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U.S. Department of Transportation  
Hearing of the U.S. Senate Appropriations Committee  
Subcommittee on Transportation, Housing and Urban Development, and Related Agencies  
Wednesday, November 16, 2016

Chairman Collins, Ranking Member Reed, and Members of the Committee:

Thank you for holding this hearing and inviting me to testify. My name is Mark Rosekind, and I am the Administrator of the National Highway Traffic Safety Administration, or NHTSA.

At NHTSA, our mission is to save lives on America's roadways. For 50 years, we have carried out that mission by writing and enforcing strong regulations to make vehicles safer, fighting against drunk driving, building a national consensus about seatbelt use, and so many other efforts that have saved hundreds of thousands of Americans.

But we have far more work to do. And that work can be measured by some alarming numbers.

In 2015, we lost 35,092 people on our public roads. At NHTSA, we know that is not just a number. Every one of those is a mother or father, a son or daughter, a coworker, a friend. In the United States, we lose the equivalent of a fully-loaded 747 on our roadways every single week.

And the problem is getting worse. Last month we announced that roadway fatalities in the first half of this year are up over 10 percent.

It is against this backdrop that the Department of Transportation, under the leadership of Secretary Anthony Foxx, has been working so hard on our efforts to accelerate the safe deployment of automated vehicle technologies.

Because while automated vehicles carry enormous potential to transform mobility, reshape our transportation system and transform our economy, it is their awesome potential to revolutionize roadway safety that has us so motivated.

And there is one more number that helps explain why. That number is 94. That is the percentage of crashes that can be tied back to a human choice or error. That's a choice to speed or drive drunk, to send a text message from behind the wheel or misjudge the stopping distance.

And that 94 percent figure represents the untold potential of automated vehicle technologies. We envision a future where advanced technologies not only help reduce crashes, but also make possible a world in which fully self-driving cars hold the potential to eliminate traffic fatalities altogether.

The Department of Transportation views this moment as the cusp of a new technological revolution that may transform roadway safety forever.

The Federal Automated Vehicles Policy, which the Department and NHTSA issued in mid-September, is the world's first comprehensive government action to guide the safe and efficient development and deployment of these technologies. Today, I will discuss that Policy, how we developed it, and where we are going next.

In January of this year, Secretary Foxx made two important announcements.

First, he announced that President Obama was making a \$3.9 billion budget request for automated vehicles research. This is a major commitment from the Administration to advance this technology, and DOT continues to strongly support this request.

Second, he directed NHTSA to write a new policy covering four areas: One, vehicle performance guidance for automakers, tech companies, researchers and other developers and testers of automated vehicle technologies. Two, a model state policy to build a consistent national framework for the testing and operation of automated vehicles. Three, an exploration of the use of our current regulatory tools that can be used to advance these technologies. And four, a discussion of possible new tools that the Federal government may need to promote the safe deployment of advanced technologies as the industry continues to develop.

Over the subsequent nine months, NHTSA hit the road, traveling to discuss automated vehicles with industry, academics, State governments, safety and mobility advocates, and the public. This Policy is the product of that significant input.

Before discussing the individual components, I would like to share a few thoughts about our approach.

First it is important to understand our traditional approach to regulating motor vehicles. For 50 years, our approach has largely been reactive. NHTSA has prescribed safety standards, and then responded to problems as they arise.

A traditional approach to regulating these new technologies would be to engage solely in rulemaking process, writing new regulations that prescribe specific standards. Our view is that approach would stymie innovation and stall the introduction of these technologies.

It would also be a long process. Rulemakings, and the research necessary to support them, take years, meaning that any rule we might offer today would likely be woefully out-of-date by the time it took effect, given the pace of technological development in this space. Let me be clear that using the notice-and-comment rulemaking process to establish new standards will absolutely play an important role as this technology matures and is adopted. But it is not the only tool in our bag, and we have created an innovative approach that will better serve both safety and innovation in the immediate term.

Our Policy represents a continuation of the new proactive safety approach that we have built at NHTSA under the leadership of Secretary Foxx. This Policy allows NHTSA to work with automakers and developers on the front end, to ensure that sound approaches to safety are followed throughout the entire design and development process. This is a new approach, and it's

going to take some adjustment for everyone involved. But we are confident that it will help us accomplish two goals: first, to make sure that new technologies are deployed safely; and second, to make sure we don't get in the way of innovation.

As the Federal regulator with the responsibility of ensuring vehicles are as safe as they can possibly be, we play an important role on behalf of the American public to ensure that vehicle technologies do not present safety threats.

At the same time, we recognize the great lifesaving potential of these new technologies, and want to do everything we can to make sure that potential is fully realized and that they are deployed as quickly as possible to save as many lives as we can.

Some people have talked about safety and vehicle automation as on the opposite ends of a spectrum, as if there were a trade-off between safety and innovation. But at the Department of Transportation, we view our role as promoting safety innovation. Our Policy is designed to promote the safe and expeditious deployment of new technologies that have the potential to reduce crashes and save lives.

Our approach is not prescriptive. It does not tell developers *how* they must provide safety, but instead it builds a transparent and proactive approach to ensure that they are properly addressing the critical safety areas.

Finally, I want to be clear that while this Policy establishes an important framework for the development and deployment of automated vehicles, it is not the final word. In our view, this Policy is the right tool at the right time. It answers a call from industry, State and local governments, safety and mobility advocates and many others to lay a clear path forward for the safe deployment of automated vehicles and technologies.

But we intend this Policy to evolve over time. That evolution will be based on comments we receive from the public, our own experience in implementing it over the coming months and years, and, perhaps most importantly, based on the rapid evolution of the technology itself. We have designed this Policy to be nimble and flexible, to allow us to stay at the leading edge of this revolution.

Before I discuss each component of the Policy, allow me to say a few words on definitions.

First, it is important to note that with this Policy, we are officially adopting the SAE International levels of automation, ranging from zero to five. The primary focus of the Policy overall is on what we refer to as "highly automated vehicles", or HAVs. Those are vehicles at levels three through five on the SAE level scale, or vehicles that—at least in some circumstances—take over full control of the driving task. A portion of the first section of the Policy also applies to Level 2 vehicle systems, which include advanced driver-assistance systems already on the road today.

The Policy covers all automated vehicles that are designed to operate on public roads. That includes personal light vehicles, as well as heavy trucks. It even includes vehicles that might be designed to not carry passengers at all.

Finally, I note that most of the Policy is effective immediately. We expect that developers and manufacturers of AV technologies will use the Policy to guide their safety approach. Some portions of the Policy—notably the Safety Assessment Letter in the Vehicle Performance Guidance—will become effective following a Paperwork Reduction Act process that we expect to be completed within the next few months.

### **Vehicle Performance Guidance for Automated Vehicles**

The first section is the Vehicle Performance Guidance for Automated Vehicles. This is guidance for manufacturers, developers and other organizations involved in the development of automated vehicles. The heart of the Guidance is a 15 point “Safety Assessment” that spells out the critical safety areas that developers should address for the safe design, development, testing and deployment of highly automated vehicles prior to the sale or operation of such vehicles on public roads.

The Safety Assessment covers areas such as the operational design domain—essentially the where and when an AV is designed to operate automatically—fallback conditions, cybersecurity, privacy, and the human-machine interface.

We identified these areas through our extensive consultations with industry, academia and advocates as the critical safety issues that must be addressed to ensure that automated technologies are safe.

Critically, the Guidance does not specify *how* AV developers are intended to address the areas. Instead, the Guidance asks developers to document their own processes and then provide NHTSA with a Safety Assessment letter in which they explain their approach. This process is expected to yield a variety of different approaches for every one of the areas. That is intentional, and is one of the ways that we are preserving and promoting the innovation process. Government does not have all the answers, and our view is that the more approaches that innovators take to solving these problems, the more likely we are to find the best way.

### **Model State Policy**

The second section is the Model State Policy.

For the last 50 years, there has been a fairly clear division of responsibility between the Federal government and the States for the oversight and regulation of motor vehicles. Generally speaking, it has been the Federal government’s responsibility to regulate motor vehicles and equipment safety, while the States have regulated drivers and traffic laws.

That division of responsibility may be less clear in a highly automated vehicle world where increasingly the vehicle’s automated systems become the driver.

The Model State Policy delineates the Federal and State roles for the regulation of these vehicles, and it outlines the approach we recommend to States as they consider the regulation of testing

and operation of automated vehicles on their public roads. Our goal is to build a consistent national framework for the development and deployment of automated vehicles, so that users can take their vehicles across state lines as they can today, and so that developers are building toward a single set of standards, rather than 50.

The Model State Policy confirms that States retain their traditional responsibilities for vehicle licensing and registration, traffic laws and enforcement, and motor vehicle insurance and liability regimes. At the same time, the Policy reaffirms that the Federal government will continue to be responsible for the oversight of vehicle safety and design, including automated features.

The Policy was developed in close coordination with the American Association of Motor Vehicle Administrators (AAMVA), individual States and other stakeholders. It suggests recommended areas for States to consider in the development of their own regulations, including testing regimes and registration. It also identifies a number of areas that need to be further discussed and developed, including how law enforcement will interact with highly automated vehicles, and the development of a consistent approach to insurance and liability challenges. We also note in the Policy that States do not have to take any action at all.

### **NHTSA's Current Regulatory Tools**

The third section addresses NHTSA's Current Regulatory Tools. This section discusses how NHTSA will use the tools currently at its disposal to promote and expedite the safe development and deployment of highly automated vehicles.

The first of those tools discussed is our interpretation authority. The current Federal Motor Vehicle Safety Standards generally do not contemplate automated vehicle technologies. Therefore, it can sometimes be unclear how those standards apply to advanced technologies. In this section, we lay out the process by which developers of AV technologies can submit interpretation requests to the agency to determine whether and how their technologies conform with the standards. The agency also commits to a greatly expedited process for reviewing these interpretation requests. On simple safety-related interpretation requests, we commit to providing answers within 60 days. Compared to historical norms, that is lightning speed.

The second tool discussed is our exemption authority. Congress has granted NHTSA the authority to provide exemptions to manufacturers to deploy vehicles that do not conform to the Federal Motor Vehicle Safety Standards. While these exemptions are admittedly limited—to 2,500 vehicles for each of two years—the Agency views this tool as an important way of enabling a manufacturer to put a test fleet on the road to gather critical safety data and improve its technologies. The Policy similarly commits to an expedited process on simple safety-related exemptions, providing an answer within six months from the application.

The Agency's broadest power is its ability to write new safety standards. While this tool tends to take the longest amount of time—usually a period of years—it is the method that will ultimately allow for the large-scale deployment of nontraditional vehicle designs and equipment under consistent, broadly applicable standards. In addition, to the extent that performance-based

standards are adopted, this tool has the potential to allow for technological innovation while maintaining safety.

In this section, we also highlight that the Agency retains its broad defects and enforcement authority. We use that authority to investigate any unreasonable risks to safety, and to recall unsafe vehicles from the road. The same day NHTSA issued the Policy, we also issued an Enforcement Guidance Bulletin that makes clear that the Agency's traditional enforcement authorities extend to advanced vehicle technologies.

## **Modern Regulatory Tools**

The fourth and final section of the Policy discusses Modern Regulatory Tools, identifying 12 potential new tools, authorities and resources that could aid the safe deployment of new lifesaving technologies and enable the Agency to be more nimble and flexible.

Today's governing statutes and regulations were developed before highly automated vehicles were even a remote notion. For that reason, current authorities and tools alone may not be sufficient to ensure that highly automated vehicles are introduced safely, and to realize their full safety promise. This challenge requires NHTSA to examine whether the ways in which the Agency has addressed safety for the last several decades should be expanded and supplemented.

The new tools identified in this section include premarket approval, expanded exemption authority, imminent hazard authority, new research and hiring tools, and others that may better equip the Agency in the future as more technologies move from the lab to the road. These tools are offered for consideration by policymakers, industry, advocates and the public as we move forward.

One thing we know for certain is that the agency will need additional resources as this technology develops and is adopted. I have great confidence in the NHTSA team's expertise and ability. But it is undeniable that as more automakers move technology from the lab to the test track to the road, we will need to make sure our Agency is properly resourced to maintain pace.

We continue to support the President's budget request for more research dollars, and are committed to working with you in the coming months and years to identify what resources—both in personnel and research funding—will be necessary to achieve our mission.

## **Next Steps**

Finally, with respect to the Policy, I would like to highlight once again that we fully intend this Policy to be the first iteration of many to come. The Policy is effective now, and will continue to evolve based on feedback and our experience implementing it, and, most importantly, to keep pace with innovation. To that end, each section of the Policy highlights a series of next steps that we will take to implement and improve the Policy over time.

The first is our solicitation of public input. We are doing that through an open comment period that is open now through November 22<sup>nd</sup>. NHTSA is also hosting a series of public workshops

that began earlier this month on different sections of the Policy. I will note here that the full Policy, additional materials, and the portal for public comments can be found at [www.nhtsa.gov/AV](http://www.nhtsa.gov/AV).

Over the coming months we will be engaging experts to review the Policy, issuing further guidance on the Safety Assessment letter, and engaging stakeholders across the spectrum to help flesh out other areas of the Policy. For example, we will work with law enforcement organizations to further the conversation about how AVs will interact with the police, and work with industry to build the framework for the data sharing discussed in the Vehicle Performance Guidance. We are also engaged with other operating modes throughout the Department of Transportation, recognizing the roles and responsibilities they play with respect to public transit, commercial freight operations, and the highway system on which automated vehicles will operate.

We do not pretend to have answered every question in this Policy, and we will continue the conversation with the public about the best ways to develop and improve our Policy as we learn more. To that end, the Department of Transportation has committed to reviewing and updating the Policy annually.

As I conclude, I want to say a few words about the importance of the present moment in history. We have an industry that is rapidly developing innovative new technologies. And we have a government that is inspired and excited about the future of this technology.

But that future is not without threats. Bad actors or bad incidents could threaten to derail our collective efforts.

I want to close with the words President Obama used when he announced our new Policy in an op-ed in the Pittsburgh Post-Gazette. He wrote, “There are always those who argue that government should stay out of free enterprise entirely, but I think most Americans would agree we still need rules to keep our air and water clean, and our food and medicine safe. That’s the general principle here. What’s more, the quickest way to slam the brakes on innovation is for the public to lose confidence in the safety of new technologies. Both government and industry have a responsibility to make sure that doesn’t happen.”

It is our strong view that the best way we can build that public confidence is by working together, showing the public that the government is on the side of innovation and the industry is on the side of safety. We encourage you to join with us as we continue to develop this Policy and show the American public that their safety is the highest priority for all of us.

Thank you.