Remarks: Automated Vehicles Symposium 2016

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Remarks as Delivered

Good morning.

Last year, it was a great time to be you in Ann Arbor and so I really appreciate the return invitation.

Perhaps you remember that day, speaking about the importance of cybersecurity in the morning and then reading an article about a hack in the afternoon that just days later led to the recall of 1.5 million Jeeps.

And it's very kind of you to host this conference in my hometown.

For those of you who are visiting, welcome to summer in San Francisco.

The Giants aren't in town. But us locals have a different kind of sport in the summer. We head down to the Marina or Fisherman's Wharf and you look for the folks wearing shorts, flip-flops and an oversized San Francisco sweatshirt that they clearly just bought in their hotel gift shop, because it's freezing out there, right.

After all, it was Mark Twain who once noted, "The coldest winter I ever spent was a summer in San Francisco."

But sun, fog, cold or rain—nothing's going to put a damper on this opportunity to be with you here today.

Thanks to Neil [Pedersen, Executive Director of TRB] for his generous introduction. And thanks to all those at AUVSI, TRB and all the sponsors for their work in putting on this symposium.

This is a symposium that is being held so clearly in the right place, at the right time, and focused on the right things.

Before we get to that, I would like to recognize some of the key NHTSA team members who are also here today:

- Paul Hemmersbaugh, our Chief Counsel
- Nat Beuse, our Associate Administrator for Vehicle Safety Research
- Bryan Thomas, Communications Director
- Chris Monk, our Chief of Human Factors

These are just a small part the team that has been working hard, literally putting pen to paper to write the Highly Automated Vehicle guidance that the Department of Transportation will issue soon, and which Secretary Foxx discussed yesterday.

This morning, I am going to talk about that guidance, but first I will share a few thoughts about where we are today.

We are in an incredible period for the development of highly automated vehicles. We are literally seeing the future being created in front of us, and that future is being created by the people that are in this room today.

As you heard from Secretary Foxx yesterday, the Department of Transportation has been exceptionally forward-leaning on automated vehicles.

My remarks today will complement, not repeat, Secretary Foxx's remarks but he said something yesterday that I have to reinforce. And that is, at the National Highway Traffic Safety Administration, there are two numbers that explain exactly why we are so forward-leaning on this issue.

The first is 35,200. That is how many people we lost on American roads last year.

It's not just a number. Those are mothers and fathers, sons and daughters, colleagues, friends, family.

That number is alarmingly higher than just a year before. That is a dangerous warning sign that we must use as a call to action for improved safety on our roadways.

In the United States, we were already losing the equivalent of a 747 crashing every week. In 2015, we lost five more jumbo jets.

The second number is 94.

That's the percentage of crashes that can be tied back to a human choice or error.

We see impaired drivers getting behind the wheel when we know—and they know—they shouldn't.

We see drivers falling asleep at the wheel, or someone speeding through a school zone on their way to work.

Just last week, we saw a 28-year-old man from Oregon total his brother's car by hitting a tree because he was so distracted trying to capture a Pokemon.

But think about that 94 percent. If there was a way to account for all those human choices or behaviors, we would be talking about a world where we could potentially prevent or mitigate 19 of every 20 crashes on the road.

That is the promise of automated vehicles, and that is, at its core, why NHTSA and the Department of Transportation have been so focused on doing what we can to accelerate the lifesaving promise of highly automated vehicles and connected vehicles.

We see a future where vehicle automation and vehicle connectivity could cut roadway fatalities dramatically.

We see a future where the car itself stops a would-be drunk driver from ever hitting the road.

We see a future where a car coming up to an intersection knows to stop even at a green light, because it has already detected that another car is about to run the red light coming across its path.

We see a future where disabled people can reclaim independence and freedom in a personal vehicle.

We even see a future when a fully automated, self-driving car can relieve vehicle occupants from all driving responsibilities. That leaves them free to catch up on a book, make a phone call, or—yes — even catch a few more Pokemon.

But most importantly, we see a future where every driver, pedestrian, bicyclist and other road users are able to get to their destination safely, every time.

So that is the "why" of what we are doing, and I want to take a moment to address the question of "when," or perhaps "why now?".

A lot of folks have been asking us that question in these last six months. Why now? Earlier this year, we held two public meetings—one in Washington, one out here at Stanford—to inform the development of our guidance, and the comments on this issue of 'timing' ranged all over the place.

Some said we were moving too fast to regulate, and that we could threaten to stifle innovation.

Some said we were moving too fast to promote this technology, because it's not ready for the roads.

And some just said, hold on, we are having trouble keeping up.

On several occasions, I have commented that we should not overlook the irony of hearing that the Federal government is moving too fast.

But we also found lots of people—the kind of folks who are in this room—who have been wrestling with these questions for a long time, who already know that our work is not only timely, but necessary.

That is in part because the industry needs some level of certainty about what to expect from the government, as they invest in all of these new technologies. It is also in part because the States are already moving forward on their own, and are looking to NHTSA and DOT for guidance.

And it is in part because, as I have been saying for some time now, this technology is already on the road today.

Recently, it feels like some folks are just waking up to the important questions that highly automated vehicles present for our society. And by recently, I mean within the last 19 or 20 days, as reports around the country seem to be sounding the alarm.

They are shocked — shocked — to discover that there is vehicle automation that is already here.

And some of those same critics who mere weeks ago were saying that NHTSA was moving too fast—they're now sending out press releases demanding to know, "where was the government to stop this?

This may be a good moment to pause and address what is probably the elephant in the room.

I am not going to comment on any ongoing investigations, and it would be inappropriate to prejudge the outcome until all the facts are analyzed.

But I can say three things.

First, we know there will be incidents that occur with highly automated vehicles, and NHTSA will always be ready to use its authorities to investigate all aspects of vehicle safety and take whatever action is necessary.

Second, new highly automated vehicles provide an enormous opportunity for learning that has rarely existed before.

When something goes wrong, or a highly automated vehicle encounters an edge case—something it hasn't been programmed to deal with —that data can be taken, analyzed, and then the lessons can be shared with more than the the rest of that vehicle fleet. It could be shared with all automated vehicles.

Whereas new drivers must learn on the road and make the same mistakes as thousands before them, automated vehicles will be able to benefit from the data and learning of all others on the road.

Third and finally, I can tell you that no one incident will derail the Department of Transportation and NHTSA from its mission to improve safety on the roads by pursuing new lifesaving technologies.

I strongly believe that DOT and NHTSA are well-positioned to very soon unveil strong highly automated vehicle guidance that will lay the path to the safe deployment of lifesaving technologies.

That guidance, which as Secretary Foxx said yesterday, is being reviewed, tweaked and perfected as we speak. It's an important document, and so it's important that we get it right.

As Secretary Foxx did yesterday, I want to share a few of the questions we've been addressing, and an explanation of our approach.

First, let's start with the question that everyone asks about automated vehicles. When will they be safe enough?

To some people, that may seem like a really simple enough question. But I expect the people in this room know and appreciate how hard that question is to even define, much less answer.

Too often we discuss the safety of these new technologies as if somehow innovation and safety are at the opposite ends of a spectrum.

In my view, I see it as promoting safety innovation, taking technology that has lifesaving potential and getting it on the roads safely and quickly.

Of course we have to do everything we can to make sure new technology does not introduce new safety risks, but we also can't stand idly by while we wait for the perfect.

In roadway safety, we are not in a good place. We're not in a good place that we are somehow trying to make better.

We lost 35,200 lives on our roads last year. We are in a bad place. This is a bad situation, and we should be desperate for new tools that will help us save lives.

If we wait for perfect, we'll be waiting for a very, very long time. How many lives might we be losing while we wait? Ones that could otherwise be saved by a thoughtful but determined approach to bring lifesaving technologies to the road.

Another question, so how safe is safe enough?

In my opinion, equivalency is not good enough. We should not move forward when automated vehicles are just as safe—or really, as dangerous—as human drivers.

They need to be much safer. Two times safer? Five times? Ten times?

And what does safer actually mean?

As I have been traveling around the country over the last year, I have challenged everyone —manufacturers, software developers, safety advocates, academics— with the question, what are the new safety metrics we need to be using now?

Do we count by crashes? Do we count by fatalities?

I challenge all of you to think about this problem. What should the new safety metrics be for highly automated vehicles?

Instead of just thinking about the crashes caused, think about the crashes prevented. Instead of just the lives lost, let's count the lives saved.

If an autonomous vehicle slams on the brakes, leading the car behind it to tap its bumper, is that a crash? Or is that a life saved, because the autonomous vehicle didn't hit the kid who just ran in front of it?

A second question we are facing is 'what is even possible?'

Some will ask whether fully autonomous vehicles are even viable, or if all we know about the many factors, does that just make it too complicated for a real self-driving car.

Others are going to ask whether lower levels of automation—ones that require active human engagement working in concert with the vehicle's automated features—are even possible. Or are we humans just not wired to work that way?

The federal government is not here to pick the winners and losers of this technology. We are neutral on the question of incremental technological development versus skipping to full automation. Our mission is not to design the future, but instead lay the framework, a framework that will speed the development and deployment of technologies with significant lifesaving potential. We are open to anything that fulfills that mission.

Finally, just a few words about our approach that will hopefully answer some of the questions about the "how" of what we are doing.

For those of you who are unfamiliar with NHTSA, our traditional approach has been that the agency sets minimum standards, and then we enforce them.

I'm sure pretty much everyone in this room has heard about or been directly affected by an auto recall that has been directed by our agency.

As automakers have developed new safety technologies—things like air bags, electronic stability control, cruise control, and so much more —they have introduced them into vehicle fleets.

Only after that technology is proven and converges, does NHTSA write new safety standards and then put them into place.

This approach has yielded enormous safety benefits over the decades, but it also has its limitations.

This legacy approach is slow. Recent rulemakings on enhanced air bags, rear-visibility cameras, and electronic stability control—all vital safety technologies—took six, eight and ten years respectively to move through the full process.

This process has its benefits, and in an industry where technologies often took years to enter fleets through the lifecycle of vehicle development, it made a lot of sense.

But today, we are in a world where vehicles can be changed not just in the next model year, but in the next minute through an over-the-air update to software.

Technology is changing so rapidly, that any rule we write today would likely be woefully irrelevant by the time it took effect years later.

Let me be clear: Strong safety regulations absolutely will continue to be an important part of NHTSA's safety mission, and there will, without question, be regulations on highly automated vehicles in the future.

But those expecting DOT and NHTSA to issue 16,000 pages of regulations in the coming weeks will be disappointed, or perhaps more likely, relieved.

The approach that is being taken is designed to be nimble and flexible, able to keep pace with technological innovation.

But it will also lay out much more specific guidance for the development of new technology than has existed in the past, in keeping with the Department's forward-leaning, proactive stance on all of this opportunity.

As Secretary Foxx has described, we are writing the Declaration of Independence, not the Constitution. It's the first step, but a step that will lay the roadmap for the next generation of vehicle technology.

It's an approach that we hope will lead to a harmonized approach, across states, and perhaps even internationally.

It's an approach that we hope will provide certainty to manufacturers and developers.

And it's an approach that we expect will provide our clear expectations for what we are going to demand from you to know that you are focused on safety in the right ways.

I started this morning talking about two numbers, and I would like to leave you with a third.

That number is 613,501.

That's the NHTSA estimate for the number of lives that auto safety technologies have saved over the last 50 years.

613,501. We know safety technologies work.

New auto technologies developed in the 20th century were rarely perfect. But tech like seatbelts, air bags and child seats that were once controversial have become indispensable.

Advanced technologies already developed in the first part of the 21st century, like automatic emergency braking and lane departure warnings, are already making U.S. roads safer today.

We are clearly on the cusp of a technological transformation in vehicles that will absolutely change the way people get around, and it should catalyze an unprecedented advance in safety on our roadways.

So the biggest question? How many more lives might be saved in the future with highly automated vehicles? The Department of Transportation and NHTSA are committed to finding out.

Thank you.