asked that we enter into the record, by unanimous consent, a statement related to the tragic school bus crash that occurred in Baltimore last year.

Mr. GRAVES OF MISSOURI. Without objection so ordered.

[Hon. Cummings' written statement is on pages 42–44.]

Mr. GRAVES OF MISSOURI. And, with that, we will move to Mr. LaMalfa.

Mr. LAMALFA. Thank you, Mr. Chairman.

Thank you to our panelists for appearing here today.

Let's get right to it. Administrator Waidelich, you know, this revamping of the FASTLANE [Fostering Advancements in Shipping and Transportation for the Long-term Achievement of National Efficiencies] into now the INFRA [Infrastructure for Rebuilding America] program, we are glad to see the President continuing to push the proposal of infrastructure grants. In Butte County, in northern California, where I represent, my home county, actually, they had submitted under the FASTLANE program. That wasn't fully acted upon at the time. But they will resubmit. So the project's impacts were mostly on goods movement and regional economies. And that was unquestioned. But, also, an additional factor, as many of you have all heard about the crisis we had with Oroville Dam last February with the impending possible failure of the spillway there when the lake was very full and an evacuation of nearly 200,000 people in Butte County, it really underlined, underscored the issue with State Highway 70 through there, which is one of the—Butte County is one of the few counties of some size that doesn't have a complete four-lane system linking NorCal to Sacramento and farther south. It has a patchwork of some four lanes. So what was underlined in this situation was that you had a State highway with much two-lane area that caused a bottleneck that was hours of standstill for people in an evacuation zone here as, again, brought on by that crisis with Oroville Dam. Thankfully, nothing ultimately washed out with the so-called emergency spillway there. But they didn't know. They had no idea.

And if you saw the illustration there on the TV news, the helicopters were—the dam goes across the Feather River. So you see Highway 70 traverses Feather River and below. You saw cars parked on the bridges on Highway 70 over Feather River. I mean, that just has the images of a disaster movie if something were to give away, those people that couldn't move on those bridges there, as well as all up and down Highway 70.

So what I think the Federal agencies should consider, and I would like to have your opinion, is the impact of grant programs, and then maybe we highlight the ones that have both the positive economic impact and you get the double-plus of the public safety, or vice versa, for a system like that.

So can you include these factors when considering the upcoming INFRA applications? Is that something that we can help urge you to have a sense—be like a double benefit when we are looking at an acute safety situation as well?

Mr. WAIDELICH. First of all, Congressman, I am very familiar with that particular area and I–70 in that area, or State Route 70 in that area, and Oroville and the dam.

Mr. LAMALFA. Great. Thank you.

Mr. WAIDELICH. Under FASTLANE, there are the small grants that will be announced soon. And under the INFRA program, there is improved criteria within that including innovation and safety to incorporate that actually in the application. So, the answer is, as

far as can it be considered, within our Federal Register notice, it says, we will be considering that as part of the criteria.

Mr. LAMALFA. Good bang for the buck. Double—go ahead. I am sorry.

Mr. WAIDELICH. Basically, yes. That would be included. And there is—the INFRA package came out last June. At $1.5 billion, it combines the large portion from 2017 and the dollars for that particular program in 2018. And, again, there is 120 days for those applications to be submitted.

Mr. LAMALFA. Is there anything the communities in the area could do to be helpful to underline or, you know, give you more impetus in the process to—you know, to show how strong of a need it is?

Can the communities help underline that a little bit more?

Mr. WAIDELICH. I am sure as a part of that as far as, you know, with the application endorsements from the communities and others, and leveraging with the other stakeholders that are involved with that project and that have a stake in that project.

Mr. LAMALFA. Yeah. Well, there is a railroad interstate interface up in Shasta County they are quite concerned about too. So, but, we will speak on a different time on that.

I have just a little time left. I had hoped to talk a little bit with Mrs. Jefferson about the ELD situation.

But the ELD mandates, do you believe that more time could be helpful for some of the smaller stakeholders, some of the smaller companies on that, with implementation of ELDs? We are seeing a possible exemption for livestock haulers and others. Is this something that we could look at as the impending deadline comes on? You will have to be really short on my time. I am sorry.

Mrs. JEFFERSON. We believe there is sufficient time for equipage between now and the end of the year, but we would certainly welcome followup with you to have a discussion.

Mr. LAMALFA. OK. Thank you. I appreciate it.

Thank you, Mr. Chairman.

Mr. GRAVES OF MISSOURI. Mr. Johnson.

Mr. JOHNSON OF GEORGIA. Thank you.

Mr. Danielson, your agency has enacted an impairment standard for alcohol use which is .08 across the country. Has any similar standard been set for impairment for marijuana use while driving?

Mr. DANIELSON. No, sir.

Mr. JOHNSON OF GEORGIA. Do you know of any studies being conducted currently that would be geared toward setting a scientifically valid impairment level for drivers using marijuana?

Mr. DANIELSON. We are actively engaged in research in this area. There is—the impairment, impairment by drugs, is not well understood. And, of course, there is no scientifically accepted standard for it. But we are actively engaged in research in this area and, in addition to that, attempting to develop technological devices that law enforcement could use to test oral fluids to determine impairment.

Mr. JOHNSON OF GEORGIA. You are aware of the fact that recreational use of marijuana is legal in at least six States now and medical use of marijuana, or THC, is also permissible in a number of other States? Do you believe that it is important for the Federal

Government to come up with a standard for impairment because of the fact that marijuana or THC remains in the blood for—or remains detectable in a urine sample for 30 days; for blood, I think 7 days; saliva, I am not sure. There might be some Fourth Amendment issues in terms of search and seizure with respect to that. But do you believe that it is important that the Federal Government come up with an impairment standard for marijuana?

Mr. DANIELSON. Yes, sir. Since 2007, we have seen a 50-percent increase in marijuana usage. And so we think it is—what we do know about marijuana is that it impairs judgment. It impairs your driving ability, particularly with respect to reaction time. And so we think it is important to develop a scientifically based threshold for impairment so we can get unsafe drivers off the road.

Mr. JOHNSON OF GEORGIA. Certainly. But for someone who used marijuana one time 28 days ago and then they are subjected to a urine test, that doesn't show impairment at the time that the person was driving.

Mr. DANIELSON. That is correct. So what we are looking for is specific to impairment, not just usage, but impairment at the time of driving.

Mr. JOHNSON OF GEORGIA. All right. Thank you.

Ms. Dinh-Zarr, more than 15 years ago, NTSB recommended that all new commercial vehicles be manufactured with collision warning systems. More recently, the board has recommended that all new commercial vehicles be equipped with automatic emergency braking. Last Congress, I introduced the Safe Roads Act, which would require that all new commercial vehicles are equipped with both of these important safety technologies. Can you discuss the importance of collision warning systems and automatic emergency braking, especially on heavy vehicles that can weigh 80,000 pounds or more? And, Mr. Danielson, if you could give me your opinion on that as well.

Ms. DINH-ZARR. Thank you, Congressman. I greatly appreciate that question.

The NTSB, as you mentioned, has been advocating and has been recommending these types of safety tools be in vehicles, especially heavy vehicles, for many years. And that is because of the crash investigations that we have conducted. When a heavy vehicle is in a crash and sometimes it is a multivehicle crash, the results are catastrophic. And we know that these collision-avoidance technologies such as automatic emergency braking can and will reduce the number of these fatal crashes.

So we support more movement in this area. And that is in combination with our other commercial vehicle safety recommendations involving fatigue management and speeding. So it is all part of a group of safety efforts. But those technologies are something we have long advocated and we will continue to advocate for.

Mr. JOHNSON OF GEORGIA. Thank you.

Briefly, Mr. Danielson.

Mr. DANIELSON. We agree. Crash-avoidance technologies have tremendous potential to save lives, particularly in heavy vehicles. And that is why we have created the standard for electronic stability control. You might have heard that we convened a group of automakers last year to get their agreement to make automatic

emergency braking standard in all light vehicles by model year 2022, which is several years before it would have been possible using just a notice and comment rulemaking approach. And we anticipate that this technology will expand beyond the light vehicle fleet eventually.

Mr. JOHNSON OF GEORGIA. Thank you.

I yield back.

Mr. GRAVES OF MISSOURI. Mr. Smucker.

Mr. SMUCKER. Thank you, Mr. Chairman.

Good morning. I would like to thank the chairman for scheduling this hearing, obviously important. We still have far too many fatalities on our highways. So I applaud the effort of the coalition to reduce that to zero. It is a laudable goal, one that I think can be achieved.

I did just—a point of clarification, Mr. Danielson, in response to another question, we have seen those deaths rise slightly: I think about 9 percent in 2015 and then, for 6 months of 2016, might have an uptick as well. You mentioned vehicle miles traveled is up as well. So are you saying per—if you compared the two, are we still declining as a rate per vehicle miles traveled?

Mr. DANIELSON. The fatality rate outpaced the rate increase with vehicle miles traveled. There is a well-known correlation between fatalities and vehicle miles traveled. And when you take a look past the last major four recessions, you can actually see the dip in both the VMT and the fatality rate.

However, it doesn't answer the whole question. What we do know is that, as the economy recovers and the price of gas, something, that part of the population that is most sensitive to the price of gas and tends to travel more when the economy starts to recover and the gas prices go along also tends to be that part of the population that is overrepresented in crash populations because they tend to be inexperienced drivers, either very young drivers or very, very old. So this seems to be kind of a multiplying effect.

Mr. SMUCKER. Yeah. Of all the initiatives, I guess, or things on the horizon in regards to improving or decreasing the fatalities, I think autonomous vehicles obviously has a lot of promise, and I know technology already is being used.

But I think it is important, as that develops over the next number of years and decades, that there is a—you know, I think we are going to need a Federal standard. And we are seeing activities from the States to develop standards as well.

So the Federal standard, I believe your agency will be responsible for the standard. Am I right on that?

Mr. DANIELSON. Yes, sir.

Mr. SMUCKER. And can you describe what steps NHTSA is taking internally to prepare to serve as that Federal entity to regulate autonomous vehicles?

Mr. DANIELSON. Yes, sir. First of all, I would like to point out that we have taken nothing off the table with regards to a future governance structure. But what we do believe is, as this technology develops, we want to use the right tool for the right time. And we believe that the Federal Automated Vehicles Policy that we released last year was the right tool in that it provided the world's first national framework for the safe testing and deployment of

automated vehicles, which was designed to discourage a patchwork of State laws with respect to vehicle performance and safety but, at the same time, was adaptive enough to leave room for market innovation. And as we go forward, we are going to collect more information that will be necessary for future actions relative to a future governance structure.

Mr. SMUCKER. I believe there was a period to take public comments as a part of that. What is the next step in addressing those comments?

Mr. DANIELSON. Last month, the Secretary in Detroit announced that NHTSA and the Department would be releasing an updated version of the Federal Automated Vehicles Policy within the next few months, and she has directed NHTSA to begin to prepare that update, and we are doing that right now.

Mr. SMUCKER. So when can we expect that?

Mr. DANIELSON. Timeframe was the next few months. She announced that last month.

Mr. SMUCKER. Thank you.

I yield back.

Mr. GRAVES OF MISSOURI. Ms. Johnson.

Ms. JOHNSON OF TEXAS. Thank you very much.

I guess I would like to ask questions to two of the witnesses at the table. Being from Texas, of course, we have lots and lots of trucks, and safety is a major issue. And I noticed that, Ms. Dinh-Zarr, that you have determined that speed is a major issue as well as some of the underride guards. Have you attempted to make recommendations along these lines? And what kind of results have you had?

I guess, Mr. Danielson, I would like you to respond as well.

Ms. DINH-ZARR. Thank you, Congresswoman Johnson.

I am also from Texas, so I certainly recognize the importance of trucking to our Nation's health and welfare.

And, yes, we have made recommendations regarding speed limiters as well as front, rear, and side underride guards. We conducted a study in 2013 on underride crashes and on safety of underride guards. And we made recommendations regarding setting performance standards regarding those underrides.

Mr. DANIELSON. Congresswoman, both of those areas are areas of active consideration and activity for the agency. On speed limiters, we released in concert with FMCSA last year an NPRM that we received public comments on, and we are reviewing those. With respect to rear underride guards, we released an NPRM in 2015 and received comments, and we are reviewing those as well. We are also doing active research in this area to develop test procedures for overlap crashes in a rear crash scenario with a rear guard.

Ms. JOHNSON OF TEXAS. Some of those studies have indicated that 73 percent reduction in accidents could happen. Are you having any conversation with truck users or the companies? What kind of feedback are you getting there?

Mr. DANIELSON. Yes. We receive a lot of public comments on that rule. And we are reviewing that now. The goal of the NPRM—what the NPRM was looking at was harmonizing our standard with the

standard that is already present in Canada, which, I believe, is a 35-mile-an-hour crash test threshold for rear guards.

Ms. JOHNSON OF TEXAS. But are you optimistic that we can achieve these goals of some speed reduction and some improvement in the trucks?

Mr. DANIELSON. Because this is a regulatory proposal that is active on the agenda, I am somewhat constrained in forecasting the content and timing of our regulatory agenda. But I can tell you that this is an area of active consideration in the agency.

Ms. JOHNSON OF TEXAS. Have you received some positive acceptance from some of the truckers?

Mr. DANIELSON. I would have to—I would have to go back and review those comments and get back to you, Congresswoman.

Ms. JOHNSON OF TEXAS. OK. Well, thank you very much.

That is all.

Mr. GRAVES OF MISSOURI. Mr. Perry.

Mr. PERRY. Thanks, Mr. Chairman.

Thanks to the panel for your attendance.

I think my questions will be directed to Mrs. Jefferson. First, regarding the FAST Act and the fact that it created a military pilot program for individuals, select personnel, between the ages of 18 to 21 years of age, as well as a process to ease the integration of veterans in getting their CDLs and performing in that industry. I also know that the trucking industry has a—like many other industries, is struggling to find labor and help to do the driving. So I am just wondering if you have any metrics to describe how those two programs are going?

Mrs. JEFFERSON. Thank you, Congressman Perry, for that question. We are in the process of rulemaking to move forward with the military driver converting from military service to civilian and reducing barriers to getting a commercial driver's license, as well as moving forward with plans for the under-21 drivers who have previous military experience. So those are moving forward.

Mr. PERRY. So you are in the rulemaking process. At what point? Do you have an expected date to put them out for public comment? Or do you have a timeline at all that you can describe?

Mrs. JEFFERSON. We issued a notice of proposed rulemaking in June. And we will continue to work through that process of getting public comment. In addition to that, there are other areas where we are working with our State partners as well as the motor vehicle Administrators to make sure that we do everything we can to support our men and women who are coming out of military service into civilian life.

Mr. PERRY. All right. Thank you.

As you may know, in April, I introduced a bill regarding comprehensive regulatory reform in the passenger carrier industry called BUSREGS–21. I drafted the legislation because I kept hearing from constituents and owner-operators in the district and literally from across the country about a culture of overzealous enforcement from the agency. And I saw it myself when I first came to Congress, when I talked to a previous Director. You know, schoolbuses and motorcoaches are two of the safest modes of surface transportation that we have. Yet the regulations just keep coming and coming for these folks, and they are struggling to

maintain their businesses. And if you are trying to get into the business, you can just about forget it. So my bill attempts a direct regulatory reset.

Now, on a positive note, I want to report that the agency has already rescinded two regulations that my bill proposed to rescind, the carrier fitness determination and the minimum insurance limits, and is proposing a revision to a third, the lease and interchange rule, which is also exceptionally problematic. One of the other things that is in the bill is an amendment to the mission statement.

Mrs. Jefferson, I just want to get your thoughts on it. Obviously, we want your mission statement to be about safety, right? But we also want to include the industry in itself because a robust industry that is profitable and that is safe is good for, not only the employees and the owners, but for the public that wants to travel and use them in schoolbuses. I don't know where any of us would be without the schoolbus industry and ability to get our kids safely to school. So, with that, we also want to add, not only the priority on safety, but fostering an environment for a thriving passenger carrier industry. And this would be consistent with the FAA's mission statement and other agencies. And I am just wondering what your thoughts are on that, if you find that objectionable, or if that is something we can work on together, or if that is something totally out of the realm of possibilities, from your standpoint.

Mrs. JEFFERSON. Well, I think, as you said, safety is our top priority. But we believe a healthy, robust, commercial motor vehicle industry, both trucks and buses, is good for safety. I think companies across the industry, whether it be passenger carriers or property carriers, the vast majority realize that safety is a part of their business model. And it is good for business. And so, from the standpoint of FMCSA, we would be happy to work with you because we believe that a healthy industry is a safe industry. And the more money and profitability, hopefully, those profits will also be used for safety.

Mr. PERRY. I am sure you can imagine—I will close with this—I am sure, as the owner of one of the companies, whether it is a schoolbus company or motorcoach company, the absolute last thing you want to hear or see in the news is there has been an accident where somebody was hurt. And it behooves all of them to do things as safely as they can for the viability of their business, if not their own conscience. So I appreciate your comments.

Thank you.

I yield back.

Mr. GRAVES OF MISSOURI. Mr. Cohen.

Mr. COHEN. Thank you.

I want to thank you, the chairman, and the ranking member, who is not here, Mr. DeFazio, for taking into consideration a request that I, along with Representative Cummings and Duncan, penned to hold a hearing that could touch on schoolbus safety in light of the accidents that have been discussed here in Maryland and in Chattanooga, Tennessee, and others.

In November 2016, these accidents occurred: 6 dead in Baltimore and 6 dead in Chattanooga; 31 passengers injured; 6 school-aged children were taken—"too early" is not the right term. They were

taken, and that was wrong. No more precious cargo is there for any commercial carrier than children, school-aged children, entrusted by their parents to go and get educated to have a better life.

The NTSB has had ongoing investigations into these accidents and cannot answer questions directly related to each case. I understand that. But in both cases, it seems there were a number of safety precautions and oversight issues that could have prevented or mitigated the risk of injuries and fatalities suffered from the unfortunate events.

Having said that, I want to ask a few questions of Ms. Dinh-Zarr. In five reports since 2010, including accident investigations involving schoolbus crashes in Anaheim; Chesterfield, New Jersey; Knoxville; Houston, Texas; and Gray Summit, Missouri, the NTSB made several observations in which it concluded that compartmentalization was not enough to prevent all injuries, particularly in accidents involving side impact or high-speed rollover. Yet, on your website, the NTSB states that it believes and recommends that new schoolbuses should provide children with three-point seatbelts.

A, does this recommendation still stand? Can you elaborate how the NTSB came to the conclusion that compartmentalization was an insufficient safety mechanism? And when can we expect the investigations of the Chattanooga and Baltimore crashes to be released? And those are my questions for you.

Ms. DINH-ZARR. Thank you, Congressman——

Mr. COHEN. You are welcome.

Ms. DINH-ZARR [continuing]. Cohen. I appreciate your asking those questions because schoolbus crashes are always some of the hardest for us to investigate but, obviously, very important to make sure that our children get to school safely.

We can't speak specifically about some of the issues that you mention regarding the investigation but we are looking into medical fitness as well as screening of drivers in schoolbuses. You mentioned the three-point seatbelt, the lap/shoulder harness seatbelt recommendation. That still does stand. We are recommending that States and school boards, as they buy new schoolbuses, buy buses that have this type of better restraint system. In our crash reconstruction and our investigations, we found that there are certain types of crashes, such as a rollover crash or a side impact crash, where having a three-point seatbelt is very important.

I should say that schoolbuses are very safe vehicles. It is much safer for a child to go to school in a schoolbus than almost any other vehicle. Compartmentalization is an important tool for safety on the schoolbus, but it primarily helps with forward-type collisions. So that is why that three-point seatbelt recommendation still stands.

Mr. COHEN. Your statement, you said that you would—States should consider when purchasing new buses. "Consider." Have you thought of anything stronger than "consider" and mandating, since it is such an important safety element that you have endorsed and found studies?

And I have got five reports on schoolbus investigations that I want to enter into the record where they all say that school seatbelts would have saved children's lives.

Ms. DINH-ZARR. We certainly will consider it. And as the investigation for these two November schoolbus crashes continues, we will, again, consider how the wording goes.

In the past, we have always attempted to balance being very prescriptive with the feasibility of some of our recommendations. But we will certainly take your comments under consideration.

Mr. COHEN. I hope so. I have been working on this since the 1990s, and I have always had school boards against it. They don't want to spend the money. And the money should come secondary to the safety.

I would like to introduce for the record, without objection, these five reports that all indicate that seatbelts on schoolbuses would save lives. Dollars shouldn't be the issue with our precious cargo.

[The 113-page report about the Chesterfield, NJ, collision (Accident Report NTSB/HAR–13/01, PB2013–106638) can be found online at https://www.ntsb.gov/investigations/AccidentReports/Reports/HAR1301.pdf. The 104-page report about the Gray Summit, MO, collision (Accident Report NTSB/HAR–11/03, PB2011–916203) can be found online at https://www.ntsb.gov/investigations/AccidentReports/Reports/HAR1103.pdf. The other three reports are on pages 85–130.]

Mr. COHEN. There are some other issues I have dealt with. And I only have a few seconds left. But I want to ask this: Are there any recommendations that any of you all have on graduated driver's licenses, to how we should try to improve those, those laws in the States, and/or ignition interlock laws for multiple DUI offenders?

Mr. DANIELSON. Sir, for all of our national priority programs that are kind of on the newer side, there is a period of time that it takes for States to comply. And graduated driver's license is the biggest example of this. We have zero States who are eligible for these programs.

NHTSA is going to work with these States to try and get them eligible. Congress sort of relaxed some of the standards. States still aren't there. But we have seen, over time, particularly with our more mature priority programs, that States do come along, and they do work. The strong laws that Congress requires under the FAST Act do work over time in terms of saving lives. And we have seen it with occupant protection. In 2016, for the first time, seatbelt usage nationwide went over 90 percent. And that is largely because of the strong laws required under the authorization of Congress. So we don't want to encourage lowering the standards too much. We take it on ourselves to try and work with the States to provide technical assistance to get them where they need to be in order to have strong laws on the books.

Mr. COHEN. Before I yield back the time that I don't have, I just want to thank you for what you have done. I passed a seatbelt law in Tennessee 15 years ago. And Jim Hall worked with us closely on that. I appreciated his support and hope you all will keep up the standards, because it was difficult to get the standards in there to say kids couldn't use cell phones or kids had to put on their seatbelts or the number of passengers and all that.

And ignition interlock is something else we worked on back then. And for multiple DUI offenders, they ought to be able to do the Constitution backwards.

I yield back the balance of my time.

Mr. GRAVES OF MISSOURI. Mr. Barletta.

Mr. BARLETTA. Thank you, Mr. Chairman.

Before I came to Congress, I owned a road construction business. So I know firsthand how dangerous it can be working in construction zones. We actually put the lines on the road that saved lives. You know, I always used to say: You never read in the paper the names of the people whose lives you have saved.

There is only so much signage and protection that you can offer your employees to protect them from the constant threat of distracted drivers and speeding trucks and vehicles. The data speaks for itself. According to FHWA, in 2014, 119 roadway construction workers lost their lives in work zone crashes. In 2015, 700 people were killed in work zones as a result of motor vehicle crashes.

Just last month, I was personally touched by such an incident. Michael J. Friendy, who I had hired when I had my business, he was a 41-year-old from my hometown in Hazleton. He was setting up a construction zone on Interstate 81 when he was struck by a car and killed instantly. I knew Mike for over 20 years and was incredibly saddened by his death. My thoughts and prayers continue to be with his friends and his family and his coworkers as they grieve this incredible loss.

Acting Deputy Administrator Waidelich, in your opinion, what steps can this committee take to combat work zone crashes and improve the safety for roadway construction workers and contractors so that we don't lose more talented, and hard-working and good people like Michael Friendy?

Mr. WAIDELICH. Congressman, you are correct with stating that the dangers of work zones today, especially with the increases in volumes of traffic, night work that is going on, and more work that is going on out on our roadways because we are trying to rehabilitate and reconstruct our infrastructure.

The Federal Highway Administration works in many different ways to improve work zones, to work with our stakeholders, whether it be States or locals or others. First, we have the "Manual on Uniform Traffic Control Devices," which includes minimum standards for work zone safety signing and buffer zones and those types of elements within a particular work zone.

We work on deployment of technologies, for example, intrusion alarms that would alarm workers when the work zone is actually intruded by a particular vehicle.

A big part also is awareness and public education. During Work Zone Awareness Week, we work with AASHTO and ATSSA and get the word out, because work zones are not only dangerous for workers; they are also dangerous for those vehicles that are going through it. As you stated, it was over 500 motor vehicle fatalities that occurred in work zones also on an annual basis.

And in working with this committee, I would hope that availability of those funds for deployment of those types of innovations, and for education and awareness about work zones, would continue.

Mr. BARLETTA. We got to do a lot more work. Because the only thing that was separating them from live traffic were rubber cones.

Back in 2015, when this committee was working on a highway bill, I pushed for language to be included that would reform motor carrier safety scores to make sure that they were more reflective of a company's safety record. Just last month, the National Academy of Sciences published a report, as required by the FAST Act, detailing their findings on the Compliance, Safety, Accountability program, more commonly known as CSA.

Deputy Administrator Jefferson, does FMCSA believe that the findings of this report require the Safety Measurement System to be replaced with a more defensible statistical model? And, if so, what are the agency's specific plans and timetable for implementing such a corrective action plan?

Mrs. JEFFERSON. Congressman Barletta, FMCSA supports the findings of the National Academy of Sciences, and we are grateful to the volunteers who worked on that study. It is our intent to provide a corrective action plan to Congress within 120 days of submitting that report.

We are also working with the Academy of Sciences to identify strategies for implementing those recommendations. They have given us a roadmap, if you will, of ways to improve SMS. And it is our intent to follow through on that. And so, as we go through the process of developing an implementation strategy, that will get us to a better result. And so we appreciate the work that they have done and also our intent to include industry and other stakeholders in the process as we go along as well, and, of course, keeping Congress aware of our actions as we proceed.

Mr. BARLETTA. Thank you.

Thank you, Mr. Chairman.

Mr. GRAVES OF MISSOURI. Ms. Titus.

Ms. TITUS. Thank you, Mr. Chairman.

I would just like to address my question to Ms. Dinh-Zarr. You have had the experience both inside the regulatory world and outside as an advocate. So I think you bring a special perspective to how to make regulation, what it takes to get it done, and why you need it, what goes on behind the scenes to protect our safety. I raised concerns in this committee a number of times about what I think is the President's kind of misguided Executive order where he says, for every regulation you put in place, you have to eliminate two, this arbitrary rule. As you heard from some of my colleagues, regulation has become kind of a punching bag, or a dirty word. Where regulation is bad, we need to get rid of regulation. They tend to forget that regulation is put in place for the safety of people who are driving or who are riding on our highways and buses and cars and going to school, our children.

Also, they tend to forget that the regulations that you all put in place are the result of legislation that we pass. I have got a list of the regulations that were required by the FAST Act, just the FAST Act. And I would remind this committee that some of the people who are criticizing regulations voted for that FAST Act that required you all to put in place these regulations.

So I would just ask you kind of what your perspective is on making regulations in this new environment where you have to strike two that you thought were good for safety now in order to do some-

thing else as technology changes, communication changes, the world changes. Would you address that for us?

Ms. DINH-ZARR. Thank you, Congresswoman Titus, for that very complex question.

Clearly, we are not a regulatory agency. So we are a little bit different from my colleagues here on the panel. But the recommendations we make do affect regulation. And we are very careful about that. We are not for regulation that is unneeded. Any recommendations we make that affect regulations are based on an investigation of a terrible tragedy, and intended to prevent similar tragedies from happening again.

That said, we also make recommendations that allow other options other than regulations. So many of our recommendations regarding impaired driving, distracted driving, are targeted more toward States, for example. Sometimes it is targeted towards companies. Sometimes it is targeted towards associations.

So we seek a balance between ensuring that those regulations that are most safety critical do go forward and are not delayed. I will give you an example: The safety fitness determination. We are very concerned that that delay will affect safety because that rulemaking was withdrawn. I hope that all of us, no matter where we come from, are prioritizing safety in our decisionmaking regarding regulations as well as other forms of advancing safety.

Ms. TITUS. Thank you.

Other members of the panel want to address this from the standpoint of your agencies, striking two to do one new one?

Mr. WAIDELICH. I think maybe I can just affirm from the Federal Highway Administration, I agree that safety is the number one priority of the Department, and that does take a priority in this two-for-one rule.

Mrs. JEFFERSON. We at the FMCSA are reviewing all of our regulations. But as we continue to focus on safety, we take that into consideration. And so we want to make sure that the rules that are in place remain current and relevant but continue to focus our attention on safety.

Mr. DANIELSON. I would just echo the comments of my colleagues.

Ms. TITUS. Thank you.

I yield back.

Mr. LAMALFA [presiding]. The gentlelady yields back.

Mr. Graves from Louisiana is recognized, 5 minutes.

Mr. GRAVES OF LOUISIANA. Thank you, Mr. Chairman.

Mr. Waidelich, in August of last year, in south Louisiana, we experienced one of the greatest floods in U.S. history. It was about the fourth most expensive flood disaster, according to FEMA data. It was, by some measures, estimated to be a 1,000-year flood.

If you can put pictures up.

I want to show you one component. So that is, obviously, an offramp. There is the freeway running from the bottom right toward the top left, that black strip there. And, obviously, that is all water. All that brown is water up there.

If you go to the next one, that is the interstate right there. So the right side is the north side of the interstate. The left side is

the south side. So that is—I guess the north side is the westbound lane, and the left side is the eastbound lane.

You may think that that is a levy in between. That is actually a safety wall. You can imagine that—that is actually a shopping center in the back right of that.

If you can go to the next one, I think I have a better picture. The next one. Maybe not. Can you go back twice?

So that is actually a shopping center back there, just to give you an idea of how that wall forced the pooling of water and exacerbated the flooding in this situation. And, also, all up and down the highway here, we had several pockets where the interstate was flooded that—I don't remember the number right off. I think there were an estimated 1,500 cars that were just stuck on the interstate. They couldn't get anywhere because there was flooding on either side of them.

Could you, perhaps, comment on that safety feature? As you see, there are no drainage outlets in that. That barrier goes on for miles, which also is an impediment to law enforcement and emergency vehicles trying to cross over. Does that look normal?

Mr. WAIDELICH. I would hate to say whether it looks normal or not, not knowing specifically what is down there.

Mr. GRAVES OF LOUISIANA. I hope it doesn't look normal with 6 or 8 feet of water——

Mr. WAIDELICH. When we have these types of events, it allows us to assess those situations with the emergency relief dollars and to determine how do we move forward with this into the future. As a matter of fact, in the FAST Act, it asked us to look at these types of situations where you have repetitive type of natural disasters that cause these types of events on our roadways and to make those determinations about what to do in the future with these, potentially upgrading facilities and changing the facilities so it doesn't happen again.

With that said, we have been having a lot of intense weather events over the last several years around the country. As we also move forward with the FAST Act implementations of asset management, risk-based asset management, my hope is as we move to the future and correct these particular roadways, that we take that into consideration in these areas where you may have evacuation routes and things like that.

Mr. GRAVES OF LOUISIANA. This can't be the first time you have ever seen something like this.

Mr. WAIDELICH. No.

Mr. GRAVES OF LOUISIANA. Most of the walls that I have seen, well, look, I certainly understand the safety aspects: It blocks rubbernecking. It prevents head-on collisions, and certainly there is value there. But why there are not drain outlets in that wall and why Federal standards would not call for certain increment of drainage flow or offsetting walls or something in some areas, I simply don't understand. I mean, we beg for levees like this all over south Louisiana, and to have one on the interstate is crazy. It just doesn't make sense to me at all.

And you have many towns, in Livingston, Walker, Denham Springs, even in Baton Rouge, that the flooding was significantly exacerbated on the north side of the interstate as a result of this

safety feature. And so I want to ask if you could please go back to Federal Highways and advise us on the status of updating standards from lessons learned like this, the timeline of that. If you could advise us on how long it is going to take to get new standards in place to where we don't have situations like this again. And here we are approaching a year after the flood, no one has touched the wall. Still there. No drainage outlets, no nothing. And, God forbid, we have another big flood. But we are down at the bottom of one of the largest watersheds in the world, and that certainly is possible. Could you do that?

Mr. WAIDELICH. I will. I will take that back and get back with you.

Mr. GRAVES OF LOUISIANA. Great. Thank you very much.

I have one other question. I am looking at time. I am going to go ahead and submit that for the record, related to timing of finalizing regulations in the FAST Act.

Thank you. I yield back.

Mr. LAMALFA. The gentleman yields back.

The Chair would like to recognize the gentleman from California for 5 minutes, Mr. DeSaulnier.

Mr. DESAULNIER. Thank you, Mr. Chairman.

It is such a pleasure to be here serving under your chairmanship.

I want to make sure that my comments are not taken in a way that detracts from this historical confidence and professionalism of all your agencies. But I am concerned, obviously, about the numbers we have in our staff report that the increase in fatalities and traffic accidents in the United States, from NHTSA, Mr. Danielson, increased so dramatically from 2014 to 2015. Over 35,000 Americans lost their lives, one every 15 minutes. This is the largest increase over a 1-year period in 50 years of recordkeeping. And then the Centers for Disease Control, their research showing that we are an outlier in that regard when we look at other countries.

So my question is in context to that. But, historically, you have all done a good job. But the urgency of a world that is changing so rapidly and your ability to adapt to that. So I am going to bring three incidents, areas, just as an illustration. I want you to respond to it.

First, in procurement, I had a constituent die on Highway 101 in Marin County in northern California some years ago when he fell asleep and ran into a guardrail that had been approved by NHTSA, built by Trinity Industries. There was subsequently a New York Times story, about a year ago, over a $100 million judgment against Trinity. The ABC affiliate in San Francisco found out that Caltrans had, literally, thousands of these modified guardrails that were dangerous to the public and turned out to be involved in fatalities around the country, litigation against Department of Transportation, Texas, Virginia. And my response when I was looking at this in the legislature, was from the Secretary of Transportation of—great professional in the Brown administration, the director of Caltrans, was they relied on NHTSA. And you had approved this. And you hadn't responded to it.

So I bring that in the context of the urgency for you to respond to situations like this and the confidence that is important for the

public and States to have in you, because they do. And then so that. So it is more illustrative of the story of your ability to adapt.

And the other two areas, one of which has been brought up here extensively about marijuana and the increased use. CRS, I have a constituent, Phillip Drum, who, because his sister died in an accident that was attributed to someone who was abusing marijuana in the other vehicle, made it his cause to come here and around the country. But in research we have gotten from the CRS because of his questions is that several studies have shown that THC in people's blood was roughly twice as likely to be responsible for deadly crashes than drugs or alcohol, other drugs or alcohol. So the ability for you to respond to that in a world where States are approving—Colorado and now California—the legalization of marijuana I think it is particularly important in the perception that people rely on NHTSA to be responsive. So how you can do that and Congress can.

And, lastly, in the area of technology. Having dealt with Apple and other providers, it is my belief that technology exists right now—and there has been a story, at least in Money magazine that Apple believes in their next platform, they will have technology so that you can shut down phones when there is movement in the car so that they can't receive. And so the issue of distraction could be inhibited quite a bit.

There is currently technology, but it requires a Federal Communications Commission waiver that, for less than $30, you can put a device in the car so a parent could—and it could intercept any kind of transmissions either coming in or out of the car.

So those three instances are just illustrative to me of the urgency and the confidence that the public and States need and the private sector that you have the ability to respond quickly. And the urgency is particularly acute, because if we are an outlier, there are lives at risk. Not to indulge in hyperbole. So what is it that you think you need from us to be able to be more responsive or to communicate more clearly to States that there is a danger involved, a prospective danger, while you do your due diligence, to legalizing marijuana? There is a danger involved if we don't get on top of distracted driving. And there may be technology. So how can we prod Apple and Samsung to get us that technology sooner rather than later?

Mr. DANIELSON. Sir, you raise a lot of really important points, particularly about behavioral safety. The one thing—your point on 2015 and the largest rate increase in 50 years is right on. And that is a source of major concern. Historically—I would just like to, you know, broaden our aperture just a little bit. If you go back those 50 years and look at our fatality rate at that time, today, we are one-fifth where we were 50 years ago. So vehicles are safer. Roadways are safer. And the work——

Mr. DESAULNIER. Mr. Danielson, I don't mean to interrupt you. But the first comments I made were meant to address that. So we have done really good work. But we have got this anomaly right now that I think we have to have a sense of urgency about correcting. So I acknowledge what we have done.

Mr. DANIELSON. OK. I would like to defer to my colleague at Federal Highway on the first issue of the guardrails. And then I can address your second and third issue.

Mr. WAIDELICH. Let me see if I can address guardrails very quickly. There are standards for roadside hardware, and they have improved over the years. Our current standard is MASH, "Manual for Assessing Safety Hardware." It is a national standard. It was just recently adopted. The previous one was NCHRP 350. Roadside hardware is tested to those standards. That is like the laboratory test. I hate to say it and call it that way, but it is a controlled test. When that test is passed and we at Federal Highway review those test results to ensure that it passes, States will use that roadside hardware out if they choose.

You also have to assess in-service performance, maintenance, and construction practices that go along with this, which may vary from State to State. When it comes to guardrail end terminals, we do have an in-service pilot on that with four States currently involved in that. And what we have found from reviewing those end terminals is that none of those end terminals are better or worse than the others. So our program is fact-based, and data-driven, and performance-based. And without that data showing us that these truly are dangerous or more dangerous than what else is out there, we would not pull those particular devices.

Mr. DESAULNIER. So, Mr. Danielson, the Chair is indulging me. I appreciate those comments, although we can engage in further conversation outside of my limited time.

Mr. DANIELSON. OK. On marijuana, as you mentioned, you have a number of States that are legalizing marijuana. From 2007 to 2014, we saw a 50-percent increase in usage. And we know that marijuana impairs judgment and impairs driving ability, particularly with reaction time. And so our research is geared to try and establish a baseline threshold where we can establish impairment. Because, right now, we don't have a scientifically acceptable threshold for impairment of marijuana. And the other technological challenge associated with that is the detection of impairment. Even once we have that, do we have the technology to test either, you know, oral fluids or other biometric features to establish impairment by law enforcement officials.

Right now, NHTSA uses the drug recognition expert program, where we train about 8,000 law enforcement officials on a battery of tests to basically—because different drugs have different effects—to basically establish impairment by various drugs. These are court-accepted procedures, but it is very complicated. It takes a lot of time to train law enforcement. They are very important. But having a device would be very important.

On distraction, you mentioned, just recently, there was several press reports about——

Mr. LAMALFA. We will have to ask that we—but we can have a second round of questions, if you care to stay for that. So—just got to be fair.

OK. Thank you for—I will recognize now Mr. Faso for 5 minutes.

Mr. FASO. Thank you, Mr. Chairman.

Mr. Waidelich, are you familiar with the issue between your agency and New York State relating to certain signage that New

York State has erected over the last 2 years relating to tourism and other travel promotion and other New York State promotional signage along State highways, and your agency has declared that these signs are not in compliance with regulation and is seeking to have New York State remove the signs? Can you update—number one, are you familiar with this issue, and can you update me on your agency's position on this matter?

Mr. WAIDELICH. I am familiar with the issue on signs in New York. And we have issues in other States. And we, as an agency, work with those States to bring the States back into compliance. Currently, we are working with New York to see if there is a way we can develop a pilot with those particular signs. But, yes, we are working with the State of New York and the DOT to do that.

Mr. FASO. And what is the consequence if New York doesn't comply with the regulations?

Mr. WAIDELICH. Again, we like to work with the State to bring them in compliance, but we do have the ability to withhold Federal funds if it comes down to that.

Mr. FASO. Mr. Chairman, I would like to include for the record a letter from Peter Osborn to the commissioner of the New York State Department of Transportation, dated May 8, 2017, in which it says that they have not received any response from the State on this exact issue of the pilot. So I would like to follow up with the Acting Administrator on this topic going forward.

Mr. LAMALFA. Without objection.

[The information follows:]

U.S. Department of Transportation
Federal Highway Administration

New York Division

Leo W. O'Brien Federal Building
11A Clinton Avenue, Suite 719
Albany, NY 12207
518-431-4127
518-431-4121
NewYork.FHWA@dot.gov

May 8, 2017

In Reply Refer To:
HDA-NY

Matthew Driscoll
Commissioner
New York State Department of Transportation
50 Wolf Road
Albany, NY 12232

Subject: Non-Compliant Signs

Dear Commissioner Driscoll:

The FHWA remains concerned with the numerous signs that were erected in July 2016 as part of a State initiative to promote tourism. These signs include a main panel with the "I ♥ NY", Taste NY, Parks and Path through History logos, with subsequent individual signs and sign supports with each individual "I ♥ NY", Taste NY, Parks and Path through History logo sign panels. As discussed previously, these signs are not in compliance with the National Manual on Uniform Traffic Control Devices (MUTCD).

On December 13, 2016 a meeting was convened at your request in Washington, DC to discuss this issue with FHWA Senior Leadership. At that time it was agreed to form a NYSDOT/FHWA Working Group to develop a plan to bring NYSDOT into compliance. The working group was formed and actively meeting and made good progress. The outcome of the last meeting on February 24, 2017 was that NYSDOT would develop a MUTCD Experimental Proposal for FHWA consideration; we had anticipated receiving the proposal early April 2017.

With motorist safety in mind, it is with our greatest urging we ask the State to expedite the delivery of their proposal to the FHWA.

Sincerely,

Peter W. Osborn

Peter Osborn
Division Administrator

Mr. FASO. And, Ms. Dinh-Zarr, I had not—I apologize for not being here earlier. I was in an Agriculture Committee meeting, but I was intrigued by your response on the three-point safety belt. At what point did the three-point safety belts become required by manufacturers in rear seats of vehicles?

Ms. DINH-ZARR. In passenger vehicles rather than——

Mr. FASO. Passenger vehicles, yes.

Ms. DINH-ZARR [continuing]. Schoolbuses? I should get back to you with the exact dates.

Mr. FASO. My understanding, it was 2008 or 2007 that this became required for the rear seats.

Ms. DINH-ZARR. I believe that is correct. I suppose NHTSA could answer that better. I know a lot of vehicles had them long before that. They were voluntarily installing them.

Mr. FASO. Because I have had some incidents in my district where people have regrettably suffered serious injury or even fatality only wearing a lap harness, a lap seatbelt, in vehicles that were manufactured pre the required deadline. I think it was 2008 again.

Has there been any effort by the agency to try to encourage vehicle manufacturers to alert auto consumers of the dangers and advise them as to how one might add a rather inexpensive safety enhancement to those seatbelts?

Ms. DINH-ZARR. The NTSB has not done that. What we did do is look at rear occupant protection. And we looked at other ways to protect occupants of the vehicle. But it does take 20 or more years before the fleet overturns. And there are plenty of cars that are before that requirement.

But we did look at, in our rear occupant protection workshop, the crashworthiness of the rear occupant area.

Mr. FASO. OK.

And, Mr. Danielson, again, I hadn't intended to raise this question, but the question on marijuana use and what is the definition or the lack of definition of incapacity based upon consuming marijuana substances. Is there a standard that we should be looking at asking your agency or others to develop as to what might be the appropriate level for which we know what the blood alcohol count is for alcohol, for instance? What should be the standard for marijuana?

Mr. DANIELSON. The goal would be to develop a standard, but that needs to be developed scientifically so the data—the data and technology isn't quite there, and the research isn't quite there. But we are working towards that actively. Particularly given this data, we try and have our programs be data-driven, and so we see these increases, and we want to get on top of this. So our research is focused in this area to try and establish a threshold.

Mr. FASO. Could you advise us for the record as to the timing on that and whether we should anticipate or whether it is appropriate to contemplate legislation in this area? I would appreciate that.

Mr. DANIELSON. Yes, sir.

[Please refer to the insert on page 41 for the information for the record.]

Mr. FASO. Thank you, Mr. Chairman. I yield back.

Mr. LAMALFA. All right. The gentleman yields back.

We have an opportunity for an additional round of questioning for those that are still here.

Did you have any more, Mr. Faso, or would——

Mr. FASO. I am done.

Mr. LAMALFA. OK. I will turn to my ranking member here.

Ms. Norton, would you have additional questions in this round?

Ms. NORTON. No questions, Mr. Chairman.

Mr. LAMALFA. OK. Thank you.

Well, I do. Otherwise, we will be soon finished after that.

So I want to come back with Mrs. Jefferson, our Deputy Administrator there, following up on the ELDs. I ran out of time earlier. We know with this mandate coming down the pike here for the electronic logging devices that is projected to cost around $2 billion to implement as imposed under the previous administration, that, again, in my neighborhood, we have very many small independent carriers in ag industry and the related services they provide between a mill, livestock, whatever. And so they are seeing this as a heavy burden. It is a little different deal for the large carriers. Many of them already use these technologies, as we know. And they are good. It is good technology. But, again, the small carriers really have a hard time bearing these new costs with a mandate such as this. And they don't really see an opportunity for compensation.

But just last night, my understanding, in the THUD, that the legislation provided in full committee a 1-year delay of the mandate for livestock haulers and, I think, insect haulers here, which sounds kind of funny. But that means beekeepers, I think, primarily. So that likely gets through here. So is FMCSA ready to know the difference between on implementing that for livestock haulers for the 150-mile, as the crow flies, exemption zone that is being sought and worked through? Will they be geared to be able to do that should we complete this legislation for that additional delay for those types of carriers?

Mrs. JEFFERSON. Congressman, there are ag exemptions that exist to hours of service and some of those, as you related, to the 150 air miles for certain livestock and insects. I am assuming bees as well. And those don't change under the ELD mandate. ELD is basically the methodology for tracking hours of service for those who currently are required to track their hours of service. And so exemptions that exist to hours of service currently will exist after December 18. And so we will continue to work with agriculture and segments of that industry that have questions or concerns about the ELD implementation.

We believe that ELDs will promote safety, making it easier to record hours of service for those who are required to maintain records of on-duty status.

Mr. LAMALFA. Well, certainly, no one is against safety, but it isn't always easier for everybody to come up with—you know, me to mandate. You know, we had some pro-regulation arguments here. We have a lot of frustration with regulations. A lot of people are looking for flexibility, and they have unique situations that they are—you know, were—let's say livestock hauling, for example. That is a unique situation where the livestock might be at a particular time and weather, what have you. And you can't just stop.

And other cases too. There are other types of industry seeking some types of exemptions too, and, you know, rentals and even Government contracting and some of the large carriers that have unique delivery needs. So I just want to know that FMCSA is looking at some of these. Do you see that any further exemption might be granted where these folks can prove that the regulation, all well-intended, really harms them?

Mrs. JEFFERSON. We have a process for those who are seeking exemptions.

As I said, there are currently exemptions to hours of service that exist for segments of agriculture. If the request is an exemption to the hours of service, they may already exist.

When it comes to being able to meet the compliance state for electronic logging devices, our target is December 18. We will be happy to follow up and talk about specific issues that you may have. We also are providing information, questions and answers, on our website. We continue to update those every day to make sure that folks understand the upcoming requirements for ELDs. We also have information on hours of service that is available as well. And——

Mr. LAMALFA. I just want to—and I am short on time here. But I just want the idea that those that are going to be in the enforcement capacity will be fully informed of whatever exemptions, whether it is the livestock and ag-type one or others that may come down the pike, so that people aren't getting caught in the middle out there, if they have—if enforcers haven't been properly trained on that, you will see that that information is out there.

Mrs. JEFFERSON. Absolutely. We work very closely with law enforcement to ensure they have up-to-date information.

Mr. LAMALFA. Thank you.

And, briefly, I want to jump to Mr. Danielson.

In your opening statement there, you had some very interesting information on marijuana and its effects. And we have several States now having legalized it, even still in defiance of Federal law. And you were talking about impairment.

Would you recap just for a few seconds impairment and some of the other stats you gave in the beginning?

Mr. DANIELSON. Yes, sir.

The bottom line for impairment would—by drugs is that it is not well understood because there is not a scientifically——

Mr. LAMALFA. You are talking reaction time is down and——

Mr. DANIELSON. Yeah.

Mr. LAMALFA [continuing]. Awareness?

Mr. DANIELSON. So what we do know is that usage rate has gone up 50 percent. We also know from laboratory studies that marijuana impairs judgment and impairs driving ability, particularly reaction time, which makes it dangerous to use when driving.

Mr. LAMALFA. Now, what is the—you have different potency. You have different types of ability to ingest marijuana or marijuana product. How many hours after it has been used. I mean, do you have these kinds of stats that you are working forward, you know, with potency? How many hours ago you have used it before you would resume driving? What do you have on that?

Mr. DANIELSON. Well, that would be part of—that would be part of the research in order to establish a threshold.

Mr. LAMALFA. How is your research coming? What do you need?

Mr. DANIELSON. That is what I owe for the record. I was asked previously to provide some additional information for the record on that research.

Mr. LAMALFA. Would you provide that to my office as well, please?

Mr. DANIELSON. Yes, sir.

[The information follows:]

NHTSA is currently conducting research on the crash risk associated with marijuana use by drivers and methods for identifying marijuana use by drivers at the roadside, including screening technologies and behavioral cues. Information from this research might be used to improve tools for use by criminal justice officials in arresting and prosecuting drugged drivers. Current technology is unable to provide evidence of marijuana impairment by drivers and developing methods that are accurate and reliable will require a significant scientific breakthrough. The timing of such a non-linear scientific advance is uncertain. NHTSA is exploring opportunities to stimulate progress.

Mr. LAMALFA. What do you need, though, additionally to have a handle on this for—in general, for—because we don't seem to have clear standards for what a DUI is. And you especially tie that to trucking, for example, you got a big problem. Go ahead.

Mr. DANIELSON. Because we understand alcohol impairment so well, and we have an easy test—drugs are different because drugs just—the body reacts to them differently depending on the drug. So we have had somewhat of a complex battery approach to this where we train law enforcement officers to do roadside tests with people who are suspected of drug impairment. As we move forward with this research, our hope is that we would have something that would be perhaps a device, not unlike a breathalyzer, where we could test people for drug impairment.

Mr. LAMALFA. Yeah. Certainly, it has a couple different things. THC, my understanding, goes away right away, but the other elements of it stay in the cells of the body much longer. And so it sounds like we need more information on how to quantify that.

Well, with that, I will stop there. And so if there is not any further questions from any committee members, we will go ahead and thank each of you for your time, your appearance, your travel for being here today. It has been very helpful and a good ongoing discussion.

So I would ask unanimous consent that the record of today's hearing remain open until such time our witnesses have provided answers to any questions that may have been submitted to them in writing and that unanimous consent—that the record remain open for 15 days for additional comments and information submitted by members or witnesses to be included in the record of today's hearing.

So, without objection, so ordered.

If no other members have anything to add, the subcommittee stands adjourned.

[Whereupon, at 12:16 p.m., the subcommittee was adjourned.]

ELIJAH E. CUMMINGS
7TH DISTRICT, MARYLAND

RANKING MEMBER, COMMITTEE ON OVERSIGHT AND GOVERNMENT REFORM

RANKING MEMBER, SELECT COMMITTEE ON BENGHAZI

COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE
SUBCOMMITTEE ON COAST GUARD AND MARITIME TRANSPORTATION
SUBCOMMITTEE ON RAILROADS, PIPELINES, AND HAZARDOUS MATERIALS

Congress of the United States
House of Representatives
Washington, DC 20515

2230 RAYBURN HOUSE OFFICE BUILDING
WASHINGTON, DC 20515-2007
(202) 225-4741
FAX: (202) 225-3178

DISTRICT OFFICES:
1010 PARK AVENUE
SUITE 105
BALTIMORE, MD 21201-5037
(410) 685-9199
FAX: (410) 685-9399

754 FREDERICK ROAD
CATONSVILLE, MD 21228-4604
(410) 719-8777
FAX: (410) 455-0110

8267 MAIN STREET
ROOM 102
ELLICOTT CITY, MD 21043-8903
(410) 465-8259
FAX: (410) 465-8740

www.cummings.house.gov

Rep. Elijah E. Cummings

Statement for the Record on "FAST Act Implementation: Improving the Safety of the Nation's Roads"

Subcommittee on Highways & Transit
July 18, 2017

I thank Chairman Graves and Ranking Member Norton for convening today's critical hearing to examine highway safety under the FAST Act. I regret that I was unable to attend the hearing as I continue to recover from recent heart surgery, but I request that this statement be made part of the hearing record.

In January of this year, I joined Representatives Duncan and Cohen – both Members of this Committee – in writing to Chairman Shuster and Ranking Member DeFazio to request that the Committee convene a hearing "to consider safety in the operation of school buses." Our letter was prompted by recent fatal school bus crashes in both Maryland and Tennessee, which raised urgent questions about the oversight of commercial school bus operators.[1] I deeply appreciate that the Committee has convened to examine highway safety, including the safety of school buses as we requested, and I thank Chairman Shuster, Chairman Graves, Ranking Member DeFazio, and Ranking Member Norton for their leadership on these issues.

On April 11, 2017, the National Transportation Safety Board (NTSB) issued a "Safety Recommendation Report" containing three safety recommendations – including one urgent recommendation – arising from its ongoing investigation into the school bus accident that occurred in Baltimore on November 1, 2016.[2] That accident killed six people after a school bus crashed into a car, "then struck a pillar," and finally collided head-on with a public transit bus.[3]

---

[1] Letter from Reps. Elijah E. Cummings, John J. Duncan, Jr., and Steven Cohen to Chairman Bill Shuster and Ranking Member Peter DeFazio (Jan. 11, 2017) (online at www.cummings.house.gov/media-center/press-releases/cummings-duncan-cohen-request-hearing-school-bus-safety).

[2] National Transportation Safety Board, *Safety Recommendation Report: Shortcomings of Driver Qualification Processes for Baltimore City Public Schools and of the Disqualified Driver Database for All Maryland School Districts* (April 11, 2017) (online at www.ntsb.gov/investigations/AccidentReports/Pages/HSR1702.aspx).

[3] *6 Dead, 10 Hospitalized After MTA Bus, School Bus Collide in SW Baltimore*, Baltimore WJZ (Nov. 1, 2016) (online at http://baltimore.cbslocal.com/2016/11/01/mta-bus-crashes-with-school-bus-in-southwest-baltimore/).

NTSB has reviewed the records of the Baltimore City Public School system (BCPS), which contracted with AAAfordable Transportation for the operation of the school bus involved in the November 2016 accident. NTSB found that the contract driver "had a history of hypertension, diabetes, and seizures" and "[i]n the past 5 years, he had been involved in at least 12 crashes or incidents while operating a school bus or personal vehicle." Despite this extensive – and likely disqualifying – record of medical problems and vehicle crashes, the Baltimore City Public School system's records were woefully incomplete. For example, the system's records contained reports on only four of the crashes in which the driver was involved in recent years – and did not contain even one of the "11 alerts regarding criminal charges against the driver."[4]

In short, NTSB's investigation of the Baltimore City Public School system has found that the system "did not review crash reports, did not review crash cost documentation, did not maintain criminal background reports, and had a drug-testing program that did not comply with the *Federal Motor Carrier Safety Regulations*." These oversight failures left the Baltimore City School System "with incomplete information when making the determination of whether this driver should be disqualified from driving a school bus." NTSB also warned it "is concerned that these BCPS shortcomings in its oversight of school bus drivers place BCPS students, as well as the public, at risk."[5]

NTSB issued an urgent safety recommendation to the Baltimore City Public School system instructing that the system should request the Maryland State Department of Education to "have an independent and neutral third party conduct a performance audit of [BCPS'] transportation department that includes a review of crash reports and of disqualifying conditions for school bus drivers." NTSB also recommended that the Maryland State Department of Education revise the Code of Maryland Regulations to clarify disqualifying conditions for school bus drivers and to require notification to the State of Maryland whenever a driver is found to be disqualified.

I would like to hear from the NTSB what the status of these recommendations is. As we look toward the start of a new school year, I also want to hear whether additional measures need to be taken immediately to ensure that no student in the Baltimore City Public School system – and no motorist on Baltimore's highways – is put at risk by the system's shoddy record-keeping and oversight practices. I also want to know whether there are other public school systems that have deficient school bus safety oversight practices.

---

[4] National Transportation Safety Board, *Safety Recommendation Report: Shortcomings of Driver Qualification Processes for Baltimore City Public Schools and of the Disqualified Driver Database for All Maryland School Districts* (April 11, 2017) (online at www.ntsb.gov/investigations/AccidentReports/Pages/HSR1702.aspx).

[5] *Id.*

During my time in Congress, we have taken important steps to tighten the regulation of commercial drivers. For example, in the SAFETEA-LU highway bill back in 2005 – a bill on which I served as a conferee – we required the establishment of a National Registry of Medical Examiners to ensure that only doctors who meet specific qualifications could issue medical certificates to individuals who were seeking or held Commercial Drivers Licenses. Congress enacted this requirement because although drivers were required to have a doctor certify their fitness to drive every two years, there was almost no oversight or enforcement of this provision.

While school buses have decent safety records, according to the NTSB, "Every day across the country, nearly 500,000 buses travel a combined 260 million miles, carrying more than 25 million students to and from school and activities."[6] It is critical that every available measure be taken to ensure that these buses operate safely. I look forward to considering any recommendations today's witnesses make to strengthen federal oversight of school bus safety.####

[6] National Transportation Safety Board, *NTSB School Bus Safety* (access on July 17, 2017) (online at www.ntsb.gov/safety/Pages/schoolbuses.aspx).

JOINT STATEMENT OF
WALTER C. "BUTCH" WAIDELICH, JR. ACTING DEPUTY ADMINISTRATOR
FEDERAL HIGHWAY ADMINISTRATION
JACK DANIELSON ACTING DEPUTY ADMINISTRATOR
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
DAPHNE JEFFERSON DEPUTY ADMINISTRATOR
FEDERAL MOTOR CARRIER SAFETY ADMINISTRATION
BEFORE THE
UNITED STATES HOUSE OF REPRESENTATIVES
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE
SUBCOMMITTEE ON HIGHWAYS AND TRANSIT
FAST ACT IMPLEMENTATION: IMPROVING THE SAFETY OF
THE NATION'S ROADS
July 18, 2017

Chairman Graves, Ranking Member Norton, and Members of the Subcommittee, thank you for inviting the Federal Highway Administration (FHWA), National Highway Traffic Safety Administration (NHTSA), and Federal Motor Carrier Safety Administration (FMCSA) to testify about our work to improve safety on our nation's roads and implement the Fixing America's Surface Transportation Act (FAST Act, Pub. L. 114-94). It is an honor to testify today before this Subcommittee.

Federal Highway Administration (FHWA)

Safety continues to be the Department's highest priority, and is at the core of our mission. The FHWA works to improve the safe mobility of people and goods on our Nation's roadways by funding safe infrastructure, conducting and deploying the results of state-of-the-art research, and connecting our experts with State and local agencies to achieve our shared goals. The recent increase in fatalities ended an overall long-term decline and underscores the importance of coordinated and comprehensive programs to address road safety through data-driven strategic approaches.

In addition to the tragic impact on human life, the economic and societal consequences of motor vehicle crashes reach over $800 billion annually, further demonstrating the importance of investing in highway safety and achieving a better safety record on U.S. highways. While these remarks focus on FHWA programs with "safety" in their title, it is important to note that FHWA incorporates safety into the entire $44 billion Federal-aid highway program, which strives to build safer roads for a safer future.

The Highway Safety Improvement Program

FHWA is committed to the vision of eliminating fatalities and serious injuries on our Nation's roadways. We are building off important collaborative initiatives led by our partners, such as Towards Zero Deaths, which is developing a national strategy on highway safety, and Vision Zero, which focuses on over twenty early-adopter cities.

The Highway Safety Improvement Program (HSIP) is the cornerstone of FHWA's efforts to eliminate fatalities and serious injuries on all public roads. The FAST Act continued the HSIP, providing estimated annual average funding of approximately $2.6 billion, or almost six percent of overall Federal-aid funding. The FHWA estimates that highway safety improvement projects result in four to seven dollars of benefits for every one dollar invested. Through HSIP and other efforts, FHWA encourages a data-driven, performance-based approach to save lives. The HSIP eligibilities are broad for infrastructure improvements, which allow States to tailor their safety program to their specific needs. Such eligible projects must be consistent with a State's Strategic Highway Safety Plan (SHSP); identified based on crash experience, crash potential, or other data-supported means; and must contribute to a reduction in fatalities and serious injuries.

States develop and implement multi-year, comprehensive SHSPs in coordination with Federal, State, local, and tribal partners. While the process for SHSP development is approved by FHWA, SHSPs also provide strategic direction for State plans required by other modes, including NHTSA's Highway Safety Plan and FMCSA's Commercial Vehicle Safety Plan. The FHWA works with its sister agencies to ensure that the Department speaks with one voice and that these plans are coordinated to the maximum extent possible. SHSPs establish statewide safety goals, objectives, and key emphasis areas and integrate the "four Es" of highway safety—engineering, education, enforcement and emergency medical services. The emphasis areas in a State's SHSP must be identified through a data-driven analysis of crash, roadway, and traffic data. For roadway data, States are required to collect and use the model inventory of roadway elements (MIRE) and recently established plans for their collection. States must update their SHSPs at least every five years, to ensure that the most recent data is evaluated and considered.

The FAST Act also continued the Railway-Highway Crossings Program, setting aside an average of $260 million per year of HSIP funds for this State-administered program. From 1996 to 2015, fatalities at railway-highway grade crossings decreased by 50 percent, despite an increase in the vehicle miles travelled (VMT) on roadways and an increase in passenger and freight traffic on railways. There were 237 railway-highway grade fatalities in 2015 representing less than one percent of the nation's overall fatalities.

To achieve the vision of zero fatalities, crashes on all public roads must be addressed, including rural roads and locally-owned roads. In 2014, 19 percent of the U.S. population lived in rural areas, but rural road fatalities accounted for 51 percent of all road fatalities. The fatality rate in rural areas has remained 2.4 times higher than the fatality rate in urban areas. The FHWA continues to take a coordinated, national approach with its partners and stakeholders to address local and rural crashes. The FHWA's Local and Rural Road Safety Program encompasses training, technical assistance, guidance, and other tools. This program has shown measured success—a growing number of States are using HSIP funds to fund projects on locally-owned roads and local agencies are more aware of their safety issues through the development of Local Road Safety Plans and participation in SHSP development.

FHWA is also committed to improving road safety on tribal lands, where fatalities and serious injuries occur at a higher rate than in the rest of the nation. Motor vehicle crashes are the leading cause of unintentional death for American Indians and Alaska Natives ages one to 44, despite

known underreporting of fatal motor vehicle crashes. To help combat this problem, FHWA administers Tribal Transportation Program Safety Funds, a competitive discretionary grant program available to federally recognized Indian tribes. In April 2017, FHWA awarded nearly $9 million of Fiscal Year (FY) 2016 funds to 74 tribes in 20 States. These projects focus on safety planning and transportation infrastructure improvements that can prevent and reduce death or serious injuries in transportation related incidents. Additionally, regular Tribal Transportation Program funds, approximately $442 million for FY 2017, are often used for safety planning and infrastructure improvement projects. FHWA continues to examine ways to improve the collection, sharing, and analysis of safety data in Tribal areas so that it can be useful for identifying needed improvements in tribal transportation systems. In May, FHWA transmitted to Congress a report on the state of tribal safety data, as required by the FAST Act, and will continue working with tribal stakeholders to implement the recommendations for better data collection and use contained in the report. The FHWA is currently developing a second report to Congress that will analyze the available motor vehicle fatality data to determine any trends in Tribal areas that should be addressed.

Safety Performance Management

One of FHWA's primary safety achievements in recent years has been implementing the new performance management standards for the Federal-aid highway program, mandated by Congress in MAP-21 and continued in the FAST Act. These changes increase the program's accountability and transparency and provide a framework to improve investment decision making by focusing on performance outcomes for key national transportation goals. State DOTs will now be required to establish performance targets and assess performance in key areas. The FHWA has been coordinating very closely with NHTSA to support States in establishing three identical safety targets for three performance measures: the number of fatalities, fatality rate, and the number of serious injuries. The FHWA has been implementing the performance management directives from Congress through a series of inter-related rulemakings and other actions including a suite of training courses, technical tools, and guidance to educate our State and local partners.

The safety performance management rule was the first transportation performance management rule finalized by FHWA. Beginning this summer, States and metropolitan planning organizations (MPOs) will set data-driven annual safety performance targets for the first time, measuring the number and rate per 100 million VMT of fatalities, the number and rate per 100 million VMT of serious injuries, and the number of non-motorized fatalities and non-motorized serious injuries. States that fail to meet or make significant progress toward meeting their self-determined safety targets will be required to direct a dedicated share of their overall highway spending toward HSIP projects. States making investment decisions to achieve their safety targets supports the long-term drive towards reaching zero fatalities.

The FHWA, in coordination with NHTSA, has provided significant resources to advance the implementation of these safety performance management requirements, including fact sheets, webinars, a website, and a National Highway Institute course. The FHWA has delivered State Safety Target Setting Coordination workshops to 45 States, at no cost to them, bringing together over 1,000 safety stakeholders to discuss the requirements and implementation process. The

FHWA Safety Performance Management Training video has been viewed over 4,500 times and FHWA has delivered safety performance management presentations to non-Federal stakeholders, including the American Association of State Highway Transportation Officials, Transportation Research Board, and Association of Metropolitan Planning Organizations. In recognition of the important role our law enforcement partners play, FHWA has also developed a suite of law enforcement training materials that build officer competencies on serious injury reporting. Finally, FHWA, NHTSA, and FMCSA are collaborating to coordinate the development of guidance and outreach activities to States on the standardized serious injury reporting requirement.

Safety, Innovation, and Research

In addition to helping States measure and meet their safety targets through performance management standards and the HSIP, FHWA is also working to identify and rapidly deploy proven, but underutilized safety innovations. The FHWA is highly confident that certain countermeasures, infrastructure designs, and highway features are effective at improving safety. The FHWA provides guidance and technical assistance to advance these safety countermeasure options and encourage their use. Through Every Day Counts (EDC), which was codified into law in the FAST Act, FHWA has rolled out several safety innovations that can be used by states. During the current round of EDC innovations, FHWA is advocating the deployment of data-driven safety analysis (DDSA), which uses tools to analyze crash and roadway data to predict the safety impacts of highway projects. DDSA allows a transportation agency to target highway investments with more confidence and reduce severe crashes on roadways, putting our limited funds to their best uses. The FHWA is also promoting Safe Transportation for Every Pedestrian (STEP). Pedestrians account for an estimated 15 percent of all roadway fatalities, most of which occur at uncontrolled crossing locations or at intersections with no traffic signal or stop sign. STEP helps transportation agencies address pedestrian fatalities by promoting cost-effective countermeasures with known safety benefits, such as raised crosswalks, pedestrian hybrid beacons, and pedestrian refuge islands.

Previous rounds of EDC have advocated deployment of other proven safety countermeasures. These initiatives include the implementation of road diets, a roadway reconfiguration that can reduce highway fatalities and injuries. The use of road diets is now a standard practice in 21 states and Washington, D.C. EDC has also promoted Safety Edge, a simple and effective solution to mitigate pavement edge-related crashes by shaping the pavement edge to eliminate the safety issues associated with a vertical drop-off. Every State Department of Transportation has used the Safety Edge on transportation projects. The FHWA has also been working with our State partners to expand vehicle-to-infrastructure (V2I) communications technology, the wireless exchange of data between vehicles and roadway infrastructure. V2I communications enable safer vehicle operations by providing location specific data, such as work and school zone speed limits, hazardous roadway conditions, and traffic signal phasing and timing data directly to the vehicle in real-time. Under the FAST Act, V2I communication equipment is now eligible for funding under major Federal-aid highway programs and FHWA continues to provide technical assistance to our State and local partners as they deploy this important technology.

Connected automated technologies also hold great promise for delivering safety improvements in the coming years. The FHWA is completing a Vision Statement to identify our role in advancing these technologies, including preparing our national roadway infrastructure for the automated vehicle future. When leveraged with V2I communications technology, connected-automation has the potential to result in significant safety, mobility, and environmental benefits above and beyond what is capable with automated driving systems alone.

Safety is the primary objective of the FHWA highway bridge and tunnel programs. In the 50 years since the inception of the initial bridge inspection program, FHWA's research and development efforts at the Turner-Fairbank Highway Research Center have produced implementable technologies and solutions that push the state of the practice forward and improve safety. Innovations developed and implemented by FHWA research over that time include bridge steels and concretes with significantly improved durability and strength characteristics, analysis and investigation methodologies that critically advanced highway resiliency to hydraulic and geotechnical hazards, and inspection technologies that result in more reliable and actionable information for engineers. While progressive at the time of their implementation, these advances are all now institutionalized and in use by State DOTs and other owners across the country, elevating the level of safety experienced by the traveling public.

Finally, FHWA is investing resources to identify the next generation of safety technology. The FAST Act supports changes implemented in MAP-21 to advance a nationally-coordinated research and technology program that addresses fundamental, long-term highway research needs, including extensive research on highway safety. The FHWA's dedicated safety research program is conducted at the Turner-Fairbank Highway Research Center and focuses on intersection, pedestrian and bicyclist, and roadway departure safety. In addition, a host of research programs focus on infrastructure developments and new technologies that have the potential to produce significant safety gains. The FHWA is performing extensive research on different aspects of connected automated technologies, often in coordination with the Department's Intelligent Transportation Systems Joint Program Office. For example, FHWA is conducting conceptual testing on the use of automated and connected vehicle technology to provide specific speed recommendations to a vehicle, which can implement the recommendation automatically. Smoothing the flow of traffic in this way would improve safety by reducing the chances of a vehicle crash. The FHWA's Exploratory Advanced Research Program (EAR) conducts long term, higher-risk research in the hopes of discovering transformational improvements to plan, build, and operate safe transportation systems. The EAR's current focus areas include alternative intersection/interchange designs, new approaches to material science to create innovative new highway materials, and human behavior and travel choices, all of which have the potential to enhance highway safety.

National Highway Traffic Safety Administration (NHTSA)

For the last 50 years, the National Highway Traffic Safety Administration has diligently worked to fulfill our mission to save lives, prevent injuries, and reduce economic costs due to road traffic crashes through education, research, setting safety standards and enforcement. We could not work toward our mission without the support of this Committee and your work on the FAST Act.

In 2015, we lost 35,092 people on our public roads. That was a 7.2 percent spike in traffic fatalities from the previous year, and the largest single-year percent increase in 50 years. The preliminary numbers appear to show that roadway fatalities increased further in 2016.

As you know, 94 percent of serious crashes are the result of human choices such as distraction, alcohol or drug impairment, speeding or fatigue. The bottom line is the overwhelming majority of crashes result from someone making a poor choice. In the FAST act, Congress provided more tools to combat unsafe driving behavior, including such persistent challenges as impaired and distracted driving.

How many times have you observed the driver in the car next to you texting or looking down at a phone? How often was that car swerving, falling below the speed limit, or worse, speeding toward another car? Sending or reading a text takes your eyes off the road for an average of 5 seconds. At 55 mph, that is like driving the length of an entire football field with your eyes closed. Distracted driving is a prime example of a poor choice that can cause crashes, and the FAST Act is helping us address that through grants to States that enact lifesaving distracted driving laws. In FY 2017, we were able to award 24 grants to States with laws prohibiting texting and 3 grants to States with comprehensive distracted driving laws. These grant funds are available for a variety of safety purposes, including distracted driving enforcement. We look forward to working closely with the States to increase the number of these grants within our available resources in future years as more States enact these important laws.

In addition to the distracted driving grants and priority safety grants in areas such as occupant protection, impaired driving, and motorcyclist safety, the FAST Act added grants to promote pedestrian and bicyclist safety, 24-7 sobriety programs to combat drunk driving, and racial profiling data collection.

Today, technology has a substantial and growing role to play in improving roadway safety with the long-term potential of removing the human factor from the crash equation altogether. There is a good deal of excitement over the potential of automation in vehicles to prevent crashes and save lives. Automated driving systems are capable of addressing the critical cause of over 90 percent of serious crashes: human choices and errors. Secretary Chao has made the review and improvement of the Federal Automated Vehicle Policy a top priority. The Secretary is focused on establishing a framework that supports innovation and the safe testing and deployment of automated driving systems.

Technology has the potential to greatly improve safety as well as the travel experience. However, technology is a double-edged sword. Over the long-term, it promises us an amazing future of safe and convenient mobility, but in the near-term, it poses an immediate threat from every other driver on the road who refuses to put down their phones. Sadly, too many of these drivers are young drivers whose inexperience magnifies the risk to themselves and to those around them.

NHTSA is always looking for creative ways to increase roadway safety and improve driver behavior. With your continued support, our safety campaigns such as 'Click It or Ticket,' 'Drive Sober or Get Pulled Over,' and 'U Text. U Drive. U Pay.' will encourage safe driving choices. These campaigns are changing driver behavior and attitudes for the better.

We also recognize that our mission requires teamwork across all levels of government, the industry and the public. That is why NHTSA, FHWA, and FMCSA joined to support the new Road to Zero Coalition. This Coalition has brought together over 300 organizations to find solutions that will drive motor vehicle deaths back down and create a vision for a future without traffic fatalities. The Road to Zero Coalition is supporting the development of innovative strategies to address the biggest safety challenges, such as impaired driving, speeding, infrastructure and distraction that link behavioral programs with roadway or vehicle objectives to create system-based solutions. The Coalition is also developing a vision describing how redoubled efforts to implement conventional safety measures, together with strategic deployment of new technologies, could drastically reduce traffic deaths. That report is expected to be released by next spring.

Federal Motor Carrier Safety Administration (FMCSA)

FMCSA's mission is to save lives by preventing crashes. As safety is our highest priority, we are deeply concerned by the increase in highway fatalities, including those involving commercial trucks and buses. We must be vigilant in using every tool we have to reduce the number of crashes. This includes 1) conducting data-driven safety compliance and enforcement activities, 2) leveraging safety technologies, 3) ensuring driver qualifications, and 4) expanding partnerships.

Data-Driven Safety Enforcement

Our agency has safety oversight of more than 500,000 motor carrier companies and 5 million active commercial driver's license holders operating across the nation. With limited enforcement resources, FMCSA and our State partners must use a data-driven approach to prioritize motor carriers for investigations and take necessary actions to ensure safe operations. Given the size of our Federal workforce and the very limited resources of our State enforcement partners relative to our regulated population, it is imperative that we apply our resources efficiently. The Agency, therefore, utilizes the Safety Measurement System (SMS), the Agency's algorithm, to identify noncompliant and unsafe companies to prioritize them for enforcement interventions. FMCSA continues to improve SMS to identify those motor carriers that pose the greatest risk to safety. Our responsiveness to industry, safety advocates, oversight agencies and Congress continually prompts new and revised policies, reports, and changes to the SMS.

On July 15, 2014, the Independent Review Team appointed by the Secretary of Transportation issued its report, "Blueprint for Safety Leadership: Aligning Enforcement and Risk[1]" in response to National Transportation Safety Board recommendations H-13-039 and H-13-040. This report included recommendations for improving FMCSA's prioritization systems to identify high risk carriers, concentrating on the quality of FMCSA's compliance and enforcement activities.

[1] "Blueprint for Safety Leadership: Aligning Enforcement and Risk," Independent Review Team (July 15, 2014)

FMCSA took action, and on March 7, 2016[2], announced the adoption of a new High Risk carrier definition aimed at identifying a smaller number of carriers with a higher crash risk than the group of carriers identified under the previous High Risk definition. This new definition identifies the carriers with the worst compliance and safety records and allows FMCSA to promptly conduct investigations on these carriers that pose the greatest crash risk. These carriers identified using the new criteria have a crash rate 3½ times the national average. FMCSA investigates 98 percent of these high-risk carriers within three months of being identified by SMS and takes appropriate action to correct any identified violations. Using funding provided by Congress in the FY 2016 appropriations bill, FMCSA advanced the technology it uses to identify and monitor high risk carriers. New IT tools allow the Agency to monitor in real time the safety data of a large group of motor carriers, to quickly identify those carriers with poor trends in their operation so the Agency can quickly intervene.

In the FAST Act[3], Congress directed the National Academy of Sciences (NAS) to study SMS. On June 27, 2017, NAS published its findings which recommended that FMCSA pursue an Item Response Theory (IRT) model over the next two years. FMCSA is now working with NAS, and will be engaging our stakeholders to implement an action plan that will address all of the NAS recommendations.

In response to the NTSB's recommendation to improve the quality of FMCSA's investigations, FMCSA instituted an Enhanced Investigation Training (EIT) program nationwide. The EIT program has seasoned investigators teach best practices to other federal and State investigators using case studies. In calendar year 2016, FMCSA and its State partners conducted 14,073 investigations[4].

Post-accident reports (PAR) are one data source FMCSA relies on in its enforcement program. The FAST Act[5] required the Agency to convene a working group to examine PAR for tow-away crashes involving commercial motor vehicles and identify best practices for PARs. FMCSA established the PAR Advisory Committee, which is composed of law enforcement members and other safety stakeholders.

Leveraging Safety Technologies

FMCSA encourages the use of crash avoidance technologies, such as automatic emergency brakes (AEBs), which have the potential to save lives and continues to explore opportunities for voluntary deployment of these safety technologies.

In addition to advanced driver assistance technologies, automated driving systems (ADS) hold the promise of harnessing innovations in technology to improve safety. FMCSA has brought together representatives from the trucking industry, state law enforcement, safety advocates, and technology companies for a series of public meetings and listening sessions to discuss the

---

[2] "Notification of Changes to the Definition of a High Risk Motor Carrier and Associated Investigation Procedures." March 7, 2016 (81 FR 11875).
[3] Section 5221
[4] Motor Carrier Safety Progress Report as of March 31, 2017 available at: https://www.fmcsa.dot.gov/content/motor-carrier-safety-progress-report-march-31-2017
[5] Section 5306

oversight of commercial ADS. Last month, we tasked our Motor Carrier Safety Advisory Committee with reviewing ADS and issuing recommendations for what the Agency should consider with respect to granting waivers, exemptions, and initiating pilot programs that would allow for the safe introduction of these and other innovative technologies and operations. FMCSA's goal is to enable the safe operation of ADSs on the nation's transportation system to improve safety and prevent crashes.

MAP-21 included a provision mandating the use of electronic logging devices (ELD) for those CMV drivers who are required to keep a record of duty status under the HOS regulations. FMCSA is preparing to implement its final rule on ELDs this fall. The ELD rule requires CMV drivers who are now required to keep a record of duty status under the HOS regulations to maintain these records electronically. ELDs will automate HOS tracking, making it easier for drivers to log hours and more difficult to conceal violations of the hours-of-service rules by increasing efficiency for law enforcement personnel and safety inspectors. By improving HOS compliance, ELDs are projected to prevent approximately 1,400 crashes, 20 fatalities, and more than 400 injuries each year, with a net economic savings of close to $450 million.

We continue to work closely with the industry and all our stakeholders to implement the ELD final rule. This year, we held roundtables on the technical specifications with vendors and service providers who are developing or selling devices that meet the rule's performance standards.

Additionally, we are holding events to reach out to carriers and drivers to assist them with ELD compliance by connecting them with resources and information to facilitate their transition from paper logs to electronic logs. The first deadline for compliance with the ELD rule required by the Moving Ahead for Progress in the 21st Century Act is approaching rapidly. In five months, in December 2017, handwritten logbooks will not be permitted. However, companies and drivers who use automatic on-board devices that comply with today's regulations will have until December 2019, another two years, to upgrade their systems to ELDs.

The ELD final rule does not change the existing hours of service regulations. Likewise, industries with existing exceptions from the hours of service rules do not have to comply with the ELD rule during exempt operations. This includes many in the farming and agricultural industries. FMCSA is working with the industry to ensure clarity and understanding as it relates to both the ELD and Hours of Service rules, and stands ready to provide any additional assistance that is necessary. We take seriously our responsibility to educate the public and the industry, and have an ongoing series of outreach initiatives to reach as many people as possible.

Ensuring Driver Qualifications

In order to have safe highways we must have safe drivers. To improve driver education, we published the Entry-Level Driver Training final rule[6] last December. This was the product of a negotiated rulemaking in which our stakeholders worked side-by-side with us to formulate minimum training requirements for all new commercial drivers. As part of this rule, by 2020 FMCSA will establish a registry of training schools with appropriate curriculum standards for

[6] The Final Rule also responds to a Congressional mandate imposed under the "Moving Ahead for Progress in the 21st Century Act" (MAP-21) [Section 32304].

classroom and on-road training for truck, motorcoach, school bus, and other drivers who are subject to our regulations. We believe that the consensus standards of this rulemaking will go a long way to raising the bar for safety on our roadways, producing better trained and qualified CMV drivers.

To further prevent crashes, we must ensure that CDL holders are sober and drug-free. We published a Final rule on the Drug and Alcohol Clearinghouse (Clearinghouse) to implement the MAP-21 provision on this subject. The Clearinghouse requires truck and bus companies (and other entities responsible for managing DOT drug and alcohol testing programs) to report verified positive drug and alcohol test results, test refusals, negative return-to-duty test results and follow-up testing. This information would populate the Clearinghouse database with positive drug and alcohol test information on CDL holders. Once the Clearinghouse is fully implemented, employers would be required to conduct pre-employment searches in the repository as part of the hiring process for CDL drivers and annual searches on current employee drivers. The final rule goes into effect in 2020, and FMCSA is working to develop the system.

FMCSA's Medical Review Board (MRB) has examined the use of Schedule II narcotics, including opioids, by commercial motor vehicle operators. The MRB is an FMCSA advisory committee composed of five physicians. It has issued recommendations related to drivers' licit use of Schedule II narcotics, and developed a form to be used by treating clinicians to alert medical examiners on our national registry to possible adverse interactions for drivers using these substances.

It is imperative that a driver cannot operate a commercial motor vehicle unless he or she is medically certified as physically qualified to do so. On May 2014, FMCSA launched full implementation of the National Registry of Certified Medical Examiners (National Registry[7]). As mandated by SAFETEA-LU and MAP-21, the National Registry rule requires all Medical Examiners (ME) who conduct physical examinations and issue medical certifications for interstate CMV drivers to complete training on FMCSA's physical qualification standards, pass a certification test, and demonstrate competence through periodic training and testing. Currently, all CMV drivers who are required to possess a medical certificate must use MEs on the National Registry for their examinations.

As of July 2017, more than 54,700 medical professionals have registered with the National Registry and conducted more than 16.6 million examinations of commercial motor vehicle drivers. The National Registry has been a great success at raising the safety bar and insuring drivers meet medical standards. Drivers can now find MEs throughout the nation who can competently perform their medical examination. In addition, for the first time FMCSA can identify—and has worked with the Office of Inspector General to prosecute—fraudulent medical examiners who have affected thousands of commercial motor vehicle drivers.

Expanding Partnerships

FMCSA works side by side with our state and local law enforcement partners, the commercial motor vehicle industry, safety advocates, and Congress.

[7] https://nationalregistry.fmcsa.dot.gov/NRPublicUI/home.seam

With more than 500,000 motor carrier companies under our jurisdiction, and fewer than 400 federal enforcement personnel, FMCSA relies on its critical partnerships with state and local law enforcement to keep our highways safe. Through our Motor Carrier Safety Assistance Program (MCSAP), more than 13,000 state and local law enforcement personnel become an extension of FMCSA by conducting inspections of commercial motor vehicles as well as motor carriers. In FY 2016, our MCSAP partners conducted 3,184,040 truck roadside inspections.[8]

The FAST Act provided FMCSA with the flexibility to streamline our grant programs so States can maximize their grant dollars and develop commercial motor vehicle programs specifically aligned their state's safety needs. In addition, FMCSA High Priority grant dollars enable States to develop innovative safety projects, such as the Tennessee Highway Patrol's "Teens and Trucks" simulator that uses technology to teach teenage drivers about commercial motor vehicle blind spots and how to safely navigate around large trucks and buses. The CMV Operator Safety Training grant program provides funding to facilitate the transition to civilian careers for military veterans who wish to obtain CDLs.

One of the messages that we have heard from our industry partners and safety advocates is the importance of teaching drivers like you and me how to safely share the road with commercial motor vehicles. As a result, FMCSA has recently announced its Our Roads, Our Safety campaign[9]. This collaboration with our stakeholders at the American Automobile Association, American Bus Association, and the American Trucking Associations, is a multi-media outreach and education program that teaches people how to drive, ride, and walk safely around commercial motor vehicles. Its current focus is on those states with the highest incidence of crashes and fatalities, to provide the opportunity to reach drivers where education and awareness can make the greatest difference.

CONCLUSION

Mr. Chairman, Ranking Member Norton, and Members of the Subcommittee, we must do more to make our roadways safe for the traveling public. Every FHWA, NHTSA, and FMCSA employee, our State partners, and our stakeholders share this solemn commitment to bringing these tragic numbers back down. Together, with your support, we can improve safety for all.

[8] Motor Carrier Safety Progress Report as of March 31, 2017 available at: https://www.fmcsa.dot.gov/content/motor-carrier-safety-progress-report-march-31-2017
[9] https://www.fmcsa.dot.gov/ourroads

House Committee on Transportation and Infrastructure
Subcommittee on Highways and Transit
Hearing entitled, *"FAST Act Implementation: Improving the Safety of the Nation's Roads"*
July 18, 2017
Questions for Walter C. Waidelich, Jr.

Submitted on behalf of Representative Lou Barletta (PA-11)

1. What Department of Transportation and/or Federal Highway Administration (FHWA) programs exist to help states track the performance of road safety equipment? How might the federal government incentivize or support the collection of field incident data by state departments of transportation related to the performance of road safety equipment?

   Response: *As the owners and operators of the roadway system, States are responsible for tracking the in-service performance of the road safety equipment such as guardrails and work zone devices. The FHWA recommends that States monitor the performance of crashworthy roadside safety hardware to assess field performance, considering among other factors installation conditions and maintenance history. The FHWA Office of Safety Research and Development is conducting a pilot In-Service Performance Evaluation (ISPE) of the most widely used energy absorbing guardrail end terminals in the United States. Data are being collected at test sites in four States that have agreed to participate in this pilot study: Massachusetts, Pennsylvania, California, and Missouri.*

   This effort will identify current challenges to conducting effective ISPEs and recommend best practices for: 1) the collection of real-time data on crashes involving roadside safety hardware, 2) interagency communication at the State level regarding crash reporting, and 3) data management regarding guardrail maintenance and inventory.

   The FHWA supports States in their efforts to track the performance of their road safety equipment. The FHWA launched a "microsite" on the agency's website[1] highlighting the ISPE pilot and allowing for State DOTs to share data and findings about in-service performance of roadside hardware.

Submitted on behalf of Ranking Member Peter DeFazio (OR-04)

1. The FAST Act narrowed the definition of a highway safety project and, as a result, states can no longer use their Highway Safety Improvement Program (HSIP) funds for public awareness and education programs and activities. Has FHWA heard from states that this loss of flexibility is a problem? Do you believe this limitation stands to impact safety, and if so, how? In your view, would it be prudent for Congress to revisit this issue and restore the use of HSIP funds for behavioral programs?

[1] https://safety.fhwa.dot.gov/roadway_dept/countermeasures/reduce_crash_severity/guardrail_ispe.cfm.

Response: *Numerous States have expressed concern to FHWA about the loss of eligibility for spending HSIP funds on public awareness and education programs and activities. States have noted that this change limits their abilities to address the priorities identified in their Strategic Highway Safety Plans, as required under the HSIP. The FHWA recognizes that States cannot engineer their way to safer roads alone, and the loss of this flexibility to address Strategic Highway Safety Plan priorities could weaken the effectiveness of these plans and this program over time. Coordination across the four "Es" of safety (engineering, education, enforcement, and emergency medical services) is necessary to achieve our vision of zero fatalities on our nation's roadways.*

2. Section 1404 of the FAST Act provides flexibility in project design to local jurisdictions that are direct recipients of federal funds. This section permits localities to use alternatives to state design publications for projects on the National Highway System, in order to "right size" the design, engineering, and construction of projects to a community's preferences, budget, and goals.

   In order for a locality to utilize an alternate design publication, the publication must be recognized by FHWA. To date, FHWA has only approved alternate guides that are applicable to the design of bicycle and pedestrian facilities, limiting the potential use of this flexibility to only a small class of projects.

   I was a strong supporter of including this language in the FAST Act, and I am eager to see communities utilize this flexibility far more broadly than current guidance seems to permit. Has FHWA received requests to review and approve additional road design publications from states and localities? Is FHWA currently evaluating additional publications? Can you elaborate on other classes of projects that would be good candidates to utilize design flexibility? Do you believe more localities would utilize the flexibility if they were not limited to projects for which they received federal funds directly?

   Response: *The FHWA is not aware of any requests to use such design flexibility, nor are we evaluating any additional publications at this time.*

   The FHWA promotes design flexibility on all roadways. Projects on urban and suburban streets and in rural towns are often good candidates for applying design flexibility, consistent with the context of the project. The AASHTO Green Book or the approved alternate guides you noted provide considerable design flexibility to local jurisdictions. We do not believe that the limited scope of the approved alternative design standards has prevented local jurisdictions from being more flexible in their design.

   The AASHTO Green Book is continually evolving (a 2018 version is near completion) to address more complete and context-sensitive design solutions. The FHWA is working with AASHTO to educate transportation practitioners about these design flexibilities by jointly providing education, training, and technical assistance. In

addition, for highways with posted speed limits below 50 mph, FHWA revised its 13 Controlling Criteria policy to 2 controlling criteria, providing considerable flexibility in the development of solutions designed to fit a community's preference, budget, and goals. Also, for non-NHS roadways, States can allow a local jurisdiction to use alternative design standards that may more effectively meet local needs.

The FHWA is not aware of any concerns raised by local jurisdictions or States regarding the specific requirements or the implementation of Section 1404. We continue to advance our programs to promote performance-based practical design and design flexibility to address the needs of all highway users in a manner that is cost effective and context sensitive.

Submitted by Ranking Member DeFazio (OR-04) on behalf of Representative John Garamendi (CA-03)

1. The core mission of the FHWA is to support state and local governments in the design, construction and maintenance of the Nation's highway system. One aspect of safe highway transportation is proper maintenance. A number of motorists are injured each year due to issues associated with improper roadway maintenance. I've learned recently that, for example, the timeliness of guardrail repair is left up to each State Department of Transportation, and that each state must develop its own guidance for when to make repairs. The FHWA policy states that it "cannot recommend a specific response time." In your opinion, what tools or resources could Congress provide to states, to improve their repair response times, and to FHWA, to induce a more definitive response time?

   Response: *The Federal-aid Highway Program is a federally-assisted, State administered program and as such, it is important that State DOTs maintain the flexibility to develop their own guidance and procedures for repair and/or replacement of roadside safety hardware. The FHWA has worked with States to review and, if necessary, update policies, procedures, standards, and guidelines relative to the selection, installation, maintenance, and in-service evaluations of crashworthy roadside safety hardware on their roadways.*

   There are numerous FHWA efforts to assist States in developing and implementing effective policies and procedures for the installation, maintenance, and repair/replacement of roadside safety hardware devices. The FHWA Policy and Guidance Center[2] catalogues memos, guidance documents and other information on roadside hardware. In May, FHWA launched a "microsite" on the agency's website[3] to provide a central resource for information about guardrails and other roadside safety hardware. The new page is the latest in an ongoing effort to emphasize the importance of, and improve accessibility to, State guardrail data–including preliminary data from an In-Service Performance Evaluation (ISPE) pilot program. Additionally,

[2] https://www.fhwa.dot.gov/pgc/index.cfm?ddisc=39&dsub=1330.
[3] https://safety.fhwa.dot.gov/roadway_dept/countermeasures/reduce_crash_severity/guardrail_ispe.cfm.

FHWA offers various training courses. For example, the National Highway Institute (NHI) provides training on AASHTO's Roadside Design Guide, which provides guidance on installation and maintenance of roadside safety hardware. This training is offered multiple times during the calendar year. Further, FHWA's Office of Safety provides State-specific training and materials directly related to barrier selection, design, installation, inspection and maintenance. The Office of Safety also offers technical briefs which cover issues related to design, installation, and maintenance; a Roadside Safety Pocket Guide; Barrier Design Chart and Inspection Checklist; and Train-the-Mentor Training.

2. What, if any, federal certification or training is required of contractors who are responsible for the maintenance and repair of our Nation's highways? For example, a company that is hired by my state of California to install guard rails, what training would its employees need to undergo or tests would they need to pass in order to properly complete the work? Are there any federal standards that govern the training of these types of contractors? In your opinion, would states benefit from additional federal standards for training for these types of contractors?

Response: *There are no Federal requirements for certification or training of personnel involved with installing and maintaining roadside safety hardware. State DOTs typically rely on contract specifications and drawings as well as manufacturer instructions to ensure the proper installation of devices. Additionally, many States have created agency manuals or guidance for their staff on the maintenance of roadside hardware. Through its partnership with AASHTO, FHWA continues to provide technical assistance and training on a national level and encourages States to develop standard procedures to ensure the proper installation and maintenance of roadside hardware.*

The FHWA is implementing Guard Rail Safety Training identified in FAST Act §1417 by delivering a comprehensive program incorporating in-person and online training on the design, installation, and maintenance of roadside safety barriers, including guardrails, terminals, transitions, and crash cushions. Elements of this program can be customized to the specific hardware devices used in each State. The FHWA is also developing technical briefs, pocket guides, checklists, and other resources to support State efforts to train personnel involved with installing and maintaining roadside safety hardware.

Submitted on behalf of Representative Elijah Cummings (MD-07)

1. Do you collect any data assessing whether public school systems are conducting adequate oversight of contract school bus companies and drivers or have you otherwise investigated this issue? If so, what do the data show or what have you discovered about the adequacy of public school systems' oversight over contract school bus companies and drivers?

Response: *[NHTSA draft response; parroted in their QFRs] Neither FHWA nor NHTSA collect data assessing whether public school systems are conducting adequate oversight of contract school bus companies and drivers, and they have not investigated this issue.*

Submitted on behalf of Representative Daniel Lipinski (IL-03)

1. The purpose of the HSIP is to reduce traffic fatalities and serious injuries on public roads. It is a critically important part of the Federal Aid Highway Program. What role do you believe HSIP should play in any infrastructure investment legislation that the Committee may work on during this Congress? How can we work to prioritize roadway safety infrastructure projects in a way that will achieve HSIP goals?

Response: *Safety remains the Department's number one priority. The HSIP is a long-standing program that requires a data-driven, strategic approach to improving highway safety* ***on all public roads*** *that focuses on performance. This proven approach to identifying, selecting, and prioritizing highway safety improvement projects has enabled States to easily transition to a performance based safety program. States have processes in place for establishing priorities for implementing highway safety improvement projects that consider:*

(i) the priorities in their respective Strategic Highway Safety Plan;
(ii) the potential reduction in fatalities and serious injuries; and
(iii) the cost effectiveness of the projects and the resources available.

Given the advances in the science of safety, FHWA and NHTSA can quantify safety in a way that enables States to deliver the most cost effective program of highway safety improvement projects and achieve HSIP goals, as well as consider the safety impacts of all project decisions. Any future infrastructure legislation should reinforce these data-driven principles to prioritize roadway safety infrastructure projects and maximize opportunities to advance highway safety improvement projects that have the greatest potential to reduce roadway fatalities and serious injuries on all public roads.

Responses to Questions for the Record
Mrs. Daphne Y. Jefferson
Deputy Administrator
Federal Motor Carrier Safety Administration
House Committee on Transportation and Infrastructure
Subcommittee on Highways and Transit
Hearing entitled, *"FAST Act Implementation: Improving the Safety of the Nation's Roads"*
July 18, 2017

Submitted on behalf of Chairman Sam Graves (MO-06)

1. Please provide the Committee with an update on the implementation of Section 5306 of the FAST Act.

Response: *As directed by Section 5306 of the FAST Act, the Secretary convened an Advisory Committee to: 1) review the data elements of post-accident reports, for tow-away accidents involving commercial motor vehicles that are reported to the Federal government; and 2) to report to the Secretary its findings and any recommendations. The Advisory Committee met in December 2016 and April 2017 to review current state crash data collection and reporting practices and develop recommendations for improvements. The Committee's recommendations reported to the Secretary include:*

- *FMCSA should modify its data systems to be able to receive from States all Minimum Model Uniform Crash Criteria (MMUCC) data that States are able to provide;*
- *FMCSA should commit to using all data it receives to learn about crashes to ensure its collection is worth the risk by State and local law enforcement; and*
- *FMCSA should work with NHTSA and other stakeholders to evaluate how FMCSA can align the data systems with MMUCC data elements.*

Further information on the Committee members, meeting minutes, and recommendations is available at https://www.fmcsa.dot.gov/advisory-committees/par/welcome-fmcsa-par. In August 2017, the National Highway Traffic Safety Administration (NHTSA), in collaboration with the Governors Highway Safety Association, released Version 5 of Minimum Model Uniform Crash Criteria guidance https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/812433. In response to the Committee's recommendations, FMCSA will review its current crash data reporting requirements to identify those that need modification to facilitate the model criteria. FMCSA will identify its Information Technology requirements to accept State level crash data submitted in accordance with the MMUCC guidance. FMCSA plans to reach out to our State partners to help assess their capacity to meet the MMUCC guidance relating to commercial motor vehicles and provide technical assistance as appropriate. FMCSA is also working with NHTSA to identify ways in which our data can better align with the MMUCC data elements. FMCSA participated in the MMUCC update which included a new Large Vehicle and Hazardous Materials section, addressing specific data recommendation from the Post-Accident Report (PAR) Review Committee.

Submitted on behalf of Ranking Member Peter DeFazio (OR-04)

1. As part of MAP-21, Congress required FMCSA to develop rules that prevent employers, shippers, receivers, or transportation intermediaries from forcing drivers to violate federal safety regulations, including federal hours of service limits. Federal Motor Carrier Safety Administration (FMCSA) finalized its "coercion rule" to implement this MAP-21 requirement in November 2015. Violations of that rule are subject to civil penalties of up to approximately $15,000 under 49 C.F.R. Part 386.

Since the coercion rule was finalized more than 18 months ago, has the Secretary of Transportation levied any civil penalties on employers, shippers, receivers, or transportation intermediaries for violation of the coercion rule? If so, please list the entities that have been fined for violating the coercion rule and the amount of the fines that have been levied. If not, please explain why this important tool to promote the safe operation of commercial vehicles has not been used by FMCSA.

Response: *Since the publication of the Final Rule Prohibiting Coercion of Commercial Motor Vehicle Drivers went into effect on January 29, 2016, FMCSA has received 621 coercion complaints. Of these;*

- *431 were unable to be substantiated sufficiently to pursue an investigation regarding coercion.*
- *35 investigations were conducted*
    - *One carrier, EKAM Truck Line, LLC (USDOT 2447705), which is domiciled in Georgia, being fined $14,500 for a violation of 390.6, which specifically prohibits coercion.*
    - *The remaining 34 investigations resulted in findings of violations other than coercion against the subject of the complaint, but FMCSA did not find sufficient evidence to substantiate violations of coercion.*
- *155 coercion complaint investigations pending.*

While enforcement of the coercion rule is still in its infancy, FMCSA feels this rule is important component of the regulatory framework designed to protect the truck or bus driver, as well as ensuring that our roadways remains safe. The Agency will continue to address the complaints it receives and will work aggressively to ensure compliance.

Submitted on behalf of Representative Lou Barletta (PA-11)

1. Last year the number of fatalities on U.S. roads exceeded 40,000, a 14 percent increase since 2014. This number is much too high and the increase is very troubling. I recognize that state budgets are stretched thin, and that there is sometimes not enough funding to support all of the safety programs a state would like to support. What programs under FMCSA's jurisdiction could be better supported to help states improve highway safety?

Response: *Safety is the number one priority for the U.S. Department of Transportation and the number of fatalities occurring on our Nation's highways is a major concern of the Secretary of Transportation and the Federal Motor Carrier Safety Administration (FMCSA). FMCSA's various grant programs to our State law enforcement and highway safety partners support our*

mission of reducing crashes, injuries and fatalities involving CMVs. With the passage of the Fixing America's Surface Transportation (FAST) Act, Congress provided much needed improvements to our grant programs, consolidating nine distinct programs into four core financial assistance measures and reducing administrative burdens on States.

With the passage of the FAST Act, FMCSA now has three primary grant programs that directly relate to crash and injury reduction – the Motor Carrier Safety Assistance Program (MCSAP), the High Priority (HP), and the Commercial Driver's License Program Implementation (CDLPI) Grant Programs. The fourth grant program, Commercial Motor Vehicle Operator Safety Training, provides financial assistance to organizations, including accredited public or private colleges, universities, vocational-technical schools, post-secondary educational institutions, truck driver training schools, associations, and State and local governments, that provide CMV operator training to veterans and their families.

The MCSAP Grant Program provides formula grant funds directly to State law enforcement and highway agencies engaged in enforcement of Federal CMV safety requirements, State traffic laws and public education and outreach. These actions have proven to be directly linked to reductions in crashes involving CMVs.[1] *The FMCSA released more than $168 million in fiscal year (FY) 2016, and approximately $288 million in FY 2017 through the MCSAP grant to States and US Territories.*

In addition to MCSAP, the HP Grant Program also provides financial support to States, local law enforcement agencies and other eligible entities engaged in high-impact and targeted CMV safety projects. These projects include investments in enhanced safety information systems, educational programs, traffic enforcement in high crash corridors, CMV safety inspections and other innovative safety interventions. The FMCSA issued $15 million in FY 2016, and over $41 million in FY 2017 under the HP grant.

While the FAST Act increased the amount of financial assistance the FMCSA can provide to States starting in FY 2017, applications for funding continue to outpace the amount available. For example, in FY 2016, FMCSA received 56 applications requesting more than $24 million (total grant funds available $15 million). In FY 2017, 100 applications were submitted to FMCSA requesting approximately $73.7 million (total grant funds available $41.6 Million). FMCSA continues to actively partner with its grantees to ensure that public safety priorities are actively addressed with available grant funds.

The third grant program that directly relates to crash and injury reduction is the Agency's CDLPI Grant Program. The CDLPI grant program also provides financial to States and other entities to comply with the requirements of the CDL regulations; to improve the State's implementation of its commercial driver's license program; and, for research, development and testing, demonstration projects, public education, and other special activities and projects

[1] FMCSA has two studies showing the effectiveness of the activities funded by the MCSAP program to be effective in reducing CMV crashes. See https://ai.fmcsa.dot.gov/pe/PEReport.aspx?rp=imNat for information on the effectiveness of roadside interventions such as inspections and traffic enforcement and https://ai.fmcsa.dot.gov/pe/PEReport.aspx?rp=ciem for information about the effectiveness of carrier interventions such as on-site and off-site company investigations.

relating to commercial driver's licensing. FMCSA awarded $30.0 million in FY 2016, and expects to award approximately $31 million in FY 2017.

Much like the HP Grant Program, requests for funding under CDLPI continue to outpace the amount available. In FY 2016, FMCSA received 61 applications totaling more than $52 million in requests (total grant funds available $30 million) and in FY 2017, 55 applications, totaling more than $47 million, were received (total grant funds available $31.2 million).

Submitted on behalf of Representative Elijah Cummings (MD-07)

1. Do you collect any data assessing whether public school systems are conducting adequate oversight of contract school bus companies and drivers or have you otherwise investigated this issue? If so, what do the data show or what have you discovered about the adequacy of public school systems' oversight over contract school bus companies and drivers?

Response: *No. Most school bus operations are not subject to FMCSA's jurisdiction and therefore FMCSA has little data or oversight of these operations. Contract school bus companies are excepted from the Federal Motor Carrier Safety Regulations (FMCSRs) during the transportation of students from home to school and school to home (49 CFR § 390.3(f)(1)) and monitoring public school system oversight of these companies is beyond FMCSA's authority. However, recently the Government Accountability Office completed a study regarding the oversight of school bus operations. It is online at http://www.gao.gov/assets/690/682077.pdf.*

It is important to note that, if a non-governmental motor carrier transports school children in interstate commerce, other than from home to school and from school to home they are subject to the applicable provisions of the FMCSRs and FMCSA has jurisdiction. Those companies are monitored by the Agency and investigated when data indicates a safety or compliance problem.

In addition, school bus drivers are always required to have a Commercial Driver's License, are subject to the Drug and Alcohol Testing regulations, and are subject to the prohibition from texting and/or using a hand-held mobile telephone when operating a CMV, except when communicating with law enforcement or other emergency services, including home to school and school to home operations.

All 50 States require school bus inspections and many States require refresher training for school bus drivers. The requirements vary by State for school bus inspections, driver training, and vehicles. Although we have limited oversight authority, FMCSA works closely with our State and local safety partners in this area. Additionally, FMCSA works with the National Highway Traffic Safety Administration (NHTSA), State and local officials and multiple school bus industry associations including the National School Transportation Association, National Association of Pupil Transportation, and National Association of State Directors of Pupil Transportation on school bus related safety issues. In December 2016, we participated in NHTSA's school bus event "Think Outside the Bus" to discuss strategies addressing passenger cars passing school buses stopped to load and unload students.

Submitted on behalf of Representative Alan Lowenthal (CA-47)

1. I represent the 47th district of California. A Ninth Circuit Court decision regarding the applicability of California's meal and rest break law to local appliance delivery drivers in my state has become a hotly debated issue in Congress. Large trucking companies, represented by the American Trucking Associations, are seeking a change in federal pre-emption law - known for short as "F4A" -which they describe as a mere clarification of longstanding law that they claim a rogue Ninth Circuit decision upended.

It is my understanding that the U.S. Department of Transportation has weighed in on this issue on two occasions: (1) in 2008, in response to a petition filed by a group of 11 trucking companies to seek administrative pre-emption of California meal and rest break laws; and (2) in 2014, when the Department filed an amicus brief at the request of the Court in the Ninth Circuit case.

In the first instance, FMCSA rejected the petition of the motor carriers to grant pre-emption from California meal and rest break laws, because such rules "are not 'regulations on commercial motor vehicle safety', and the agency has no authority to preempt them."

In the second instance, the U.S. Department of Transportation brief argued the case to uphold the applicability of California's meal and rest break laws, citing precedent for this position and making the argument that there is a presumption against pre-emption in areas of traditional state "police power" or control, and that labor laws are an area of traditional state control.

I agree with DOT's previous stance and that wage and hour protections for all California workers should be upheld.

Can you confirm that FMCSA and the Department of Transportation did in fact weigh in by rejecting a pre-emption request by motor carriers, and submitted a legal brief to argue the case against pre-emption of California's meal and rest break laws?

Can you confirm that the Department's first action occurred nearly 10 years ago, long before the case in the Ninth Circuit was a factor?

Response: *In 2008, the Federal Motor Carrier Safety Administration (FMCSA) rejected a petition filed pursuant to 49 U.S.C. 31141(c) for preemption of the California meal and rest break rules on the ground that those "rules are not 'regulations on commercial motor vehicle safety,'" the precondition for FMCSA's preemption authority under section 31141 [73 FR 79204, 79206, December 24, 2008]. On February 18, 2014, the Civil Division of the U.S. Department of Justice filed a brief as amicus curiae in the case subsequently decided as Dilts v. Penske Logistics, LLC, 769 F.3d 637 (9th Cir. 2014). The Government's amicus brief argued that the California meal and rest break requirements are not preempted by Federal law.*

FMCSA rejected the initial preemption petition on December 24, 2008 [73 FR 79204].

Responses to Questions for the Record
Mr. Jack Danielson
Acting Deputy Administrator
National Highway Traffic Safety Administration
House Committee on Transportation and Infrastructure
Subcommittee on Highways and Transit
Hearing entitled, *"FAST Act Implementation: Improving the Safety of the Nation's Roads"*
July 18, 2017

Chairman Sam Graves (M0-06):

1. Please provide the Committee with an update on National Highway Traffic Safety Administration's efforts to implement the Highway Safety Grant Programs of Chapter 4 of title 23, United States Code and how the public comments on the Interim Finals Rules will be addressed.

   Response: *NHTSA published the Interim Final Rule implementing the highway safety grant programs on May 23, 2016. The agency received public comments from States and other stakeholders. Our goal is to address those comments in a Final Rule with enough lead time to incorporate changes before the next State highway safety plans are due.*

Congressman Elijah Cummings (MD-07):

1. Do you collect any data assessing whether public school systems are conducting adequate oversight of contract school bus companies and drivers or have you otherwise investigated this issue? If so, what do the data show or what have you discovered about the adequacy of public school systems' oversight over contract school bus companies and drivers?

   Response: *NHTSA does not collect data assessing whether public school systems are conducting adequate oversight of contract school bus companies and drivers, and we have not investigated this issue.*

Congressman Garret Graves (LA-06):

1. The FAST Act contains three tire-related provisions for which rulemakings are required: tire performance standards for rolling resistance and wet traction; mandatory tire registration by tire sellers at point of sale; and a tire recall lookup tool on NHTSA's web site. What is the timetable for implementing each of these rulemakings?

   Response: *NHTSA is working to implement the FAST Act tire mandates. Specifically:*

- *Tire Fuel Efficiency and Wet Grip Minimum Performance Standards: The FAST Act requires NHTSA to conduct testing to benchmark the wet traction performance of tire models and to use the benchmarking study to establish the wet traction standard. NHTSA has recently completed the data collection phase of the benchmarking study and plans to complete the analysis of the data by the end of 2017.*

- *Tire Registration by Independent Sellers: The FAST Act requires NHTSA to examine the feasibility of requiring all manufacturers of tires to include electronic identification on every tire that reflects all the information currently required in the tire identification number and to ensure that the same type and format of electronic information technology is used on all tires. The study will also explore technologies for tire identification that may help streamline tire registration. NHTSA's next steps and a target completion date requiring tire registration by independent sellers will be determined after completing the tire identification study and report. NHTSA is working to complete the study by the Fall of 2018.*

- *Tire Recall Database: NHTSA expects to complete a study of options for establishing a publicly available and searchable electronic database of tire recall information by the Fall of 2018. This study will inform NHTSA's next steps.*

Congressman Daniel Lipinski (IL-03):

1. The purpose of the Highway Safety Improvement Program (HSIP) is to reduce traffic fatalities and serious injuries on public roads. It is a critically important part of the Federal Aid Highway Program. What role do you believe HSIP should play in any infrastructure investment legislation that the Committee may work on during this Congress? How can we work to prioritize roadway safety infrastructure projects in a way that will achieve HSIP goals?

   Response (provided by FHWA witness Walter C. Waidelich, Jr.): *Given the advances in the science of safety, FHWA and NHTSA can quantify safety in a way that enables States to deliver the most cost effective program of highway safety improvement projects and achieve HSIP goals, as well as consider the safety impacts of all project decisions. Any future infrastructure legislation should reinforce these data-driven principles to prioritize roadway safety infrastructure projects and maximize opportunities to advance highway safety improvement projects that have the greatest potential to reduce roadway fatalities and serious injuries on all public roads.*

Testimony of

The Honorable T. Bella Dinh-Zarr
Board Member
National Transportation Safety Board

Before the

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

— On —

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

—

Washington, DC • July 18, 2017

NTSB | National Transportation Safety Board

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

---

[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

---

[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.

---

[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]

---

[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]

---

[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

---

[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.

"FAST Act Implementation: Improving the Safety of the Nation's Roads."
Subcommittee on Highways and Transit Hearing
Tuesday, July 18, 2017, 10:00 a.m.
2167 Rayburn House Office Building
Washington, D.C.

Questions for the Record

Submitted on behalf of Chairman Sam Graves (MO-06)

1. As part of the recommendations the agency makes following an investigation, does the National Transportation Safety Board (NTSB) ever consider additional roadway safety infrastructure countermeasures? If so, could NTSB please provide the Committee with examples of such instances?

The NTSB evaluates the roadway infrastructure in every investigation. This evaluation is a critical part of our work and as a result, we have specialists dedicated to infrastructure safety on all our investigative teams. NTSB issues safety recommendations to agencies or associations within the highway community as its primary method to improve transportation safety. NTSB safety recommendations have been responsible for the development of numerous programs and process improvements; many of which resulted in safety improvements to the infrastructure of the nation's highway system.

In addition to making recommendations, the NTSB has worked closely with stakeholders to develop and disseminate safety alerts used to raise awareness of transportation issues. For example, in May 2013 a span of the Interstate 5 bridge over the Skagit river in Mount Vernon, Washington, collapsed into the river after being struck by a vehicle's oversize load. Following our investigation into this incident, and the Board's resulting safety recommendations, we became aware of another instance where a vehicle transporting an oversize load struck a bridge in Salado, Texas and the crash resulted in the collapse of the bridge onto the interstate. In this case, through our investigation and interaction with the state department of transportation we distributed a safety alert to increase the awareness of companies in the trucking industry that routinely engage in transporting oversize loads. In a more recent example, the NTSB has been working closely with the Federal Highway Administration's Office of Infrastructure to address issues from the Interstate 85 bridge fire and collapse in Atlanta, GA that occurred in March of this year.

The NTSB does not limit our involvement of infrastructure improvements to only bridges and structures, as our mission is to improve highway safety at all levels. In March of this year, the

NTSB made safety recommendations resulting from a 2016 crash, which occurred in San Jose, CA, where a motorcoach driver was misguided by the available signs and highway queues and collided with a crash attenuator in a gore area of US Highway 101. In this case, the NTSB made recommendations to both the state department of transportation and the Federal Highway Administration seeking improvements to highway markings, informational signs, and maintenance practices.

While our process for improving safety doesn't necessarily incorporate the direct use of "counter measures", experience has shown that by working with other federal agencies and stakeholders, we can implement changes resulting in safety improvements to the highway infrastructure.

Submitted on behalf of Representative Elijah Cummings (MD-07)

1. What is the status of the recommendations the NTSB issued to the Baltimore City Public School system and Maryland State Department of Education in April? Are the recommendations being implemented in a timely manner? Is implementation adequate to ensure that the issues identified by the NTSB are completely addressed?

We have received initial responses from both Baltimore City Public Schools and the Maryland State Department of Education. As a result, the status of all three recommendations is currently "Open – Initial Response Received." Baltimore City Public Schools informed us that it has requested the Maryland State Department of Education to select an auditor to review and recommend improvements to ensure that all its school bus drivers meet qualification standards under the Code of Maryland Regulations (COMAR). The Maryland State Department of Education informed us that it is currently reviewing COMAR to clarify definitions and reporting of disqualifying conditions for school bus drivers. The Department further informed us that it has presented our recommendation report to all state Directors of Pupil Transportation, convened a task force, and is moving forward with changes proposed by the task force. It also reported that training will be held and an updated form will be provided to clarify when an individual who is seeking employment should be added to the state's disqualified driver database. Both responses were received in June of this year, about 2 months after the recommendations were issued. The full intent of the recommendations has not yet been met, but we believe that implementation is underway.

2. Recognizing that another school year is about to start, are any actions (other than those identified by the NTSB in April) needed to ensure the safety of Baltimore City students and of motorists on city roads in the coming school year?

As Baltimore prepares for the coming school year it, like other school districts, should make transportation safety a priority. At a minimum, it should ensure that all its school bus drivers are in compliance with the criteria laid out in COMAR. But safety is much broader than just what is found in regulations. Safety managers within the school districts and at the contracted transportation providers must ensure that drivers are reporting to duty healthy and well rested, and remain free from impairment and distractions.

3. Do you collect any data assessing whether public school systems are conducting adequate oversight of contract school bus companies and drivers or have you otherwise investigated this issue? If so, what do the data show or what have you discovered about the adequacy of public school systems' oversight over contract school bus companies and drivers?

While the NTSB does not collect data to assess whether public school systems are conducting adequate oversight of contract school bus companies and drivers, the Board is currently investigating two school bus crashes that occurred in November 2016, in Baltimore, Maryland and Chattanooga, Tennessee, involving school transportation by contracted providers. The NTSB is examining the adequacy of these motor carrier's operations and the level of safety oversight by the state, district and local school systems as part of our investigations. What the NTSB has discovered so far, and what research has shown, is that contracts between the private school transportation providers and the public school systems vary widely in scope on what services are provided, and how the public school systems engage in oversight of the contracted provider's daily operations. Pupil transportation nationally is influenced by Federal law for certain portions of safety concerning vehicle, driver and motor carrier operations; however, individual state and local government laws and regulations also have an impact on school transportation safety regardless of whether the provider is a public school system or a private contractor. Our review of the available data is on-going.

National Transportation Safety Board

Highway Accident Brief

Passenger Vehicle/School Bus Collision and Roadway Departure

Accident Number:	HWY15FH010
Accident Type:	Passenger vehicle/school bus collision and roadway departure
Location:	Eastbound Interstate 610 (I-610) overpass above Telephone Road, Houston, Harris County, Texas
Date and Time:	September 15, 2015; about 7:03 a.m.
Vehicles:	47-passenger 2009 International school bus 2004 Buick LeSabre passenger vehicle
Fatalities:	2
Injuries:	3

Crash Description

On Tuesday, September 15, 2015, about 7:03 a.m. local time, a 47-passenger 2009 International school bus, operated by the Houston Independent School District (HISD) and occupied by a 44-year-old female driver and four HISD students aged 14 to 17, was traveling eastbound on South Loop East Freeway (I-610) in lane 3 of the four-lane limited access highway at an estimated speed of 55 mph.[1] The school bus had entered eastbound I-610 at South Wayside Drive and was en route to Furr High School. (See figure 1.) After traveling approximately 1 mile on eastbound I-610, the school bus approached the overpass above Telephone Road. About the same time, a 2004 Buick LeSabre passenger vehicle, driven by a 29-year-old female, was traveling eastbound in lane 2 on I-610 at an estimated speed of 69 mph.[2] As the Buick overtook the school bus, it departed lane 2 to the right and collided with the school bus in lane 3. The Buick struck the school bus near the bus's left front wheel. The school bus moved to the right, departed lane 3, traversed lane 4 and the right shoulder, and struck the bridge rail at an approximate 28-degree angle.[3] The bus overrode the concrete portion of the bridge rail and breached the metal railing along the top of the concrete parapet, leaving an approximately

[1] (a) For the purposes of this brief, the four eastbound lanes are considered lanes 1 through 4, with the leftmost lane in the direction of travel being lane 1 and the rightmost lane being lane 4. (b) The 55-mph speed estimate for the school bus was determined through an NTSB analysis of the HISD school bus video.

[2] The 69-mph speed estimate for the Buick LeSabre was determined through an NTSB analysis of the HISD school bus video.

[3] (a) The bridge rail was described as a Type C4 (modified) railing. (b) The 28-degree angle is turned from a line parallel with the bridge rail to a line parallel with the tire friction marks. The tire friction marks left by the HISD school bus were found on the right shoulder.

3-foot-long opening in the metal rail, before falling approximately 21 feet onto Telephone Road. The bus came to rest on its left side facing westward on the east side of Telephone Road. The Buick came to rest on the right shoulder of I-610 beyond the overpass.

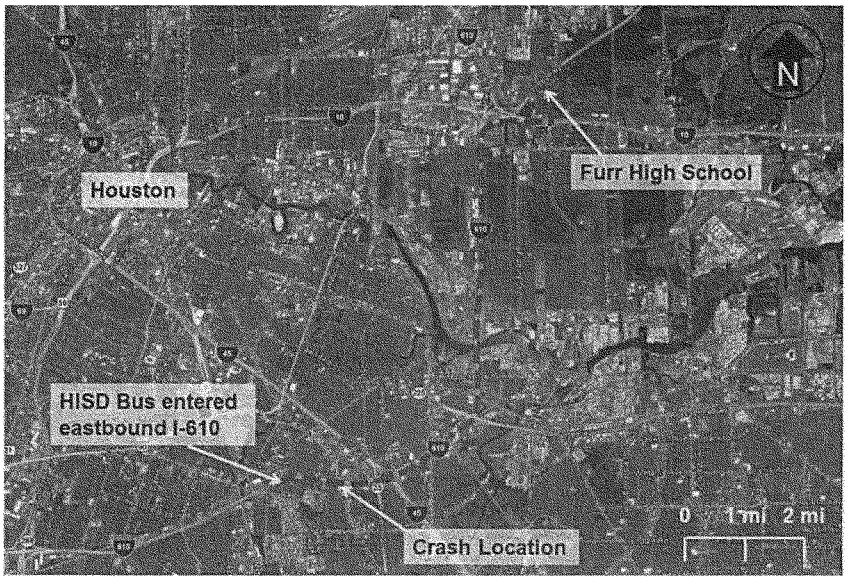


Figure 1. Route of HISD school bus (Source: Google Earth modified)

As a result of the crash, two student passengers on the bus died, and the remaining two students received serious injuries. The driver of the HISD school bus received serious injuries. The driver of the Buick was not injured.

The weather was clear, there was no precipitation at the time of the crash, and the road surface was dry. Winds were reported light, at 4 mph. Civil twilight began at 6:42 a.m., and sunrise occurred at 7:06 a.m. At the time of the crash, the sun was approximately 1.5 degrees below the horizon.

Highway Information

The crash occurred on the eastbound I-610 overpass above Telephone Road near mile marker 33 in Houston. The crash site is about 6 miles southeast of downtown Houston. Eastbound I-610 consists of four travel lanes and left and right paved shoulders. The total width of the four travel lanes is approximately 51 feet, and the total width of the left and right paved shoulders is approximately 17 feet. The posted speed limit for eastbound I-610 in the vicinity of

the crash is 60 mph. On October 27, 2015, the Texas Department of Transportation (TxDOT) Houston District conducted a 24-hour traffic count in the vicinity of the crash that revealed that 72,338 vehicles traveled on eastbound I-610, including 66,928 (92.5 percent) passenger cars and other two-axle, four-tire, single-unit vehicles; 5,104 (7 percent) heavy vehicles; 184 (0.3 percent) buses; and 122 (0.2 percent) motorcycles.[4] The TxDOT Houston District conducted a speed study on October 21, 2015, on eastbound I-610 in the vicinity of the crash that revealed an 85th percentile speed of 64 mph.[5] According to the TxDOT Houston District, from 2010 to 2015, one fatal crash occurred in the vicinity on December 14, 2012, which involved a vehicle overturning while traveling westbound on I-610.[6]

Figure 2 is a crash scene diagram showing the following features of this crash: approximate area of impact between the Buick LeSabre and the HISD school bus; approximate point of the school bus's impact with the bridge rail; and final rest positions of the school bus and the Buick.

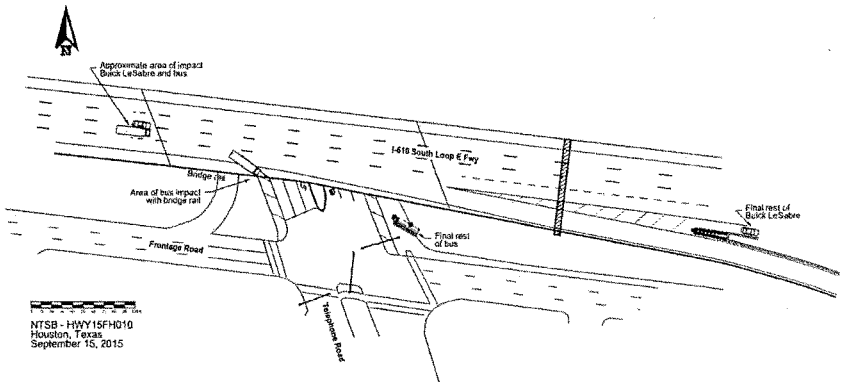


Figure 2. Diagram showing the crash events that involved the school bus (in yellow) and Buick LeSabre.

[4] Heavy vehicles are considered Class 5 (two-axle, six-tire, single-unit trucks) through Class 13 (seven or more axle multi-trailer trucks).

[5] The 85th percentile speed is the speed at which 85 percent of the vehicle traffic is traveling either at or below.

[6] According to TxDOT, a contributing cause to the 2012 crash was the driver's failure to drive in a single lane due to the influence of alcohol or drugs.

Bridge Rail Information

The I-610 overpass above Telephone Road was constructed in 1970, and it consisted of four spans. The Type C4 (modified) bridge railing consisted of a 1-foot 6-inch high concrete parapet with metal posts and rail, which brought the total design height to 3 feet. A 3-inch bonded overlay had been applied to the bridge deck in 1987, reducing the effective height of the concrete parapet to 1 foot 3 inches and the total bridge rail height to 2 feet 9 inches.

The typical spacing of the metal rail posts was 10 feet. The rail posts were attached to the concrete parapets via base plates with slotted holes; they were anchored using U-bolts attached by hexagonal nuts and steel washers. The posts were seated on elastomeric pads; in some locations, only one pad was used, but in others, up to three pads were used.[7] The design plans required that all the metal components of the rail be galvanized, including the anchor bolts.

National Transportation Safety Board (NTSB) investigators requested an official interpretation of the Type C4 (modified) bridge railing by the Federal Highway Administration (FHWA) Office of Safety in terms of its acceptance on the National Highway System. The FHWA's response was documented in an e-mail to NTSB investigators (dated November 6, 2015):

> As the subject bridge was built in 1970, the railings were expected to be designed in conformance with the then-current AASHTO [American Association of State Highway and Transportation Officials] bridge specifications. Though there was no requirement of bridge railing full-scale crash-testing, this design procedure only considered horizontal loads on the rails applied at various lengths and elevations to produce a railing with adequate strength to withstand those loads. In 1986, FHWA policy was changed to state that bridge rails should meet the crash test criteria contained in NCHRP [National Cooperative Highway Research Program] Report 350. The Texas Department of Transportation (TxDOT) evaluated the structural design aspects of the C4 rail and compared them to another crash-tested railing, the T4 rail. TxDOT concluded that the C4 rail also met the criteria of NCHRP Report 350. TxDOT does not request FHWA eligibility letters for their bridge railings individually, nor is it a requirement, but bridge railing details are incorporated into the State standards which are subject to FHWA review and approval.

The crash test criteria referenced in this e-mail are Test Level 3 (TL-3) requirements. TL-3 in NCHRP Report 350 is summarized below: [8]

---

[7] An elastomeric pad is used to eliminate concrete spalling (a type of surface failure) by compensating for construction irregularities such as rotation and non-parallel load-bearing surfaces.

[8] NCHRP Report 350, *Recommended Procedures for the Safety Performance Evaluation of Highway Features;* H.E. Ross Jr., D.L. Sicking, and R.A. Zimmer, Texas Transportation Institute, Texas A&M University System, College Station, Texas, and J.D. Michie, Dynatech Engineering Inc., San Antonio, Texas. Prepared for the Transportation Research Board, Washington, DC, 1993.

- Successful tests of a 1,800-pound car impacting a barrier at an angle of 20 degrees and a 4,400-pound pickup truck impacting a barrier at an angle of 25 degrees, both at speeds of 62 mph.

The total weight of the HISD school bus in the crash was approximately 16,300 pounds.[9] In addition to the bus's weight being almost 12,000 pounds above the TL-3 test protocol, the angle of impact with the barrier was slightly above the thresholds for the TL-3 test criteria. Given these factors, the Type C4 (modified) bridge railing, in its designed condition, would not have been expected to redirect a collision by a school bus. (Figure 3 provides a view of the bridge rail after being struck by the HISD school bus.)

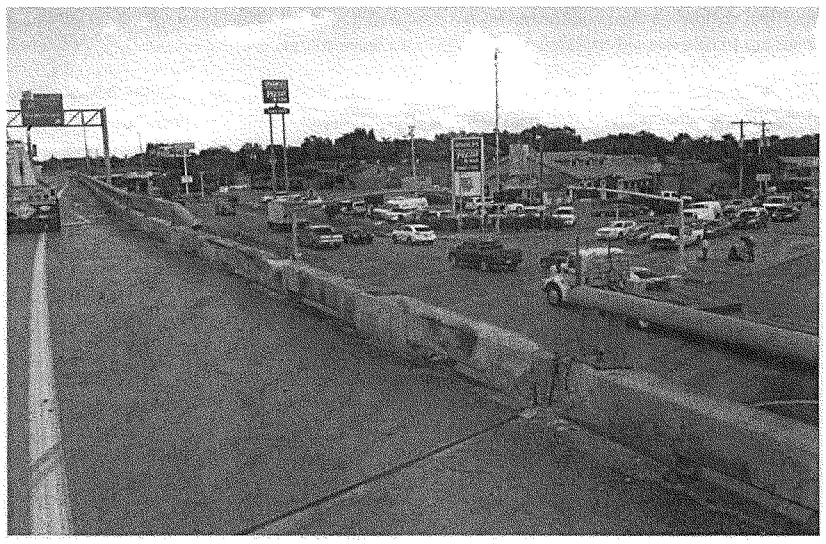


Figure 3. Bridge rail after being struck by the HISD school bus (view is to the southeast).

Injury Information

The 47-passenger school bus had eight rows of seats on each side, and all but one seat were designed to carry a maximum of three students. Additionally, a half seat at the back of the bus on the driver's side was capable of carrying a maximum of two students. The school bus was equipped with a standard lap seat belt for each passenger. The driver's seat was equipped with a three-point lap/shoulder belt. At the time of the crash, the four HISD student passengers were seated and not wearing seat belts; the driver was wearing her three-point lap/shoulder belt.

[9] The total weight consists of 15,600 pounds for the bus and 700 pounds for the passengers and driver.

The HISD provided a copy of its seat policy to NTSB investigators, which read in part as follows:

> The District's rules for transportation in District buses or other vehicles shall include a requirement that all riders remain seated and, if available, wear three-point seat belts.

In November 2015, the HISD announced that all new school buses purchased by the district would include three-point seat belts. The announcement was in response to new National Highway Traffic Safety Administration guidance suggesting that students should have access to three-point seat belts.[10] About 40 new buses equipped with three-point seat belts, purchased by the HISD following the announcement, are expected to arrive at HISD in summer 2016. The new buses are to be assigned to the district's highest mileage routes.

Figure 4 is a seating chart of the school bus that provides the gender, age, and injury level of the bus occupants. It also indicates the seating locations of the two student passengers who were ejected from the bus; these two students were fatally injured in the crash.

[10] The guidance was posted by the National Highway Traffic Safety Administration on November 8, 2015, at the following link: http://www.nhtsa.gov/About+NHTSA/Speeches,+Press+Events+&+Testimonies/mr-napt-11082015, accessed June 23, 2016.

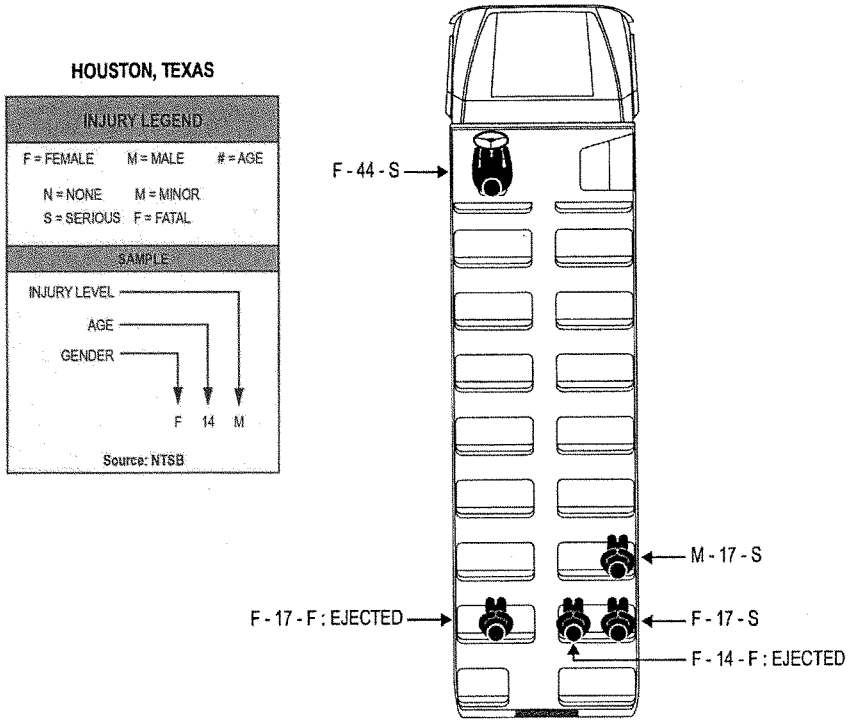


Figure 4. Seating positions, demographic information, and injury and ejection outcomes for school bus occupants. (Persons who received fatal injuries are indicated in red.)

Vehicles

HISD Bus. A postcrash inspection of the school bus was conducted, and all components not damaged by the crash were in good repair. The school bus had received and passed an annual safety-only vehicle inspection by the Texas Department of Public Safety on August 11, 2015.

The front end and left side of the bus had extensive collision contact damage. The hood was completely detached from the vehicle, and the windshield was missing. Numerous components on the left side of the engine were crushed and damaged. The steering components showed significant damage. The steering shaft was hanging from the steering gearbox, which had broken away from the frame rail and was resting on the ground.

The air brake system was inoperable due to crash damage, but a visual inspection of all brake linings and pads indicated that they were within regulatory standards. The left front tire

was deflated but still mounted on the damaged rim. There were fresh paint transfer and rub marks on the wheel studs of this tire, consistent with impact from the Buick. The other tires and rims on the bus were damaged, deflated, or detached. All the bus tires had adequate tread depth and were of the size recommended by the bus manufacturer.

The right side of the school bus, from the boarding door rearward, had little damage and all of the windows were intact. The entire body of the bus was shifted to the right due to the impact damage on the left side. The left side of the bus had extensive contact damage, with crush damage concentrated at the left rear corner near the roofline. The roof was crushed to the top of the left side seats, with several seatbacks projecting out of the windows. Crush at the left rear corner measured approximately 48 inches, as well as an additional 24 inches due to the shift of the bus body to the right from impact. (Figure 5 shows the rear of the damaged school bus.) The crush decreased from the rear of the bus to the front, with little crush at the left front roofline. The rightward shift of the bus body at this location measured approximately 12 inches. There was intrusion into the interior of the bus at the firewall and floorboard near the driver's seat.

Figure 5. View of the rear of the HISD bus showing contact damage to the top left corner.

Buick LeSabre. The damage to the Buick LeSabre was limited to the right side of the vehicle. There were pattern scratches in the paint on the right front fender near the wheel well. Portions of the outside flange of the right front wheel rim were broken away. There was a tear measuring approximately 3 x 3 inches in the right front sidewall near the valve stem, and the tire was deflated. The pattern scratches and the tear were caused by contact with the wheel studs on the rotating left front wheel of the bus. Figure 6 shows the damage to the Buick LeSabre caused

by the wheel studs. A portion of the steering system's right side control arm was fractured through at a fitting near the frame.

Figure 6. Pattern scratches and damage to the front right tire on the Buick LeSabre from contact with the HISD bus.

The Buick had no interior damage. The driver's seat belt was retracted but not locked. The airbags did not deploy in the collision; however, a non-deployment event was recorded by the Buick's airbag control module. This module was analyzed by Houston Police Department investigators, and the data indicated that the driver's seat belt was buckled at the time of the crash. The vehicle speed recorded by the module was approximately 68 mph (in the 3 seconds prior to the collision). No brake application by the driver was shown in the data until 1 second prior to impact.

HISD School Bus Video

The school bus was equipped with seven video cameras.[11] Two rear-facing cameras were aimed at the occupants. One camera was aimed at the loading door. Two cameras were mounted near the lateral centerline of the bus; one recorded the road ahead and one the road behind the bus. Two externally mounted rear-facing cameras were in position near the front of the bus, about 9 feet above ground level, one on the left side and one on the right side. They recorded traffic in the lanes to the left and right of the school bus.

[11] The video system on the bus was supplied by Safety Vision, LLC. The video frame rate was 10 frames per second.

Passenger Vehicle/School Bus Collision and Roadway Departure

NTSB investigators examined the HISD school bus video to determine crash variables related to the Buick and to analyze the multiple crash events involving the school bus. Most of the information used in the video analysis was recorded by the externally mounted rear-facing camera on the left side of the school bus, which also captured the Buick's precrash movements.

The location of the school bus was estimated at numerous points over the last 480 feet prior to the impact location, based on the solid white line segments seen in the video frames. Seven locations were considered, corresponding to seven video frames spaced at 1 second intervals. The speed of the school bus, based on the seven estimated locations, was estimated to be about 55 mph.

The Buick was visible in the recorded video for about 10 seconds before it struck the school bus. Its average speed was estimated over a period of 4 seconds prior to impact. The Buick's speed was estimated to be about 69 mph. (This estimated speed closely correlates with the 68 mph speed recorded by the Buick's airbag control module.) Video analysis indicated that the impact angle between the Buick and the school bus was about 1.9 degrees.

Driver of the 2004 Buick LeSabre

Enhancement of the HISD school bus video did not provide sufficient information to determine whether the Buick driver was distracted immediately prior to the collision with the school bus. The Houston Police Department reviewed the Buick driver's cell phone records; the records did not indicate cell phone use immediately prior to the collision.

The Buick driver, through her attorney, declined to be interviewed by NTSB investigators. In a postcrash interview with the Houston Police Department, the Buick driver stated that she "thought a car was coming into my lane so I went to the right." The bus video indicated that no cars were in the immediate vicinity of the Buick at the time of the crash.

The Houston Police Department conducted a drug and alcohol test on the Buick driver, and the results were negative.[12]

U-Bolt Examination

Three U-bolt anchors were removed from the concrete parapet in the approximate location where the HISD school bus surmounted the bridge rail. Figure 7 shows the U-bolt pieces taken from the side facing the outer edge of the traffic rail. The pieces were labeled 10' W, 20' W, and 20' E. The piece labeled 10' W came from the west U-bolt (the first post east of the expansion joint in span 2). The pieces labeled 20' W and 20' E came from the west and east U-bolts, respectively, which anchored the second rail post east of the same expansion joint.

---

[12] The HISD also conducted a drug and alcohol test on the school bus driver, and those test results were also negative.

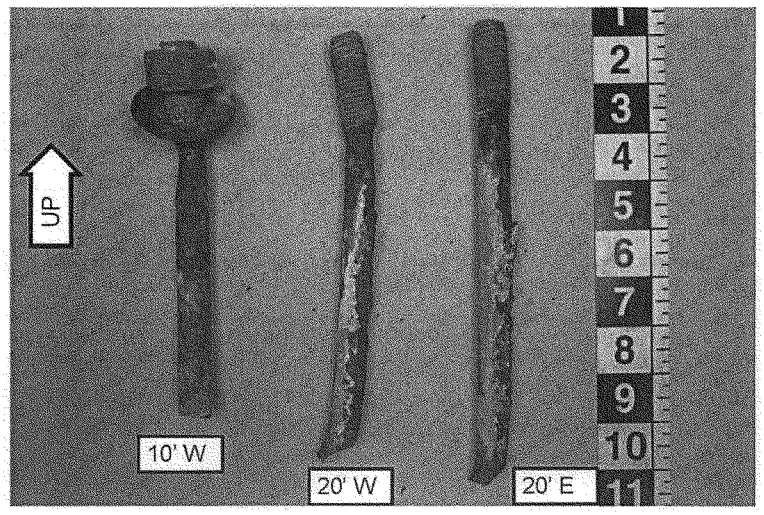


Figure 7. Pieces of U-bolt removed from the concrete parapet near where the HISD school bus surmounted the bridge rail.

According to the design plans provided by TxDOT, the U-bolts had a nominal diameter of 0.75 inch. The pieces removed postcrash showed substantial corrosion, including reduced diameter, particularly in the area near the lower end of the threads. Corrosion on the surface of piece 10' W was observed around the circumference up to 4.51 inches from the upper end of the piece. On pieces 20' W and 20' E, corrosion was observed along the entire length of the pieces on the side to the outside of the bend, up to 8.30 inches from the upper end of piece 20' W and 9.04 inches from the upper end of piece 20' E. At the inside of the bend, corrosion was present up to 4.35 inches from the upper end of piece 20' W and up to 2.79 inches from the upper end of piece 20' E.

Table 1 provides the nominal diameter of each piece, the reduced diameter in the area near the lower end of the threads, and the percent reduction.

Table 1. Diameter measurements of U-bolt pieces.

Piece	Nominal Diameter (inch)	Reduced Diameter (inch)	Percent Reduction (%)
10' W	0.75	0.494	34.1
20' W	0.75	0.466	37.9
20' E	0.75	0.571	23.9

Examination showed that each of the U-bolt pieces had a zinc coating that was compromised, resulting in corrosion and loss of section near the lower ends of the threads. The corrosion and loss of section would have resulted in substantial reduction in the metal strength, particularly in pieces 10' W and 20' W. In areas where the thickness of the zinc coating was measured, it varied from 0.005 to 0.048 inch on piece 10' W, from 0 to 0.042 inch on piece 20' W, and from 0 to 0.029 inch on piece 20' E.

TxDOT Postcrash Actions

Following the crash, TxDOT made changes to the existing bridge structure and implemented policies to improve its maintenance operations.

TxDOT Installation of New Single-Sloped Concrete Traffic Rail

TxDOT completed installation of a new rail in the crash area on December 15, 2015. Figure 8 shows the new single-sloped concrete traffic rail installed by TxDOT Houston District after the crash. The new traffic rail has a height of 3 feet, and it was installed along the entire south edge of eastbound I-610 on the overpass above Telephone Road for a distance of about 300 feet.

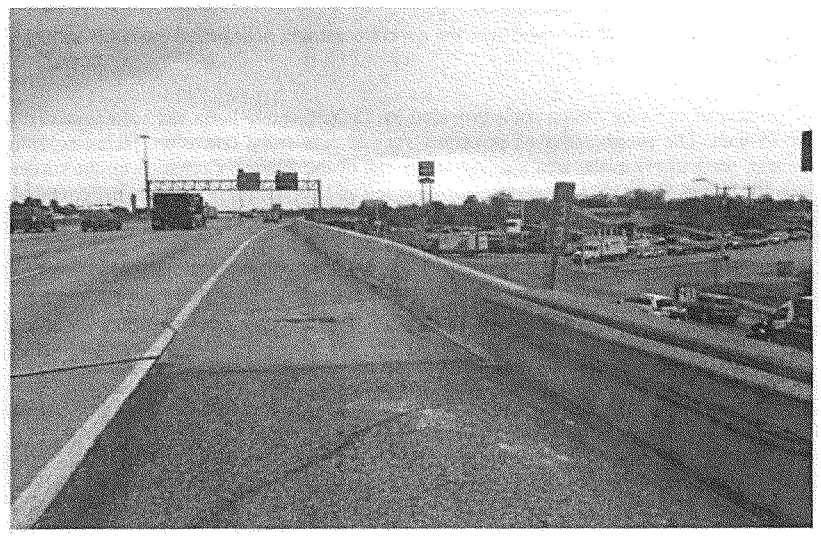


Figure 8. Looking to the southeast along the new single-sloped concrete traffic rail installed by the TxDOT Houston District after the crash. (Source: TxDOT Houston District)

The new rail was a retrofit, meaning that the existing rail was removed and a new rail was installed in its place; consequently, it could not have the same type of connection to the bridge deck that such a rail would have as an initial installation. For this reason, TxDOT could only certify the new rail to TL-3. (If this same rail had been part of an entirely new bridge construction, TxDOT would have been able to certify it to TL-4.)[13]

TxDOT Bridge Damage Assessment

TxDOT conducted a thorough bridge damage assessment to determine if anchor bolt corrosion constituted a systemic issue. TxDOT also considered whether there were any other widespread deterioration issues with the Type C4 (modified) bridge rail.

TxDOT determined there had been a previous severe impact to the bridge rail in the same location as this crash. However, it could not determine when the previous impact occurred because the TxDOT districts (there are 25 districts statewide) do not keep maintenance records that document prior bridge railing improvements and repair costs. The previous impact resulted in significant damage to the concrete parapet and the anchor bolts. Evidence indicated that the bolts had been bent over by this impact, and then they were bent back and reused rather than being replaced. The previous impact also resulted in significant damage at the posts. Repair mortar had been used to patch spalls at the posts caused by the impact. The repair mortar was inferior in overall quality to the original concrete and was completely carbonated in some locations, which significantly increased the corrosion potential for the embedded steel. The combination of compromised galvanizing, poor quality spall repair material, and contaminants ponding around the anchor bolts within the slotted holes resulted in severe corrosion and section loss in the location where the school bus struck the bridge rail.

TxDOT also examined the remaining bridge rail segments and found no evidence of significant corrosion or reduced capacity from deterioration. Even in areas where previous vehicle impacts caused minor-to-moderate damage, the galvanizing was still effectively preventing corrosion from occurring in the metal rail components, including the U-bolt anchors.

TxDOT concluded that no systemic deterioration issues were associated with the Type C4 (modified) bridge rail or other similar rail types where the components had been galvanized, even where contaminants pooled around anchor bolts in slotted holes. TxDOT has committed to provide all its 25 districts with an approved procedure for repairing damaged bridge rails.

[13] TL-4 can be summarized as the successful test of a 22,000-pound single-unit truck striking a barrier at an angle of 15 degrees at 56 mph.

TxDOT Internal Changes

As a result of the crash, TxDOT identified and responded to two issues, as summarized in the following material from an e-mail to NTSB investigators, dated January 28, 2016:

> **Issue #1**: Providing direction to all TxDOT Districts concerning an approved procedure for repairing damaged bridge rail.
>
> **TxDOT Response**: TxDOT Bridge Division will include information on the reuse of anchor bolts when repairing damaged concrete bridge rails in the next update of the *Concrete Repair Manual*. This manual is updated every two years. The next update of this manual is scheduled for spring of 2017. As an interim measure, TxDOT Bridge Division will make a presentation at the next available TxDOT Directors of Maintenance meeting hosted by the Maintenance Division. In conjunction with this meeting, Directors of Maintenance will be provided with materials for distribution to their employees on this issue.
>
> **Issue #2:** Developing a maintenance record that documents bridge railing improvements and cost of repair in all TxDOT Districts.
>
> **TxDOT Response:** TxDOT Bridge Division is currently working to deploy InspecTech software for collecting bridge inspection data. This will replace the current in-house software, Pontex. The new software is expected to be deployed by the end of calendar year 2016. After the initial roll out, TxDOT will establish procedures for making use of the capabilities for this software for collecting and documenting bridge railing improvement projects. Expected timeframe for this secondary deployment would be one year after the initial deployment. Educational materials will be developed and distributed on the requirement. This will allow TxDOT to capture bridge maintenance activities including railing improvements and associated cost data.

Probable Cause

The National Transportation Safety Board determines that the probable cause of the Houston, Texas, crash was the Buick LeSabre driver's intrusion into a lane occupied by a Houston Independent School District school bus. Contributing to the severity of the crash was the failure of the bridge railing to redirect the school bus because the dynamics of the collision exceeded the design capabilities of the railing.

For more details about this accident, visit http://dms.ntsb.gov/pubdms/ and search for NTSB accident ID HWY15FH010.

Issued: July 20, 2016

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, "accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties . . . and are not conducted for the purpose of determining the rights or liabilities of any person." 49 *Code of Federal Regulations*, Section 831.4. Assignment of fault or legal liability is not relevant to the NTSB's statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report. 49 *United States Code*, Section 1154(b).

National Transportation Safety Board

Highway Accident Brief

School Bus Roadway Departure

Accident Number:	HWY14FH010
Accident Type:	School bus roadway departure
Location:	Nohl Ranch Canyon Road, Anaheim, Orange County, California
Date and Time:	April 24, 2014, about 3:37 p.m. Pacific daylight time
Vehicles:	2012 Blue Bird 78-passenger school bus
Fatalities:	0
Injuries:	10 (5 serious, 5 minor)

Crash Description

About 3:37 p.m. Pacific daylight time on Thursday, April 24, 2014, a 2012 Blue Bird 78-passenger All American school bus, operated by the Orange Unified School District in Anaheim, California, and occupied by a 24-year-old male driver and 11 students, aged 12–14 years old, was returning children home from the El Rancho Charter Middle School. The bus was traveling northbound in the 6500 block of Nohl Ranch Canyon Road in Anaheim. The posted speed limit was 35 mph, but the bus was traveling at a video-estimated speed of 43 mph when it left the roadway.[1] The weather was clear, and the roadway was dry.

According to witnesses, while the school bus was traveling downhill on Nohl Ranch Canyon Road, its speed increased and it traveled out of its lane to the right. The bus left the roadway and overrode the right curb, where it struck and dislodged a concrete light post. The bus continued up an embankment, where its front struck and uprooted a tree. The left side of the bus also scraped along a large tree from approximately the front axle to the rear axle. The bus came to rest at an approximate 30-degree angle on the embankment, leaning onto this same tree, which was in contact with the left side of the bus just aft of the left-side emergency exit door and just forward of the rear wheels. (Figure 1 maps the location of the crash, and figure 2 shows the bus at final rest.)

[1] The video came from the continuous video recording system on the school bus. This system will be discussed later in this brief.

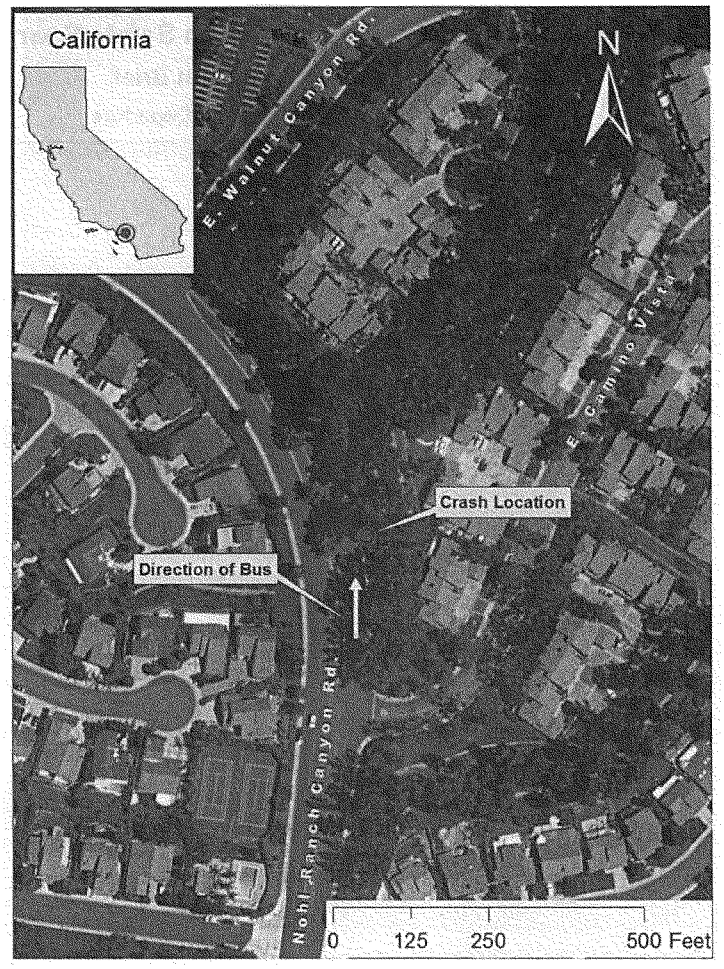


Figure 1. Location of the crash on Nohl Ranch Canyon Road, south of E. Walnut Canyon Road and north of E. Camino Vista, in Anaheim. (Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community. May 15, 2014.)

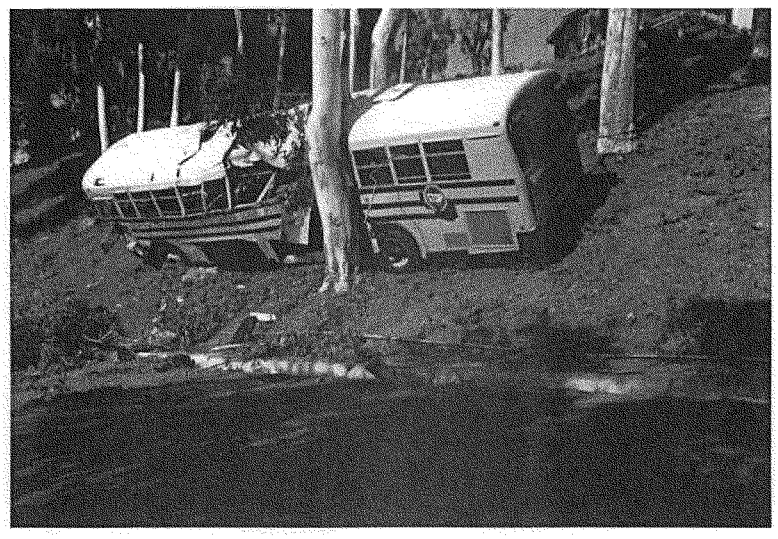


Figure 2. Photograph showing the school bus at final rest (Source: Anaheim Police Department)

As a result of the crash, the driver and four students were seriously injured. Five students sustained minor injuries, and two students were uninjured. The school bus was equipped with lap/shoulder belts at the driver position and at all passenger seating positions. It was also equipped with an onboard continuous video recording system. The restraints and the onboard video system were the primary focuses of this investigation.

School Bus Damage

The front of the bus sustained damage from impacts with a light pole and two trees during the crash sequence. As shown in figure 3, the front end damage occurred predominantly on the right front corner of the bus as a result of the impact with a tree, with intrusion into the loading stairs. The front loading door located on the right side of the bus was inoperable as a result of the crash. The area immediately surrounding the driver's seat was not compromised by this intrusion damage.

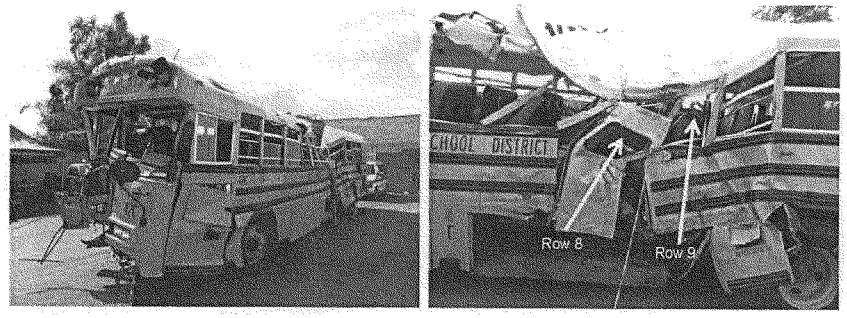


Figure 3. Front and left side postcrash views of the bus.

The left side of the bus scraped along a large tree, causing damage from the front axle aft to the rear axle. This tree caused significant intrusion along the left side and roof of the bus, with maximum penetration into the passenger compartment at seat rows 7 through 9. The left-side emergency exit door, at row 8, was partially dislodged from the bus. The left sidewall and roof in the area of rows 7 to 9 were crushed inward, with portions of the roof crushed down to the level of the seatbacks and inward up to half the width of the seats. Figure 4 shows the interior intrusion into rows 8 and 9 with a view looking from the right side interior of the bus toward the left side. The intrusion resulting from the left side of the bus scraping the tree caused multiple seats in rows 6–9 to be displaced inboard to the extent that they blocked the center aisle.

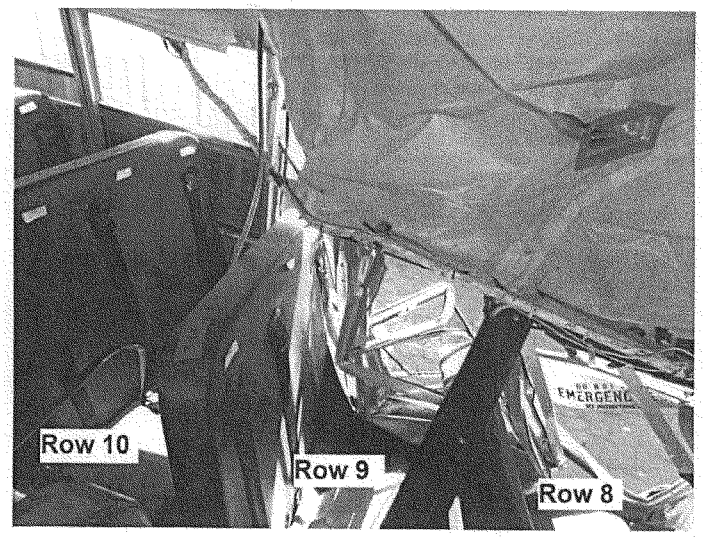


Figure 4. Interior view of the bus showing left side rows 10, 9, and 8.

Injuries

Table 1 summarizes the injuries experienced by the driver and the 11 student passengers. Figure 5 provides a seating diagram and information on the age, gender, and injury severity of the bus occupants. The driver and five students were transported to area hospitals for treatment, and the remaining six students were treated at the scene and released to parents or guardians. The arrows on the figure 5 diagram show areas of impact and areas of intrusion into the school bus.

Table 1. Injury levels for bus driver and student passengers. (Information sourced from medical records and police reports.)

Injury Severity[a]	Bus Driver	Bus Passengers	Total
Serious	1	4	5
Minor	0	5	5
Uninjured	0	2	2
Total	1	11	12

[a] Although 49 *Code of Federal Regulations* (*CFR*) Part 830 pertains to the reporting of aircraft accidents and incidents to the National Transportation Safety Board (NTSB), section 830.2 defines fatal injury as any injury that results in death within 30 days of the accident and serious injury as any injury that (1) requires hospitalization for more than 48 hours, commencing within 7 days from the date of injury; (2) results in a fracture of any bone (except simple fractures of fingers, toes, or nose); (3) causes severe hemorrhages, nerve, or tendon damage; (4) involves any internal organ; or (5) involves second- or third-degree burns, or any burn affecting more than 5 percent of the body surface.

The school bus was equipped with lap/shoulder belts at the driver position and at all passenger seating positions. The required form of occupant protection on school buses is compartmentalization, which consists of closely spaced, energy-absorbing seats that deform in a crash to reduce injuries to the occupants.[2] Several states, including California, require that large school buses be equipped with compartmentalization and passenger seat belt systems.[3] California specifically requires that new school buses be equipped with passenger lap/shoulder belts.[4] The school bus in this crash was equipped with passenger lap/shoulder belts that were installed in a flexible seating arrangement; C.E. White Co. manufactured the seats.[5]

---

[2] See Federal Motor Vehicle Safety Standard 222.

[3] The states that currently require passenger restraint systems on school buses are California, Florida, Louisiana, New Jersey, New York, and Texas.

[4] Section 27316 of the *California Vehicle Code* requires that school buses with a seating capacity of 16 or more students manufactured on or after July 1, 2005, be equipped with lap/shoulder belts at all passenger seating positions. Further, the *California Code of Regulations* Title 5 (Education) Section 14105 states that "All passengers in a school bus or in a school pupil activity bus that is equipped with passenger restraint systems in accordance with sections 27316 and 27316.5 of the Vehicle Code, shall use the passenger restraint system."

[5] (a) As stated in the final rule on "School Bus Passenger Seating and Crash Protection" concerning flexible seating arrangements on school bus seats, which was published in 2008 by the National Highway Traffic Safety Administration, "Lap/shoulder belts on these bench seats can be adjusted to provide two lap/shoulder belts for two average size high school students or three lap/shoulder belts for three elementary school students." (b) C.E. White is now HSM Solutions.

School Bus Roadway Departure

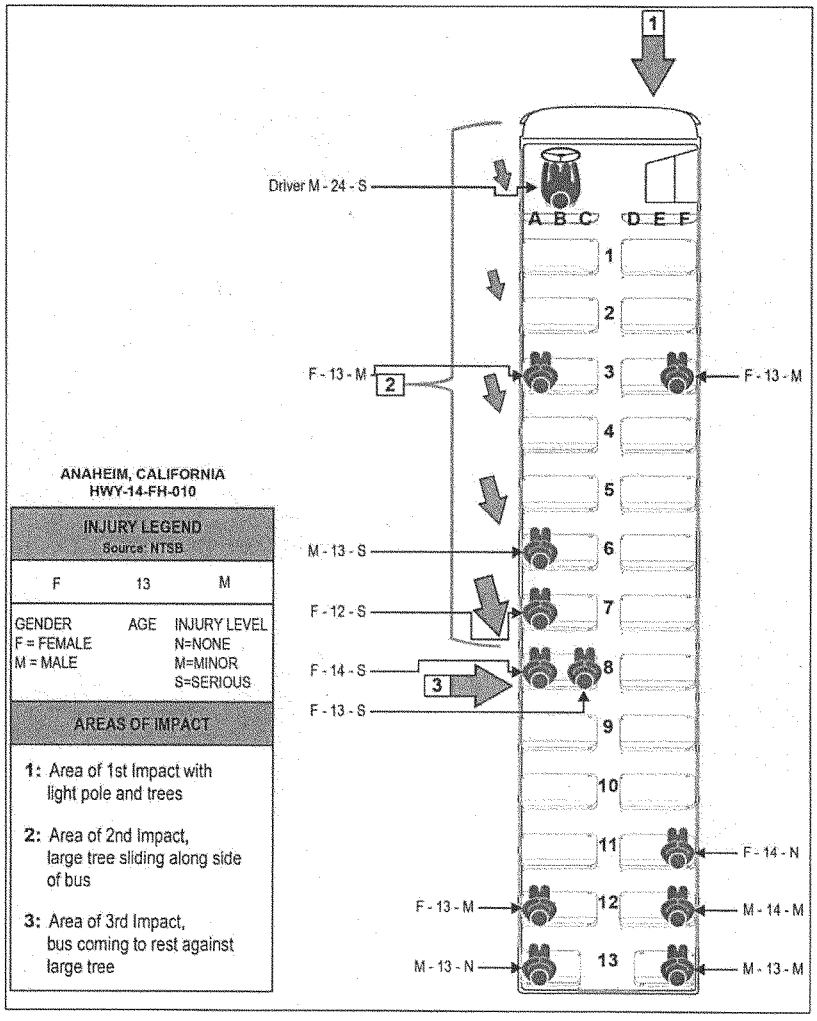


Figure 5. Seating diagram detailing the age, gender, and injury severity of the bus occupants. The arrows show areas of impact and areas of intrusion into the school bus. The arrow designated "1" corresponds to the area of impact with the tree at the front of the bus. The arrows increasing in size down the left side of the bus and designated "2" correspond to the region of increasing intrusion from the left side of the bus scraping a tree. The arrow designated "3" marks the area of maximum intrusion by the tree on the left side.

The school bus was also equipped with an onboard video recording system, manufactured by 24/7 Security. The video recording provided data reflecting the trip, the crash sequence, and the postcrash response. The driver and some students were recorded in the camera views.

Onboard Video Evidence

The three onboard video system cameras had wide angle lenses that captured views of the front loading door; the area of the interior looking aft from the front of the bus, including the driver's region; and the portion of the interior looking downward and aft from row 8. The system also had one audio recording location at the front of the bus. The video system recorded precrash data, the crash sequence, and 34 minutes of postcrash data.[6]

Driver Behavior

The video system provided a clear view of the driver and the driver's actions prior to the crash. Video evidence showed that the driver did not use his cell phone, nor was he distracted by students, before the crash event. The video showed no indications of driver fatigue, such as yawning or head-bobbing.[7] Moreover, after the crash, none of the students or other witnesses reported that the driver had exhibited any unusual behavior before the final bus stop preceding the crash.

The video evidence also showed that during the trip, the driver did not always wear his lap/shoulder belt and, at one point, the system's audio recorder recorded a student informing the driver that the video recorder would capture his non-use of the seat belt. (After that comment, the driver did fasten his lap/shoulder belt.)

For the last bus stop prior to the crash, the driver was required to exit the bus to stop traffic to enable students to cross the roadway. Upon returning to the bus, the driver exhibited labored breathing and paused multiple times before entering the bus. He paused at the curb and then again at the front loading door for almost 2 minutes while the bus was stopped on the side of the road. After these pauses, one student called out the window to the driver to ask if he felt alright. A few moments later, the driver entered the bus and began driving again, but he neglected to fasten his lap/shoulder belt. The unbelted driver continued to exhibit labored breathing and took multiple drinks of water from a large jug. The video recording showed that less than 1 minute after putting the bus back into motion, the driver slumped over and let go of the steering wheel. The bus then left the roadway to the right. The driver remained unresponsive for the duration of the crash event and for most of the period recorded postcrash. Based on the video evidence, the NTSB concludes that the school bus departed the roadway as a result of the driver's loss of consciousness. The NTSB further concludes that the continuous onboard video recording system provided valuable data concerning the driver's physical state and loss of consciousness prior to the crash sequence.

---

[6] See the Video Study Report in the NTSB public docket for this investigation for additional detail on the onboard video system.

[7] The driver was wearing sunglasses. As a result, his eyes were not visible in the video.

School Bus Roadway Departure

Seat Belt Use

The video recordings provided information about how the students boarded the bus, the passenger seating positions (within the limitations of the camera views), the stops along the route, and the passengers who got off at each stop. The recordings established the precrash conditions, including showing which students were on the bus at the time of the crash, their seating locations, and the seat belt use status of those who were within the camera's view. Passenger seat belt usage was visible in several of the video recordings, although views of some seating positions were obstructed by the bus's high seatbacks.

For some seating positions, the video captured the students' actions, indicating when the lap/shoulder belts were being used. In some instances, the lap/shoulder belt would be unfastened during the trip when a student moved to a different seat or changed position in the seat. The video recordings from the camera mounted in the middle of the school bus showed that the two students seated in row 8, adjacent to the left-side emergency exit door, were wearing their seat belts at the time of the crash. These two students were the focus of the occupant kinematics study discussed later in this report. Approximately three-fourths of the students visible in the recordings were wearing lap/shoulder belts while the bus was in motion. The NTSB concludes that many, but not all, students were belted while the school bus was in motion.

In 2012, the NTSB investigated a school bus crash in Chesterfield, New Jersey.[8] The school bus in that crash was equipped with passenger lap-only belts and, because several students were wearing the belts improperly or not at all, the NTSB recommended that the states of California, Florida, Louisiana, New Jersey, New York, and Texas—

> Develop (1) a handout for your school districts to distribute annually to students and parents about the importance of the proper use of all types of passenger seat belts on school buses, including the potential harm of not wearing a seat belt or wearing one but not adjusting it properly; and (2) training procedures for schools to follow during the twice yearly emergency drills to show students how to wear their seat belts properly. (H-13-32)

This recommendation is currently classified "Open—Await Response" for the state of California. Because several students and the bus driver were not properly wearing the available lap/shoulder belts while the Anaheim school bus was in motion, the NTSB reiterates Safety Recommendation H-13-32 to the state of California.

Crash Sequence and Vehicle Dynamics

The onboard video recordings documented the driver and passenger kinematics during the crash sequence.[9] These recordings were used to conduct a video study that estimated the vehicle

---

[8] See *School Bus and Truck Collision at Intersection Near Chesterfield, New Jersey, February 16, 2012*, Highway Accident Report NTSB/HAR-13/01 (Washington, DC: National Transportation Safety Board, 2013).

[9] Intrusion into the passenger compartment toward the end of the crash sequence displaced the camera mounted in the middle of the bus, which made the student passengers in row 8 less visible to the camera.

motion during the crash and provided a basis for creating simulations to study occupant kinematics. The occupant kinematics from the video and the simulation study results are discussed later in this brief.

The dynamics of the vehicle were reconstructed based on the motion of the school bus relative to roadway features, trees, and houses visible on the video facing the front loading door.[10] According to the results of this study of the vehicle motion from the onboard video recordings, and based on the bus's position and the associated time history available from the video, the NTSB determined that the school bus was traveling at an estimated speed of 43 mph when it left the roadway. The posted speed limit was 35 mph. Unfortunately, the video system did not include a forward view from the school bus, which complicated reconstruction of the crash dynamics. It also did not include views for all seating positions in the bus, which could have facilitated efforts to monitor seat belt use and student behavior. As a result, the NTSB concludes that because of the locations of the cameras, the limited number of cameras facing the students (two cameras), and the high seatbacks, many seating positions within the bus were not recorded by the onboard video system nor was visibility provided forward of the school bus.

In 2015, the NTSB published a safety report titled *Commercial Vehicle Onboard Video Systems*.[11] The report noted the need to improve the visibility of all passenger seating positions to the cameras when installing onboard video systems. In addition, the report indicated that to understand the motion of the vehicle during a crash and to record any surrounding vehicles, onboard video systems require improved range of coverage forward of the vehicle. The report discussed how video recordings can be used as a tool to enforce rules, such as seat belt use. Not all students were wearing their seat belts at the time of the Anaheim crash; therefore, this crash emphasizes that making all passenger seating positions visible to onboard video systems could enable better enforcement of seat belt use, which would improve passenger safety. Further, if the video system had had greater range of coverage forward of the school bus, investigators would have had a better understanding of the vehicle dynamics as the bus left the roadway and struck the light pole and two trees. In the 2015 safety report, the NTSB made the following Safety Recommendation H-15-2 to the American Trucking Associations, National Association for Pupil Transportation, National School Transportation Association, American Bus Association, United Motorcoach Association, American Public Transportation Association, and National Association of State Directors of Pupil Transportation Services:

> Encourage your members to ensure that any onboard video system in their vehicles provides visibility of the driver and of each occupant seating location, visibility forward of the vehicle, optimized frame rate, and low-light recording capability. (H-15-2)

Safety Recommendation H-15-2 is classified "Open—Await Response" for the American Bus Association, United Motorcoach Association, American Public Transportation Association, and National Association of State Directors of Pupil Transportation Services. The other three

---

[10] See the Video Study Report in the NTSB public docket for additional information.

[11] See *Commercial Vehicle Onboard Video Systems*, Safety Report NTSB/SR-15/01 (Washington, DC: National Transportation Safety Board, 2015).

recipients responded favorably to the recommendation, such that it is classified "Closed–Acceptable Action" for them. Therefore, because this recommendation is still open to one association affiliated with school transportation, and given the deficiencies with the onboard video system identified during the Anaheim school bus investigation, the NTSB reiterates Safety Recommendation H-15-2 to the National Association of State Directors of Pupil Transportation Services.

Postcrash Events

After the bus came to rest, the video cameras continued to record for 34 minutes. The recordings captured the initial actions of the students and the first people to arrive at the scene.

A male passerby arrived at the right rear emergency exit within 2 minutes of the bus coming to rest. The video did not clearly show who opened the right rear exit door, and some students stated that the student from seat 13F opened it. The passerby checked on the driver and then assisted the children in leaving the school bus by providing instructions and directing them to the rear exit. Because the front loading door was inaccessible, and the left-side emergency exit door was partially blocked by a tree and an injured student, the students exited through the right rear emergency exit. The recordings showed that, due to the intrusion near row 8, the students seated in front of row 8 had to climb over the seatbacks to reach the right rear emergency exit. All students, except the one in seat 8A, were able to self-evacuate. While the onboard video captured some information about the egress paths inside the bus, because of the limited views of the right rear emergency exit, the video did not capture how the students used this exit or whether they received assistance in evacuating the bus through the exit door. Students' accounts of their experiences indicated that only the driver and the student in seat 8A were carried off the bus. Due to the tree intrusion at row 8, the student in seat 8A was partially ejected through the damaged left side emergency exit door. This student was removed from the bus through the damaged exit door.

Medical Fitness of Commercial Drivers

Medical History

In postcrash interviews conducted by police officers, the school bus driver said he felt severely dizzy, hot, and short of breath just prior to the crash. The driver reported a history of pulmonary hypertension going back approximately 5 years.[12] Further, the driver reported that he had had a seizure a year prior to this crash and had "blacked out" three times over the last 5 years. He stated that he was being treated for the condition and was taking medication regularly, including on the day of the crash. He indicated that he did not inform the California Department of Motor Vehicles (DMV) or the doctor who performed his commercial driver's license (CDL) exam about these events because he felt the medical examiner did not need to know, and his primary care doctor and pulmonologist indicated everything was under control.

[12] Pulmonary hypertension is elevated pressure in the blood vessels in the lungs. Typical "blood pressure" is measured in the arm or leg and is optimally around 120/80 mm Hg. In the lung vessels, normal pressures are below 30/15 mm Hg.

Investigators considered whether the driver's loss of consciousness may have resulted from complications associated with his pulmonary hypertension. Although shortness of breath with exertion, dizziness, and fainting may occur as a result of pulmonary hypertension, there are other reasons why an individual could lose consciousness.[13] Evaluation of the driver's medical history and treatment would have been required to assess whether the loss of consciousness was directly related to his medical condition, but it was evident that the driver had not informed the school district of his condition.[14] The health history section of the DMV Medical Examination Report DL-51, filled out by the driver on September 6, 2013, did not indicate pulmonary hypertension or any other medical conditions. Specifically, the driver checked "no" to all the health history questions, including "illness or injury in the last 5 years," "lung disease," "heart disease," "shortness of breath," "fainting or dizziness," and "loss of or altered consciousness." Although the form asked the driver to list all medications, including over-the-counter medications, this section of the form was left blank. The physician certified the driver for 2 years; the medical certificate was effective from September 6, 2013, to September 6, 2015.

Drivers are required to self-report medical conditions on the medical examination report for commercial driver fitness determination and must sign it to certify, under penalty of perjury, that the supplied information is true and correct. When the driver health history is missing or incomplete, the medical examiner is at a disadvantage when completing the driver's medical examination, particularly if there are no obvious physical exam findings related to a condition, as in this case. The NTSB concludes that the driver did not provide a complete health history, which impeded the medical examiner's ability to fully evaluate the driver's fitness for duty.

Although it is challenging to overcome issues pertaining to honesty on occupational health history forms, the legal consequences of a driver's incomplete reporting can be significant. In the case of this school bus driver, after the crash, he was charged by the state of California with two felonies: (1) child abuse and endangerment, and (2) perjury by declaration. The maximum penalty is 19 years in state prison.[15]

Ensuring that safety-critical professionals, such as school bus drivers, are medically fit for duty is important to safe transportation. Although we have no information on how often drivers inaccurately report their health information, they might be reluctant to report their complete health histories to a medical examiner for a number of reasons. This crash highlights the serious safety and legal consequences of providing an inaccurate health history to a medical examiner; greater awareness of the severity of these consequences might encourage other drivers to report their own health information more completely. Therefore, we recommend that the National Association for Pupil Transportation, National Association of State Directors of Pupil Transportation Services, and National School Transportation Association inform school bus drivers of the impact their health may have on the safe transportation of school children, of their responsibility to accurately

[13] Fainting is caused by low blood pressure; this can occur as a result of many things, such as the effects of medication, dehydration from any cause, heart rhythm disturbances, blood clots, anemia, or bleeding.

[14] Investigators attempted to obtain detailed medical records for the driver but were unable to do so.

[15] A pretrial motion was scheduled for the driver on September 7, 2016.

and completely report their health history and medications, and of the legal consequences of dishonesty on the medical examination report.

Medical Certification

Since May 21, 2014, the Federal Motor Carrier Safety Administration (FMCSA) has required that medical examinations for commercial drivers be completed by a medical examiner listed on the National Registry of Certified Medical Examiners.[16] (See 49 *CFR* 391.42, *Federal Register*, Vol. 77, No. 77, April 20, 2012.) The criteria to become a certified medical examiner include training concerning the FMCSA's physical qualification standards, demonstration of an understanding of those standards, and periodic training and testing to maintain and demonstrate competence.

Many school districts mandate where a school bus driver can obtain a medical certificate for a CDL. In this case, Orange Unified School District employed a contracted medical examiner, and the bus driver obtained his 2-year medical certificate from the medical examiner associated with the school district. When the driver obtained his medical certificate in 2013, the National Registry of Certified Medical Examiners was not in place. California has since implemented a requirement that school bus driver medical exams be performed by individuals on the National Registry.[17] The NTSB's review of the National Registry showed that the medical examiner who certified the school bus driver was listed as a certified medical examiner as of September 12, 2014.

If the driver had revealed his pulmonary hypertension to the medical examiner, including the episodes of fainting and seizure activity, he most likely would not have passed the medical exam and would not have been certified to operate a commercial motor vehicle.[18] The 2014 FMCSA *Medical Examiner Handbook*, which is currently offline and awaiting update, recommended that medical examiners not certify drivers with pulmonary hypertension if they had shortness of breath at rest, dizziness, low blood pressure, or low blood oxygen. However, if the condition and its treatments were disclosed and the condition appeared to be well controlled, under some circumstances a medical examiner might use his or her own clinical judgment and certify a person with pulmonary hypertension.

---

[16] The NTSB's Safety Recommendation H-01-17 calls on the FMCSA to develop a comprehensive medical oversight program for interstate commercial drivers that contains the following program element: Individuals performing medical examinations for drivers are qualified to do so and are educated about occupational issues for drivers. In part as a result of the implementation of the National Registry of Certified Medical Examiners, this recommendation is classified "Open—Acceptable Response."

[17] (a) As has been noted, since May 21, 2014, all interstate commercial drivers must have their medical examination performed by a certified medical examiner listed on the National Registry of Certified Medical Examiners. (b) For information on California's medical examination report requirements for commercial drivers, see https://www.dmv.ca.gov/portal/dmv/?1dmy&urile=wcm:path:/dmv_content_en/dmv/pubs/cdl_htm/sec1, accessed October 10, 2016.

[18] If the school bus is operated by the state, the California Highway Patrol is responsible for school bus licensing and inspections. The FMCSA can enact civil penalties against a school bus driver, but only after performing a compliance review of the school district. The civil actions include (1) imminent hazard and (2) a notice of claim against the driver. The FMCSA did not become involved in this investigation.

The NTSB has previously recommended, in its Safety Recommendation H-01-20, a comprehensive medical oversight program for interstate commercial drivers that provides guidance and additional information to medical examiners to improve their certification decisions.[19] As noted above, the FMCSA created a *Medical Examiner Handbook* that contained such guidance; however, that information is no longer available from the FMCSA. The link on the FMCSA webpage providing access to the handbook has been replaced with a message that states, "This document is in the process of being updated. A revised version will be published shortly."[20] This message has been in place for almost 2 years. Disease-specific guidance about certification could be particularly useful to certified medical examiners in cases of uncommon medical conditions, such as pulmonary hypertension. Therefore, the NTSB reiterates Safety Recommendation H-01-20 to the FMCSA.

Occupant Kinematics and Injuries

Driver's Motion and Injuries

The onboard video system captured the driver's motions resulting from the crash.[21] The recording showed that during the first part of the crash, the unbelted driver was thrown forward and upward as the bus left the roadway and struck the light pole. As the bus struck the light pole and trees, debris partially blocked the camera's view of the driver, but he was visible falling back down to his seat, with his head and shoulders leaning against the driver side window and upper window frame. Postcrash, the driver's left shoulder and head rotated out of the driver side window, which was open before the crash. The California Highway Patrol police report indicated that the driver suffered lacerations to the face and a fractured left clavicle. These injuries are classified as serious, and they most likely would have been mitigated if the driver had been wearing the available lap/shoulder restraint. Therefore, the NTSB concludes that the driver's injuries most likely would have been reduced if he had been wearing the available lap/shoulder belt at the time of the crash.

Student Injuries

Eleven students were on the school bus. Of these, four students were seriously injured, all of whom were seated on the left side near the middle of the bus, in seats 6A, 7A, 8A, and 8C. The student in seat 8A suffered the most serious injuries, which included three cervical fractures with spinal cord injury, skull and mandible fractures, and an open toe fracture.[22] In addition, all the seriously injured students suffered fractures on the left sides of their bodies, including a left arm fracture (student in seat 6A), left clavicle fractures (students in seats 7A and 8C), and a left foot

---

[19] Safety Recommendation H-01-20 calls on the FMCSA to develop a comprehensive medical oversight program for interstate commercial drivers that contains the following program element: Individuals performing examinations have specific guidance and a readily identifiable source of information for questions on such examinations. This recommendation is classified "Open—Acceptable Response."

[20] See https://www.fmcsa.dot.gov/regulations/medical/fmcsa-medical-examiner-handbook, accessed September 19, 2016.

[21] The events visible in the camera views are documented in the Video Factual Report, available in the NTSB public docket for this crash.

[22] The cervical fractures were at the C5 to C7 vertebra.

fracture (student in seat 8A). Other injuries to these four students included lacerations and contusions on their left sides.

Five other students sustained minor injuries. The student in seat 3A suffered a laceration to the right hand, mild whiplash, and a lumbar strain. The student in seat 12A suffered a mild contusion to the scalp. The remaining three students sustained minor contusions or abrasions as noted in the police report. Two students were uninjured.

Occupant Kinematics Study

Because of the position of the camera at the middle of the bus and the students' seat locations in row 8, the two students adjacent to the left-side emergency exit door were clearly visible in the video recording. These students were a 14-year-old female in seat 8A (at the window) and a 13-year-old female in seat 8C (on the aisle). Both were properly wearing their lap/shoulder belts at the time of the crash; they were the focus of the occupant kinematics study.

At the start of the crash sequence, the onboard video recorders showed that the students in seats 8A and 8C were in upright, forward-facing, seated positions. As the bus left the roadway and struck the light pole, both students began to flail forward and to the right, but the shoulder harnesses reduced their forward movement such that their heads did not contact the seatback in front of them. As the bus continued up the sloped embankment, these students remained upright within their seating compartments with their shoulder belts properly positioned over their shoulders. The lap/shoulder belts appeared to restrain their natural motions toward the left emergency exit door. As the bus struck the tree at the front right corner and the left side of the bus began to scrape against the larger tree, both students again flailed forward and finally toward the left, with the lap/shoulder belts again limiting their forward and lateral movement. During these portions of the crash sequence, the two students' shoulder harnesses were visibly engaged with their upper torsos. Due to the intrusion into seat rows 7 through 9, the left-side emergency exit door was partially dislodged. The student in seat 8A shifted to the left, which was partially outside the camera's view in the vicinity of the left emergency exit door, but she remained restrained by her lap/shoulder belt.

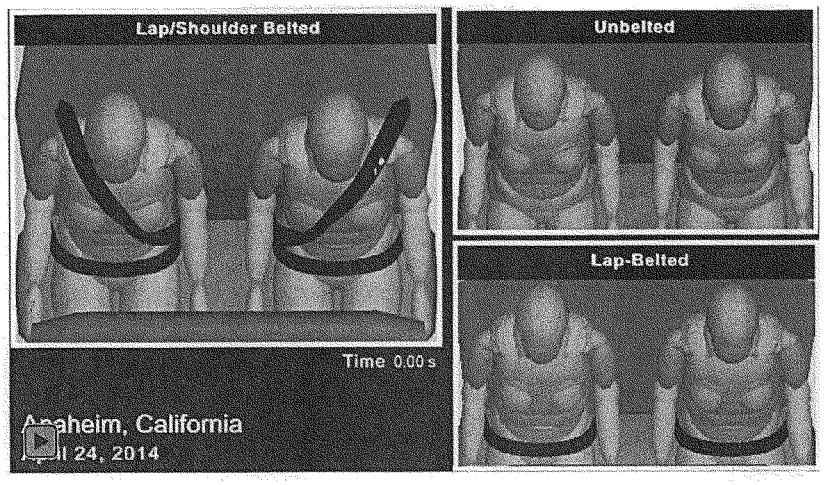
Occupant Simulations

Because of the injuries sustained by the students in row 8 and the general vulnerability of students in the regions of intrusion, simulations were conducted to better understand the restraining action of the passenger lap/shoulder belts based on a reconstruction of the crash dynamics.[23] The simulations were used to understand where the row 8 students might have been at the time of the intrusion into their seat row if they had been belted with lap-only seat belts or if they had been unbelted. These results were then compared to simulations with lap/shoulder-belted occupants.

[23] Only limited accuracy was attainable for simulating the timing, the damage to the vehicle structure, and the interactions of the occupants with the intruding structure.

School Bus Roadway Departure

Generally, the simulations predicted the lowest injury levels for the lap/shoulder-belted occupants. (See link to video simulations below.)



Results for unbelted occupants. The simulations predicted that both unbelted occupants would have been thrown toward the area of tree intrusion, and they most likely would have been either partially or fully ejected as a result of being in that region at that time.

Results for lap-belted occupants. Although in the simulations the entire bodies of the lap-belted occupants were not thrown toward the area of tree intrusion, their upper bodies still flailed in that direction. As a result of their positions, both lap-belted occupants would have been vulnerable to upper body injury due to the tree intrusion.

Results for lap/shoulder-belted occupants. The simulations indicated that lap/shoulder-belted occupants would have been generally retained within their seating compartment. Their upper body flailing was still directed to the left, but the magnitude of the movement was greatly reduced. The simulations showed that lap/shoulder-belted occupants had the best retention in the seats with the lowest potential for occupant-to-occupant contacts and occupant-to-interior contacts, which are common in severe lateral impacts involving unbelted school bus occupants. The simulations also indicated that while restrained with a lap/shoulder belt, the occupant seated nearest the area of intrusion (seat 8A) maintained a more upright position than that person would have maintained if restrained only by a lap belt.

The simulations show that their injuries would probably have been greater if the occupants of row 8 had not been restrained by the lap/shoulder belts. Therefore, the NTSB concludes that the properly worn lap/shoulder belts of the two occupants of the row 8 seats most likely reduced their injuries related to upper body flailing, which are commonly seen when occupants are restrained

only by lap belts. Further, the NTSB concludes that the properly worn lap/shoulder belts reduced passenger motion toward the intruding tree, which probably reduced the severity of the injuries sustained, especially for the student in seat 8C.

In its 2013 Chesterfield report, the NTSB issued Safety Recommendation H-13-36 to the National Association for Pupil Transportation, National Association of State Directors of Pupil Transportation Services, and National School Transportation Association:[24]

> Provide your members with educational materials on lap and shoulder belts providing the highest level of protection for school bus passengers, and advise states or school districts to consider this added safety benefit when purchasing seat belt-equipped school buses. (H-13-36)

Safety Recommendation H-13-36 is classified "Open—Acceptable Alternate Response" for the National Association for Pupil Transportation and the National School Transportation Association. It is classified "Open–Acceptable Response" for the National Association of State Directors of Pupil Transportation Services. Based on the evidence of the benefits provided by the properly worn lap/shoulder belts in this crash, the NTSB reiterates Safety Recommendation H-13-36 to all three recipients.

Probable Cause

The National Transportation Safety Board determines that the probable cause of the Anaheim, California, crash was the driver's loss of consciousness, resulting in his loss of control of the school bus, which departed the roadway and collided with a light pole and trees. Reducing the severity of passenger injuries in the area of maximum intrusion was the proper use of the available lap/shoulder belts by the student passengers seated in this area.

New Recommendation

As a result of its investigation, the National Transportation Safety Board makes the following safety recommendation:

To the National Association for Pupil Transportation, National Association of State Directors of Pupil Transportation Services, and National School Transportation Association:

> Inform school bus drivers of the impact their health may have on the safe transportation of school children, of their responsibility to accurately and completely report their health history and medications, and of the legal consequences of dishonesty on the medical examination report. (H-16-7)

[24] NTSB/HAR-13/01.

Reiterated Recommendations

As a result of its investigation, the National Transportation Safety Board reiterates the following safety recommendations:

To the Federal Motor Carrier Safety Administration:

Develop a comprehensive medical oversight program for interstate commercial drivers that contains the following program element: Individuals performing examinations have specific guidance and a readily identifiable source of information for questions on such examinations. (H-01-20)

To the state of California:

Develop (1) a handout for your school districts to distribute annually to students and parents about the importance of the proper use of all types of passenger seat belts on school buses, including the potential harm of not wearing a seat belt or wearing one but not adjusting it properly; and (2) training procedures for schools to follow during the twice yearly emergency drills to show students how to wear their seat belts properly. (H-13-32)

To the National Association of State Directors of Pupil Transportation Services:

Encourage your members to ensure that any onboard video system in their vehicles provides visibility of the driver and of each occupant seating location, visibility forward of the vehicle, optimized frame rate, and low-light recording capability. (H-15-2)

To the National Association for Pupil Transportation, National Association of State Directors of Pupil Transportation Services, and National School Transportation Association:

Provide your members with educational materials on lap and shoulder belts providing the highest level of protection for school bus passengers, and advise states or school districts to consider this added safety benefit when purchasing seat belt-equipped school buses. (H-13-36)

BY THE NATIONAL TRANSPORTATION SAFETY BOARD

CHRISTOPHER A. HART
Chairman

ROBERT L. SUMWALT
Member

T. BELLA DINH-ZARR
Vice Chairman

Adopted: October 11, 2016

School Bus Roadway Departure

For more details about this crash, visit http://dms.ntsb.gov/pubdms/ and search for NTSB accident ID HWY14FH010.

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, "accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties . . . and are not conducted for the purpose of determining the rights or liabilities of any person." 49 *Code of Federal Regulations*, Section 831.4. Assignment of fault or legal liability is not relevant to the NTSB's statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report. 49 *United States Code*, Section 1154(b).

Member Weener filed the following statement on October 7, 2016.

Member Earl F. Weener
Nonconcurring Statement EFW
October 7, 2016

I cannot endorse an incomplete report that does not adequately address even the most basic question, the probable cause of this crash. For the reasons detailed below, I do not concur with the body of the report, the statement of probable cause or the majority of the recommendations.

This report comes from an investigation of a school bus crash in which multiple children were seriously injured. In my opinion, there can be no greater cause for an exhaustive and comprehensive investigation. In this report, however, multiple significant issues have been overlooked and are left unaddressed.

- Did this driver suffer from a condition which potentially impaired his ability to safely operate a motor vehicle of any kind?
- Did the driver knowingly conceal such a condition from his employer?
- Was one or more physicians aware of this condition?
- Were these physicians subject to California laws requiring the reporting of certain medical conditions?
- Was the driver diagnosed with a condition that should have been reported under California law to the state driver licensing authority?
- If so, was the condition reported as required?
- If not, why not?
- Are California medical practitioners provided with sufficient guidance from the State of California to apprise them of mandatory reporting requirements?
- Are stronger mandatory reporting laws a good way to prevent medically impaired drivers from causing this type of crash in the future?

The answers to these critical questions are most likely contained within the driver's pre-crash and post-crash medical records. We make clear in our report that the State of California has been able to gather sufficient information to answer these questions to its satisfaction and mount a prosecution against the driver based on his alleged concealment of this type of condition. Moreover, the significant media coverage of this crash includes reports of pending civil litigation based on similar factual allegations. Yet, we failed to gather enough information to satisfy staff as to the cause of the events captured on the onboard camera.

This Board has made determinations of medical probable cause with much less evidence than is available for pursuit here. Yet, we decline to do so in this case, and make no serious attempt to access the abundance of documents and records that apparently exist and are ostensibly the bases of various court matters. It is unclear to me why the subpoena authority of the National Transportation Safety Board does not match that of the State of California's criminal or civil litigants. I have not in any previous investigation seen reluctance on the part of a subpoenaed party cited as cause for abandoning a line of inquiry, nor do I now believe such resistance to be

any sort of justification. There is no explanation as to why this accident investigation is cause for establishing this sort of precedent.

I am heartened by the fact that students on this bus used their seatbelts and agree with staff's excellent investigation of those seatbelts' effectiveness. I also agree with our recommendations regarding seatbelts and inward facing cameras. However, for the foregoing reasons, and because I believe them to be wholly unsupported by the facts of this case, I must also disagree with the following recommendations:

> To the National Association for Pupil Transportation, National Association of State Directors of Pupil Transportation Services, and National School Transportation Association:
>
> Inform school bus drivers of the impact their health may have on the safe transportation of school children, of their responsibility to accurately and completely report their health history and medications, and of the legal consequences of dishonesty on the medical examination report. (H-16-7)

I am not certain what is intended by "legal consequences of dishonesty." Clearly, an employer cannot be required to provide legal advice. More importantly, there is absolutely no reason to think even the sternest admonition might compel a young person faced with the loss of employment to reliably self-report. This issue is not unique to commercial motor vehicles. We have seen the same sort of issues in every mode of transportation. We must think outside-the-box to determine ways in which those with relevant information and fewer disincentives, such as treating physicians, can share important information with licensing authorities.

> To the Federal Motor Carrier Safety Administration:
>
> Develop a comprehensive medical oversight program for interstate commercial drivers that contains the following program element: Individuals performing examinations have specific guidance and a readily identifiable source of information for questions on such examinations. (H-01-20)

The report does not support this recommendation. I cannot see a connection between this recommendation and the known facts in this crash. There are certain medical conditions that even medical examiners with a plethora of guidance cannot detect without honest communication from a patient. The medical examination form for commercial drivers asked numerous questions that would identify the type of condition this driver is suspected of having. In fact, the basis of the criminal charges against him seems to be an allegation that the driver's answers or failure to answer those very specific questions. There is no question that treating physicians often have more information than do medical examiners, and a recommendation to those medical practitioners would be more logical and, potentially, produce better results.

I remain disappointed in this report. Although certain technical elements are very strong, it does not succeed in the primary mission of the NTSB. We investigate the causes of accidents to make recommendations so that same types of accidents do not happen again. Medical fitness for duty is on our 2016 Most Wanted List for a good reason. Basic medical fitness is the foundation for

the safe operation of every type of personal and commercial vehicle. We have not used these tragic circumstances to learn all we can to make informed recommendations likely to actually prevent crashes. By failing to properly address the probable cause and contributing factors in this investigation, this Board fails not only the children and community affected by this crash but also those likely to be affected by those in the future.

National Transportation Safety Board

Highway Accident Brief

Collision of Two School Buses with Subsequent Rollover

Accident Number:	HWY15FH002
Accident Type:	Collision of two school buses with subsequent rollover
Location:	Asheville Highway (State Route 9), near John Sevier Highway (State Route 168) in Knoxville, Knox County, Tennessee
Date and Time:	December 2, 2014; about 2:52 p.m.
Vehicle #1:	2000 Navistar International transit-style school bus (bus #44)
Operator:	Knoxville Independent School District
Vehicle #2	2001 Thomas Built transit-style school bus (bus #57)
Operator:	Knoxville Independent School District
Fatalities:	3
Injuries:	22

Crash Description

On Tuesday, December 2, 2014, about 2:52 p.m. eastern standard time, a 2001 Thomas Built transit-style school bus, identified as bus #57, was transporting 18 students and an adult teacher's aide from Sunny View Primary School in Knoxville, Knox County, Tennessee. The bus was traveling westbound in the left lane of Asheville Highway and had just crossed the intersection with John Sevier Highway (East). In the meantime, a 2000 Navistar International transit-style school bus, identified as bus #44, was traveling eastbound in the left lane of Asheville Highway transporting 22 students from Chilhowee Intermediate School. As bus #44 approached the signalized intersection with John Sevier Highway, traffic in front of the bus was stopped at the intersection. The driver of bus #44 swerved left to avoid the stopped traffic and crossed a 30-foot-wide painted median into the westbound lanes of Asheville Highway. The front of bus #44 collided with the left (driver) side of bus #57. (See figure 1 for crash location.)

Following the initial impact, bus #57 rotated counter-clockwise (about 90 degrees); the vehicle partially departed the roadway, slid onto the shoulder, and collided with a barricade made of five steel poles embedded in a concrete curb, before overturning onto its right side. Bus #57 came to rest on the right shoulder of Asheville Highway, partially blocking its westbound travel lanes. Bus #44 came to rest facing north across the westbound lanes.

As a result of the crash, the adult teacher's aide, who was reportedly seated on the left side near the rear axle of bus #57, died. Additionally, two student passengers seated near the impact zone on the left side of bus #57 received fatal injuries.

At the time of the crash, there was intermittent precipitation in the area, and road conditions ranged from dry to wet, depending on the specific location.

Collision of Two School Buses with Subsequent Rollover

The National Transportation Safety Board (NTSB) initiated a field investigation of this crash with an emphasis on the human performance issues related to distracted vehicle operation. Highway and vehicle factors were also examined. This investigation was conducted with the assistance of the Knoxville Police Department (KPD).

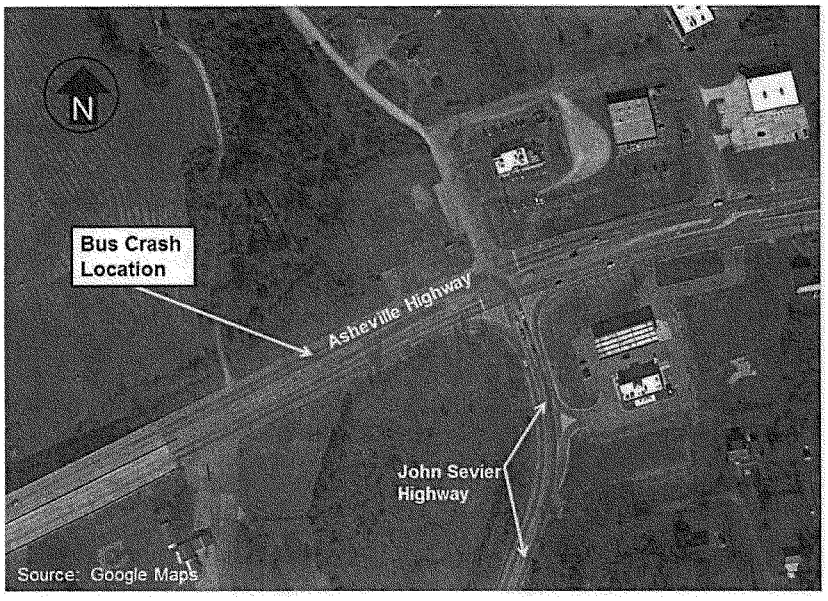


Figure 1. Crash location on westbound Asheville Highway, west of intersection with John Sevier Highway.

Highway Information

The crash occurred on Asheville Highway (State Route 9) approximately 465 feet west of the intersection with John Sevier Highway. The roadway in the area of the crash is a four-lane divided highway with a posted speed limit of 45 mph. The roadway consists of two 12-foot-wide lanes in each direction.

The right-hand shoulders vary in width from 10 to 14 feet, and the median features dividing the east- and westbound lanes include a 2-foot-wide concrete barrier; a 12-foot-wide earthen median; and, at the section of highway where the two school buses collided, a 30-foot-wide painted median.

Following the initial impact, bus #57 rotated, slid onto the shoulder, and collided with a barricade consisting of a concrete curb supporting five yellow vertically mounted tubular steel

poles. The barricade was used to delineate a private driveway from another driveway that provided access to the Holston River boat ramps. (See figures 2 and 3.)

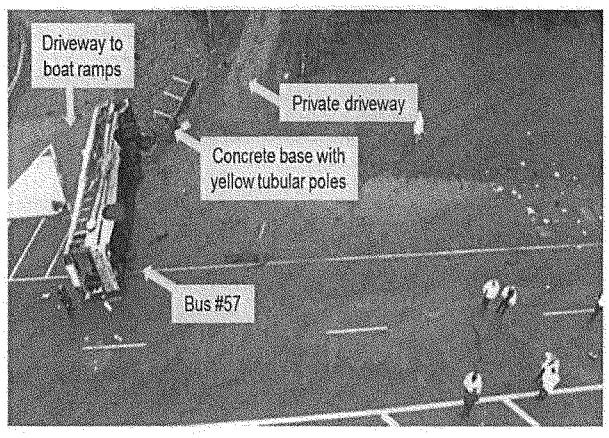


Figure 2. Bus #57 at final rest postaccident; also shown are a private driveway entry, the barricade the bus struck, and the entry to a driveway to the boat ramps on the Holston River. (Courtesy of the Knoxville Police Department)

Figure 3. Bus #57 at final rest on its right side and the overturned barricade. (Courtesy of the Knoxville Police Department)

The most recent resurfacing on Asheville Highway in the vicinity of the crash occurred on March 11, 2005. At the request of the NTSB, the Tennessee Department of Transportation Materials Division conducted pavement friction testing on Asheville Highway in the crash area.

Collision of Two School Buses with Subsequent Rollover

The friction testing was performed in accordance with the American Society for Testing and Materials standard E274M-11.[1] The pavement friction testing data were collected at a standard speed of 40 mph, and the test was conducted using a ribbed test tire. The test results are shown in table 1.

Table 1. Summary of pavement friction testing on Asheville Highway in crash area.

	Pavement Friction Values	
Log Mile	Westbound Outside Lane	Eastbound Outside Lane
7.5	45.6	47.8
8.0	48.6	46.9
8.1	48.5	42.6
8.5	48.9	48.6
9.0	51.5	51.8
9.5	50.9	50.7

The pavement friction values varied from a low of 42.6 to a high of 51.8. The rating and evaluation of pavement friction values vary with each state's department of transportation; however, it is generally understood that friction may not be a factor contributing to wet weather accidents when friction values are higher than 35 for vehicles with ribbed (or treaded) tires. Both school buses were equipped with ribbed tires in good condition.

Traffic control signs for eastbound traffic in the area of the crash consisted of a "no left turn" sign approximately 675 feet in advance of the intersection with the John Sevier Highway and a "signal ahead" sign approximately 450 feet in advance of the intersection. (See figure 4.)

[1] The test method uses a measurement representing the steady-state friction force on a locked test wheel as it is dragged over a wetted pavement surface under constant load and at a constant speed while its major plane is parallel to its direction of motion and perpendicular to the pavement.

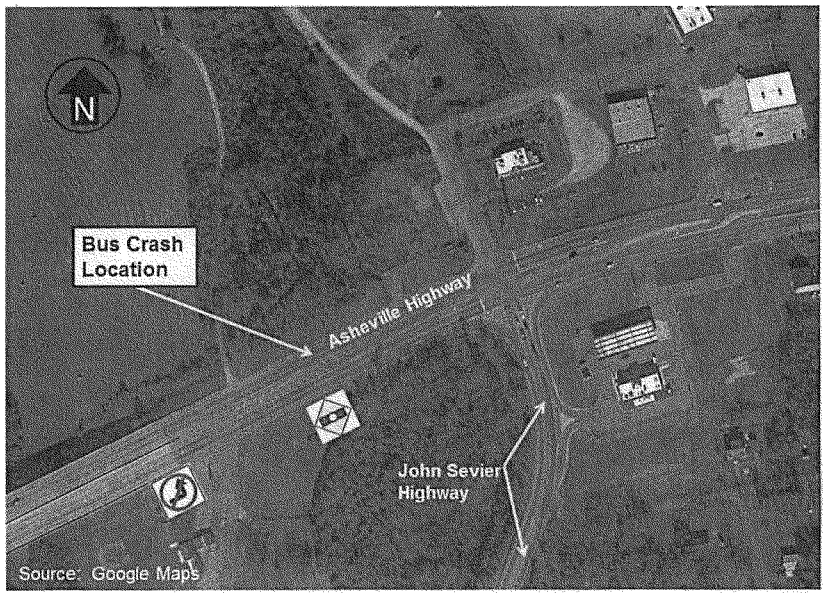


Figure 4. Locations of the advance "no left turn" and "signal ahead" signs on eastbound Asheville Highway, approaching the intersection with John Sevier Highway from the west (precrash route of eastbound bus #44).

Vehicle Information

Bus #44. Bus #44 was a 2000 Navistar International model 300 transit-style school bus designed to carry 72 passengers. The bus was configured with a loading door on the forward end of the right (passenger) side, followed by 12 windows; the left (driver) side of the bus had a driver window followed by 12 passenger windows. There were two emergency window exits on each side, a vertically hinged emergency exit door on the left side, a horizontally hinged exit door at the back, and two emergency roof exit hatches.

Postcrash examination of the vehicle revealed that damage was most severe at the left front corner. The left frame rail was displaced outward and split open 36 inches from the front. The left steering tie rod was bent about 90 degrees outward, and the steering box was displaced to the region of the left front wheel well. The right frame rail was displaced to the left at an angle of about 162 degrees and buckled at its attachment to the front suspension.

The bumper and front body panels below the windshield were deformed or missing. The windshield frame was deformed, and the glazing was missing. The front surface of the frame of the passenger loading door was crushed rearward approximately 10 inches. The stairs at the

loading door were crushed in about 3 inches at the bottom. No significant damage was noted on the right (passenger) side or the back of the bus. (See figure 5.)

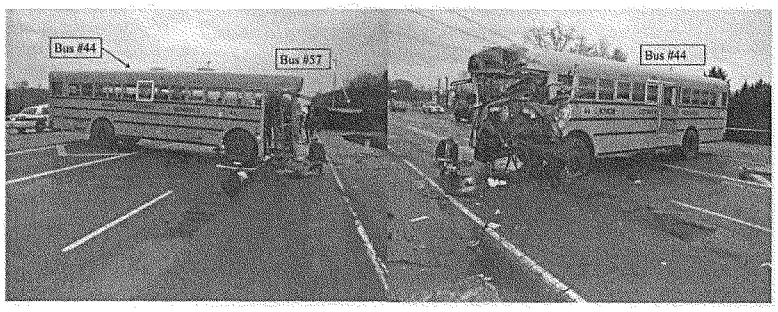


Figure 5. At left, bus #44 in final rest position, showing the right side of the bus (overturned bus #57 can be seen in the photo background). At right, the focus is on damage to the left front of bus #44. [Note: In both photos, the bright yellow tape used on the bus exterior to highlight emergency exits is visible.] (Courtesy of the Knoxville Police Department)

At the driver's compartment, the floor board and pedals intruded significantly into the vehicle, and one of the pedals was fractured. The steering column was nearly in contact with the front of the driver seat cushion, and the rim of the steering wheel was about 4 inches from the middle of the seatback.

Bus #57. Bus #57 was a 2001 Thomas Built model IT7 transit-style school bus designed to carry 72 passengers. The bus had a loading door on the forward end of the right (passenger) side, followed by 12 windows. The left (driver) side had a driver's window followed by 12 passenger windows. There was a small triangular window at each side of the windshield. There were two emergency window exits on each side, a vertically hinged emergency exit door on the left side, a horizontally hinged exit door at the back, and two emergency exit roof hatches.

The postcrash inspection revealed that the left side exit door was heavily damaged, nonfunctional, and displaced inward into the passenger compartment. The seat in front of the side exit door was found in the folded-up position. The rear exit door was found latched and was functional except for the gas struts designed to keep it open. The struts were present but did not function. The area around the rear exit door was littered with debris, dirt, and glass; there were no obvious indications of exit use. Both exit doors were marked on the outside and inside of the bus. The two roof hatches were found open and functional. The hatches measured 24 by 24 inches.

The passenger loading door on the right side was not damaged and was functional. There were dents along the roofline beginning just aft of the loading door and extending to just above the fifth passenger window. There were vertical scrape marks on the body trim along the entire right side of the bus, and the right side marker lights were crushed. The right rear wheels were rotated inward at the front at an angle of about 163 degrees to the body of the bus. The body

panel below the mid-height trim was dented inward from the point aft of the rear wheel well extending to the back.

Significant damage, consisting of scrapes and dents, began at the left front wheel well and extended along the entire left side. The left sidewall was deformed inward; the deformation was most severe near the midpoint of the bus. The approximate intrusion distances into the passenger compartment measured 23 inches at the top of the windows, 15 inches along the lower portion of the window line, and 5 inches at the floor level. The panel at the bottom of the bus body had been pushed inward about 22 inches. There was a large tear in the left sidewall, beginning vertically at the level of the top of the wheel well and horizontally 78 inches aft of the front wheel well. The tear extended horizontally to 109 inches aft of the front wheel well. (See figure 6.)

Figure 6. At left, bus #57 at final rest on its side. At right, view of bus #57 after it had been returned to an upright position, showing impact damage along the left (driver) side. (Courtesy of the Knoxville Police Department)

The floor on the driver's side was damaged due to intrusion, and a crack and buckling of the floor was evident at seat row #5. All the primary seat structures remained intact, but several structural mounting points were deformed or fractured in the intrusion area.

Occupant Information

Bus #44 was occupied by a 47-year-old male driver and 22 intermediate school student passengers, ranging in age from 8 to 11 years old. Bus #57 was occupied by a 67-year-old male driver, a 46-year-old teacher's aide, and 18 primary school student passengers, ranging in age from 5 to 8 years old. Table 2 provides injury information for all occupants of both vehicles. There were no ejections; however, the injuries to the occupants of bus #57 were more numerous and severe than those to the occupants of bus #44 because bus #57 struck the barricade and overturned onto its side.

Table 2. Injury levels for occupants of both buses.

Injury severity[a]	Bus #44 driver	Bus #44 passengers	Bus #57 driver	Bus #57 passengers	Total
Fatal	0	0	0	3	3
Serious	1	0	0	2	3
Minor	0	8	0	11	19
Not Injured	0	14	1	3	18
Total	1	22	1	19	43

[a] Title 49 *Code of Federal Regulations* 830.2 defines fatal injury as any injury that results in death within 30 days of the accident, and serious injury as any injury that: (1) requires hospitalization for more than 48 hours, commencing within 7 days from the date of injury; (2) results in a fracture of any bone (except simple fractures of fingers, toes, or nose); (3) causes severe hemorrhages, nerve, or tendon damage; (4) involves any internal organ; or (5) involves second- or third-degree burns, or any burn affecting more than 5 percent of the body surface.

The driver of bus #44 was not wearing the available three-point seat belt and, as bus #44 swerved toward the left, he was displaced to the right and out of position behind the steering wheel. As a result, the driver suffered serious injuries to his lower extremities and was admitted to the hospital.

Human Performance

The KPD conducted toxicology tests for the driver of bus #44, and the results were negative for alcohol or illicit drugs. The test results showed trace amounts of prescription medications in the driver's blood sample, but these were not at levels that could have contributed to the collision.

According to the local authorities, the driver of bus #44 stated that he had swerved left to avoid stopped traffic ahead of him and then collided with bus #57. A passenger on the bus told police that the driver was looking down, as though he were texting (or possibly nodding off), as the bus approached the stopped traffic ahead.[2] The KPD case summary for this crash stated that, based on interviews with the children who rode bus #44, the driver "spends a lot of time looking at his phone texting or playing games."[3] Tennessee law prohibits school bus drivers from using a mobile phone while the bus is in motion and transporting children, except for use necessary in an emergency. All drivers in the state are prohibited from texting while driving.

Local authorities obtained a search warrant to retrieve the data from the global positioning system and real time data recorders (GPS/RTDR) for both school buses, as well as

[2] See Survival Factors Attachment 2, KPD report, page 8, in the public docket for this investigation.

[3] See Survival Factors Attachment 2, KPD report, page 11, in the public docket for this investigation.

the data on the cell phone and personal tablet device belonging to the driver of bus #44.[4] Although NTSB investigators did not have direct access to the electronic data (GPS/RTDR download and cell phone data), the KPD later provided the information obtained from these sources.

The GPS/RTDR data showed that the bus #44 driver was actively operating the bus from 2:30:25 p.m. until the collision at 2:52:27 p.m.; a period of 22 minutes 2 seconds. Data from the cell phone records showed that the driver was engaged in texting with two individuals prior to operating the bus and that he continued to engage in cell phone use while operating the bus, including documentation of a text message being read in the moments prior to the crash.[5] This evidence, coupled with the witness report that the driver was looking down as though texting just before the crash, strongly indicates that the driver's distraction, due to his reading a text message, caused him to fail to react quickly enough to avoid the collision.[6]

Probable Cause

The National Transportation Safety Board determines that the probable cause of the December 2, 2014, collision between two school buses near Knoxville, Tennessee, was the late reaction and subsequent loss of control by the driver of bus #44 when he swerved to avoid traffic stopped ahead of him due to distraction caused by his reading a text message on his cell phone while driving. Contributing to the severity of the injuries were the crash dynamics and interaction between school bus #44 and school bus #57, resulting in school bus #57 rotating counter-clockwise approximately 90 degrees and subsequently striking a barricade before overturning onto its side, causing the passengers to be displaced from their seating positions.

[4] The Knoxville school district monitored "All Events" (real time) on its school buses with GPS/RTDR devices. The items recorded by the devices included the GPS readings for the vehicle's speed, heading, and cumulative distance, as well as the following events: amber lights off, amber lights on, diagnostic message, entrance door close, entrance door open, GPS update, harsh acceleration, harsh braking, harsh turning, hi-res GPS event, idle alert, and ignition off.

[5] The KPD correlated the clocks from the E-911 system and the driver's cell phone, which indicated that the driver had read a text message in the moments prior to the crash. (See Survival Factors Attachment 2, KPD report, page 8, in the public docket for this investigation.)

[6] On April 28, 2016, Tennessee Governor Haslam signed a bill stemming from this crash into law. The new law increases the penalties for texting and using mobile electronic devices while driving a school bus. Under the new Tennesse law, effective July 1, 2016, texting while driving a school bus or while stopped to load or unload children will be a Class A misdemeanor with a mandatory minimum jail sentence of 30 days and $1,000 fine upon conviction. If convicted, a school bus driver would also be permanently barred from driving a school bus again in the state of Tennessee.

Collision of Two School Buses with Subsequent Rollover

Safety Issue

Driver Distraction: The driver of the striking school bus in this crash was distracted from his driving duties by his practice of reading and sending text messages while driving. The NTSB believes that focusing on any other task while driving impairs performance and can have deadly consequences, as it did in this case. The fact that even while transporting children a driver would engage in such risky behavior shows how prevalent it has become on our roads. Because of the danger posed by distracted drivers, the NTSB has made "DISCONNECT FROM DEADLY DISTRACTIONS" one of our Most Wanted Transportation Safety Improvements.

For more details about this accident, visit http://dms.ntsb.gov/pubdms/ and search for NTSB accident ID HWY15FH002.

Issued: May 5, 2016

AMERICAN ASSOCIATION
OF STATE HIGHWAY AND
TRANSPORTATION OFFICIALS

AASHTO

STATEMENT FOR THE RECORD FROM

The American Association of State Highway and Transportation Officials

REGARDING

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

BEFORE THE

Committee on Transportation and Infrastructure of the United States House of Representatives

ON

July 18, 2017

American Association of State Highway and Transportation Officials
444 North Capitol Street, N.W., Suite 249
Washington, D.C., 20001
202-624-5800
www.transportation.org
info@aashto.org

INTRODUCTION

The American Association of State Highway and Transportation Officials (AASHTO) is pleased to provide comments as part of the House Transportation and Infrastructure Committee's hearing entitled "FAST Act Implementation: Improving the Safety on the Nation's Roads". Representing all 50 States, the District of Columbia, and Puerto Rico, AASHTO serves as a liaison between State departments of transportation (state DOTs) and the Federal government. AASHTO again thanks the Committee and Congress for passage of the Fixing America's Surface Transportation Act (FAST Act) in 2015.

AASHTO welcomes the opportunity to comment and provide recommendations for the Committee to consider related to the Highway Safety Improvement Program and the changes to this program made by the FAST Act. In addition, AASHTO would like to provide its unique perspective as it relates to the issue of Automated Vehicles.

HIGHWAY SAFETY IMPROVEMENT PROGRAM

Prior to enactment of the FAST Act, federal law allowed Highway Safety Improvement Program (HSIP) funds to be used for both infrastructure and behavioral programs that increase safety on the nation's roadways. Specifically, the definition of a highway safety improvement project prior to the FAST Act allowed HSIP funds to be used for roadway safety infrastructure, along with programs that promoted highway safety awareness, educational programs related to motorcycle safety, enforcement of highway safety laws, and infrastructure-related equipment to support emergency services.

A number of states had utilized a relatively small portion of their HSIP funds for education, enforcement and emergency medical service programs such as first responder training. In fact, the national average of HSIP funds obligated to non-infrastructure activities in 2014 across all states was only six percent. The FAST Act narrowed this definition of a highway safety improvement project to a list of activities specified in 23 USC Section 148—a list which does not include public education and awareness activities.

States are required to develop a Strategic Highway Safety Plan (SHSP) as part of the HSIP. These plans have to include multidisciplinary approaches to addressing safety priorities in the state—not just infrastructure safety countermeasures. As part of AASHTO's Toward Zero Deaths National Strategy, this multidisciplinary approach is critical to developing a comprehensive plan to address all factors associated with roadway safety issues. Non-infrastructure safety activities are an important part of the success of the Toward Zero Deaths National Strategy and the success in implementing a state's SHSP. Maintaining the flexibility in determining how to spend their federal HSIP funds and the ability to support their strategic safety efforts is important to AASHTO and its member states.

Given the compelling safety improvement outcomes associated with broader HSIP eligibilities, we strongly recommend restoring flexible definition of a highway safety improvement project to allow HSIP funds to be used for public awareness and education programs and activities, and support for enforcement and emergency response activities.

AUTOMATED VEHICLES

AASHTO has collaborated extensively with other key stakeholders in the public and private sectors in providing a better understanding and framework to be used as part of the expanding debate related to

Connected and Autonomous Vehicles (CAV). AASHTO addresses this area as CAV because the fullest safety and mobility benefits will be realized through connected autonomy.

As the primary owners and operators of this nation's roadways, it is important that AASHTO and other groups representing state interests be directly involved with Congress and the US Department of Transportation (USDOT) in the development of policies and statutes in this area.

As part of the current Congressional discussion related to CAVs, AASHTO would like to highlight five key areas of interest and concern that will guide our review of any legislation or policy.

1. Expansion of federal preemption to encompass vehicle operation, which has historically been the purview of the states;
2. Potential for the lack of safety oversight for CAVs operating (i.e., testing and/or deployment) on public roadways;
3. Breadth, scope and impact of the exemptions for the Federal Motor Vehicle Safety Standards;
4. Inability to effectively evaluate CAVs prior to deployment on public roadways, and;
5. The importance of state representation on any federal advisory or policy councils in this area.

AASHTO, along with the American Association of Motor Vehicle Administrators, convened an Automated Vehicle Public Policy Roundtable earlier this year. At this event, a number of public agency associations gathered to discuss the impacts to the public, the roadways and roadway safety from the expanded use of CAVs. As part of that discussion, the group highlighted several policy areas that require further investigation, research and policy development:

1. Operational Awareness: Ensuring an understanding of the operational issues that come with expanded use of CAVs;
2. Regulatory Environment: Clearly delineating the roles of the federal, state and local governments;
3. Data: Access to data, use of data, security of the data and the generation of new data sources;
4. Enforcement: Ensuring the ability of CAVs to self-diagnose their systems and the enforcement of driving laws and regulations;
5. Workforce Development: Addressing the changing needs within the transportation workforce and economy;
6. Communication: Communicating with the public related to CAV use and technology, the need for consistent messaging to be used by industry, and the importance of educating the driver/buyer of CAVs on the safe use of the technology;
7. Funding: Addressing the costs associated with the testing and deployment of CAVs and connected vehicle technology, and;
8. Planning for the Future: Preparing public sector agencies for the safe use of CAV technology.

This is a very complex issue with far-reaching implications. As Congress and the USDOT work to develop legislation and policies related to the use of CAVs, AASHTO strongly requests to have a seat at the table. Given our members' ownership and operational responsibilities on our nation's roadways, this extensive perspective and experience will be a valuable resource to this effort.

CONCLUSION

Thank you again for the opportunity to provide comments and recommendations related to federal safety programs. We at AASHTO stand ready to assist you as you exercise oversight of these issues and look to reexamine them in 2020.

○