

UNITED STATES DEPARTMENT OF TRANSPORTATION

OFFICE OF THE ASSISTANT SECRETARY FOR
RESEARCH AND TECHNOLOGY

INTELLIGENT TRANSPORTATION SYSTEMS
JOINT PROGRAM OFFICE

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INTELLIGENT TRANSPORTATION SYSTEMS PROGRAM
ADVISORY COMMITTEE

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MEETING

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THURSDAY
MARCH 31, 2016

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The Committee met in the Grand Ballroom, Salons D and E, Marriott Crystal Gateway, 1700 Jefferson Davis Highway, Arlington, Virginia, at 8:00 a.m., Sheryl Wilkerson, Chair, presiding.

PRESENT

SHERYL WILKERSON, Michelin North America, Chair
STEVE ALBERT, Montana State University
SCOTT BELCHER, Telecommunications Industry Association
ROGER BERG, DENSO North America Research Laboratory
JOSEPH A. CALABRESE, Greater Cleveland Regional Transit Authority
JOHN CAPP, General Motors Corporation
ROBERT P. DENARO, Consultant
GINGER GOODIN, Texas A&M Transportation Institute
DEBRA JOHNSON, Long Beach Transit
J. PETER KISSINGER, American Automobile Association Foundation for Traffic Safety
SCOTT J. MCCORMICK, Connected Vehicle Trade Association
JOE MCKINNEY, National Association of Development Organizations
BRYAN WAYNE SCHROMSKY, Verizon Wireless
KIRK T. STEUDLE, P.E., Michigan Department of Transportation
GEORGE T. WEBB, P.E., Palm Beach County, Florida

ALSO PRESENT

NATE BEUSE, NHTSA
DAVID COLEMAN, TransUnion
BRIAN CRONIN, ITS Joint Program Office
JASON GALLAGHER, Lewis-Burke Associates LLC
STEPHEN GLASSCOCK, Designated Federal Officer, ITS Joint Program Office
ARIEL GOLD, ITS Joint Program Office
KATE HARTMAN, ITS Joint Program Office
BRIAN HOEFT, RTC Las Vegas
HANJOON KWON, ITS Joint Program Office
KEN LEONARD, Director, ITS Joint Program Office
JONATHAN MCDONALD, TransUnion
MARK MCELROY, TransUnion
EGAN SMITH, Managing Director, ITS Joint Program Office
CRAIG UPDIKE, FEMA
ELINA ZLOTCHENKO, ITS Joint Program Office

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P-R-O-C-E-E-D-I-N-G-S

8:21 a.m.

CHAIR WILKERSON: (presiding) Good morning.

We are about to get started. I hope everyone had a wonderful holiday or I hear some folks have been on vacation. It is good to be back.

CALL TO ORDER AND WELCOME REMARKS

MR. GLASSCOCK: So, I want to officially open the meeting. A couple of ground rules.

We are being recorded. So, speak up for the court reporter, so we hear.

The restrooms are out to the left and, then, to another left.

We have a lot of new folks in our office and some of them are here. So, I am going to ask you to stand up real quick. And I think we will start with our new Managing Director.

MR. SMITH: Thanks, Stephen.

Well, I am the new Managing Director. I just joined the Program Office. I have been here for it seems like a while now, but it has only been probably about six or seven months.

I came from Planning. I know some of the folks around the table from some of the efforts I have been involved with, the Planning operations and ideas.

I am looking forward to helping Ken with the planning effort that we are sort of promoting now, as we move towards deployment, with a lot of the actual products road-ready now. And we have the CV pilot to sort of demonstrate the readiness. We hope to sort of transfer that knowledge over to the other folks, so that the implementation could be more widespread.

I know some folks have done some efforts on their own as well. We hope to start working with them to sort of bring that to the fore as well.

So, thanks for joining us.

MS. ZLOTCHENKO: Hi, everyone. I'm Elina Zlotchenko. I have been with ITS JPO since December of last year, so I'm a newbie here from North Carolina DOT. I worked there for 15 years doing MPO and RPO project management for the State of North Carolina. I worked as a Traffic Engineer, and for the past eight years with Transportation Planning a lot. So, I am bringing that knowledge to the table, hopefully. And thirdly, I am working at ITS JPO Program Management Office and, then, with ITS America as well.

MS. GOLD: Hello. I'm Ariel Gold, I think the newest of the newbies. I just passed the one-month mark as the new Data Program Manager. I am joining directly from Amazon Web Services where I was in the Data Program there. As part of the staff, I had some experience working with the Office of Management and Budget E-Government Office on some of the document strategies under their IT Policies. So, I am really looking forward to hearing from this group and learning more about the state of the practice.

CHAIR WILKERSON: Great. Thank you.

MR. GLASSCOCK: And then, Brian Cronin, Kate Hartman, and H.J. is our fellow here.

So, there was one slight change to the agenda. We switched the NHTSA update with Nate with Ken's presentation. So, in your binders, when you get to the NHTSA update, it is going to be Ken's slides, just like for Nate, until the end of this afternoon when we get to Ken and, then, you can go back to those slides.

I'm back here. Just let me know if you need anything. Otherwise, I am going to turn it over to --

MR. LEONARD: Well, I just want to make one announcement, too, which is that Brian

was briefly introduced, but we have an important announcement. Brian is going to be leaving the ITS Joint Program Office. He has been promoted into Senior Executive Service and will be replacing Joe Peters at the Turner-Fairbank Research Center, the Highways facilities in McLean, Virginia.

CHAIR WILKERSON: Congratulations.

(Applause.)

It's well-deserved. Congratulations.

MR. LEONARD: And Brian has been instrumental in working with everybody over the years, but I don't think everyone realized just what a key role he has played in the last six months on the Smart Cities Program, and he is going to continue to play as we take that from the 78 awardees to the seven and on to the final one. But we appreciate the opportunity for Brian to move on, but, also, to hold him back just a little bit in his new role, which the title is Director of Operations Research and Innovation, Director of Operations Research at Turner-Fairbank. So, we are really excited about that.

Brian, anything you want to add?

MR. CRONIN: No, thank you.

(Laughter.)

MR. LEONARD: All right. Sheryl, over to you.

OPENING REMARKS

CHAIR WILKERSON: Okay. Great. Thank you.

Egan, Elina, Ariel, I think H.J. Who am I missing? Anyway, thank you so much for all you do. I think I speak on behalf of all of us in saying thanks for all of the work. We look

forward to working with all of you and to making some wonderful contributions this year.

Thank you, also, to Stephen and Ken for your remarks and your assistance and staff in planning the logistics for this meeting.

And thanks to this panel we have here. I thank everyone for being here and taking time away from their busy schedules. I know Scott I think had another event here. Do you have another event here that you have been working on? Thank you for taking time.

For the record, the members who are unable to attend today's meeting -- and please correct me if I'm wrong here -- are Susan Shaheen; Tina Quigley, although there is someone from her team here in the room, and then, Raj Rajkumar. And I think Raj is also attending another event, a competing event, in Washington.

So, I will be short. I will reach out to them and to share any of the results or contents and progress that we make here today.

First, are there any questions about the agenda or any last-minute changes that we should make? I know Stephen's noted one change.

(No response.)

If not, we will begin with Kate Hartman, the ITS JPO's Pilot Program Lead, who is going to provide an update on the Connected Vehicle Pilots.

CONNECTED VEHICLE PILOTS UPDATE

MS. HARTMAN: Okay. I'm hoping the technology works as always for a technology presentation.

I am Kate Hartman, and I am managing the Connected Vehicle Pilots Program among other duties as assigned. But this has been in the works for the last couple of years, and I am just

to give an update, but I am going to spend a couple of minutes giving you some background because I don't think I have ever presented on this. I believe you have gotten information on it, but I thought it might be helpful to just kind of tell you why we are where we are.

So, as most of you know, we have been working in the ITS space developing various different technologies, to wirelessly-connected vehicles, with the infrastructure, with other cars, with mobile devices. And we have been doing development kind of in a particular area or for a particular application. So, we think the time is right to start bringing -- that those technologies are at a place where they can be integrated and we can also spur the deployment of them.

But, in addition to just spurring the technology, we want to help spread the deployment across the nation. So, part of what we are doing, one of the goals in the Connecting Pilots is to run these pilots and measure what is going on in the safety and the environmental area, so that we can document it and share it with others, and help them make important decisions.

We also think that the Pilot Program can help us resolve some of these deployment issues that are broader than any one technology is going to answer. So, integrating different technical pieces and parts --- so some of the deployment issues: I think the modern ones are going to be integrating the technology. The technology is never the problem in our world. We are smart enough to figure out how to make the technology work.

So, it is going to be more of a focus on some of the institutional problems. Do all the players know? We have got the engineers. Are they talking to the planners? What about the stakeholders in the community? Are they aware? Are they going to accept this? And how are things going to flow through the system?

The other thing is, talking about flowing through the systems, the financial model. What

is the business case for the connected vehicle deployment? Are we going to be able to get any insight into that with these pilots? That is what we are hoping.

So, what we have done. There is a little bit of a background. I am going to kind of jump into the schedule, so that I can, then, talk about the update of where we are.

The Pilot Program, there was a broad agency announcement, which is our procurement method that was announced January of 2015. We went through a process, got quite a number of proposals. We were really happy with the number of good, sound proposals that we got. We went through an evaluation phase and last September made an award to three sites.

The process is such that we are doing phase 1, which is a planning process, a concept development. There is nothing to see. There is nothing to touch other than a whole lot of documents and a bunch of meetings and webinars. So, really, what we are doing is working through the various different steps that we need to take to come up with a Comprehensive Deployment Plan, which is what we hope to have this summer.

And then, we are going to go into phase 2, assuming that the three sites give us acceptable deployment plans. They are going to design, deploy, and test the technologies, see if they work, see if they talk to each other, see if they can get the people that need to be participating.

Assuming all that works, we will go to a maintain and operate, where they will actually run -- that is when we will be collecting data and we will be doing the benefits assessment. So, this is a fairly typical way that we would do deployment sites. And we have been challenged to do these faster. So, we are doing what we can to do things faster, but, as a research organization, we also want to do it right. So, there is a little give-and-take there.

So, there is the schedule. We are in phase 1. We are about halfway through it. These

are the three awardees, ICF/Wyoming -- and I am going to take a little minute here. We did a kind of creative procurement method with these phases. The first phase is actually a contract, and we are contracting with one member of each team. Phase 2 and 3 will be a cooperative agreement. And some of you, your eyes are probably glazing over. Others of you are going, wow, that's really kind of interesting.

So, we were trying to mitigate the risk for the government by doing the contract in the planning phase, where we have specific deliverables. They have to be approved. If they are not, the contractor doesn't get paid. So, it was trying to mitigate some of the risk.

Phase 2 and 3, it is more on the sites when we go into the cooperative agreement that has got different constructs around it. But it has really got to be about the sites owning how they are doing this. So, the risk there is that they are taking on more of the risk in terms of getting things to work correctly, but that is because it is in their homes, it is at their locations.

So, anyhow, the three sites were awarded last September. We had an announcement out of the White House. So, it was kind of a big deal. It spurred a lot of interest.

ICF/Wyoming is an integration of truck and weather applications that we have been working on the I-80 Corridor.

New York City is continuing under their Vision Zero Safety and Mobility Programs that they have got, and it is in downtown Manhattan with almost 10,000 vehicles. So, it is a big deal. And as I think Ken said once, if we can make it there, we can make it anywhere.

(Laughter.)

MR. LEONARD: I was quoting someone.

MS. HARTMAN: Yes, yes, yes, I thought that was original.

And then, the third site -- and these are in alphabetical order; it is not in order of preference, although I am the core for the ICF/Wyoming one and I'm a truck person at heart.

The third one is Tampa THEA, which is kind of interesting. It is a public/private partnership with Tampa-Hillsborough Expressway Authority. And they are looking to alleviate congestion and improve safety on their expressway that dumps into downtown Tampa.

And so, three kind of different flavors of pilots. We have got a rural. We have got an urban heavy core. And then, we have got a kind of suburban congestion issue.

So, we didn't go into the pilot sites looking for that, and we were pleasantly surprised when that's what came out. But there was a process that we went through, and these were the winners.

This is a summary. I'm going to go into a little bit more detail on the three sites and the applications that they are doing and some of the guiding principles that are actually in the broad agency announcement that we let, we requested a number of things.

One was multiple communication mediums, one of which had to be DSRC. We also requested that -- USDOT had been doing all this work, and we had like 65 different applications that we had done some level of work in, and we wanted to see at least one of our applications in the proposal, but that people could bring their own applications. Because we got a lot of questions about, well, what about if I can't find -- you know, our problem isn't what you have done work in.

We felt pretty confident that we had surveyed the landscape and were working in the things that matter. So, for the most part, these applications are ones that we have done work on and we have got various levels of information that the sites are using, but we've got a couple of new ones. So, this was kind of a validation of the work that we had been doing, as you can see.

We also got a number of -- some of the sites are using some of the same applications, but in

a little different way. And in this planning process we are having this conversation about, well, what exactly did you mean with a warning for bus in front? Is it the bus to speed up or the car to slow down? And so, we are working through kind of how those applications are going to be deployed as opposed to just here's -- yes?

MR. WEBB: Sorry, I was trying to catch you before you went to the next slide.

MS. HARTMAN: Okay.

MR. WEBB: The safety pilot --

MS. HARTMAN: Yes?

MR. WEBB: -- a long list up here, a whole string. How many of these actually mean safety pilot --

MS. HARTMAN: Yes, safety pilot was actually only vehicle-to-vehicle, right?

MR. WEBB: Right. Okay.

MS. HARTMAN: So, this was CV pilots, and I didn't do a lot of the guiding principles and organizing thoughts. So, I can go back and do a little bit of that.

There are a number of them. I'm looking up here. Like emergency electronic braking, blind spot warning, forward crash warning. Those were in safety pilots. Some of them I know were planned to be in safety pilots and the safety pilot didn't quite work out.

MR. WEBB: Right. Right.

MS. HARTMAN: So, I can do a slice and dice on that. I can't off the top of my head. I would have to go through and kind of --

MR. WEBB: Yes, I am somewhat familiar with the safety pilot to try to look and say, well, the majority of these were not part of a safety pilot, right?

MS. HARTMAN: But I think it's --

MR. LEONARD: Specifically, there were six safety vehicle-to-vehicle and

MS. HARTMAN: Yes, I was going to say --

MR. LEONARD: -- and two transit operations. So, we tested eight applications in Ann Arbor, and I think you have 29 there.

MS. HARTMAN: There are 35, 35 applications. But only four of the six actually went -- and I'm much more aware of what went on in the truck world, and so, it is not exactly what went on in the car world, which is why I would have to go back and just check my facts. But we are doing a number of the ones from safety pilot.

MR. WEBB: Yes, I'm just trying to get my arms around the fact that it is a quantum leap as far as trying to implement or use this number of different applications than previously to that.

MS. HARTMAN: Right. Right, and that's why all this planning.

MR. WEBB: Right.

MS. HARTMAN: One of the interesting things that has come out is that the sites that proposed came in with their teaming arrangements. And once the awards were announced -- it is my understanding on those that none of the car manufacturers came in on any of the teams -- but once the awards were announced, two of the three sites, and you can guess which ones, immediately started getting calls from car manufacturers about how they could team with them. So, this isn't happening in isolation. And the car manufacturers may be bringing things that weren't originally proposed, and that's fine and, again, why we are going through these planning stages.

This is actually where the list of tasks and the timeline -- we thought we were being

aggressive by getting all this done in a year. The site is like, "Oh, my God, this is the fastest we've ever done." And yet, we were told to go faster. So, we are a little bit ahead of schedule in some regards and catching up in others.

One of the things that is somewhat slipped but isn't affecting the overall schedule is we have had two of the three CONOPS. ICF/Wyoming has submitted their CONOPS and Tampa THEA, and they have done public webinars.

New York's is a little behind, partially because it is so massive. They are having their public Concept of Operations this Friday. So, if anybody is looking for something to do Friday afternoon, we can get you to the information about dialing in to their public webinar. But we still think we are in good shape to go into phase 2 sometime late this summer.

So, that is kind of the overview. I have a couple of slides on each site. I will stop here and see if anybody has any other overarching comments.

(No response.)

So, the ICF/Wyoming trucks by I-80 -- and we've got graphics for each one of the sites that kind of shows you in a high-level way what this is about. I-80, it is a major freight quarter out west and they have unbelievable weather between the snows and the winds. And I've got Steve Albert up here shaking his head yes.

I haven't seen it, but we have biweekly calls. And the first thing on our biweekly call is a weather update from the Wyoming folks.

Last week there was some huge snowstorm, I guess. Well, Brian got caught in one in Denver where they shut down the airport. But I-80 is still being shut down in March because of the amount of snow and the wind.

What happens, trucks can't get through. Trucks are trying to move through this weather, and it is an unsafe environment. So, besides getting some of the vehicle-to-vehicle applications on there, some of the truck routing and truck parking, like if the driver is going to run out of hours, where can he divert in order to wait out the weather? Because he is going to get halfway through a massive blizzard and be out of hours and have to pull off, and that would cause issues.

So, a lot of these are going back to Traffic Management Center, and some of this routing and weather information will also be shared with other vehicles. Also, Wyoming DOT is bringing in some of their snowplows in terms of getting the information about what is going on not only to the snowplows, but out of the snowplows.

This isn't that easy to see, but this is a listing of the applications down the side, beta applications that ICF/Wyoming has proposed, and then, the different vehicle types from the WYDOT snowplows, the maintenance fleet vehicles, some of the emergency vehicles. And then, we have got private trucking companies that they have brought to the table to integrate some of these applications.

So, this is a little more detailed where they are focusing on the needs of the commercial vehicle operator in the State of Wyoming, but including these other stakeholders. They are equipping fleet vehicles, using DSRC and roadside equipment, and weather data into the trucks and the other vehicles traversing the I-80 Corridor.

This phase is being led by ICF International. And then, phase 2 and 3 will transition to the Wyoming DOT. But Wyoming DOT has been part of the ICF team as we have been going through the process. So, it's not going to be a surprise to Wyoming DOT. They are very involved in what is going on.

I have also partnered with a few other folks. Trihydro Corporation is an interesting mix of kind of a research trucking company. They have got a few fleet vehicles. And so, they are there doing some of the design for the trucks.

We have also got NCAR with some of the weather work that has been done out there. The University of Wyoming, Catt Labs, and McFarland Management are also bringing their experience to the table.

Yes?

MR. SCHROMSKY: Question, more of a technical question. I'm just curious. I was reading ahead. You're supplementing by using DSRC and other things that way. I'm just curious. Is DOT the platform that is going to aggregate from all these different departments and internally? Say, for instance, fire, police, whatever it may be. And then, you have outside firms, commercial --

MS. HARTMAN: WYDOT will be bringing the WYDOT fleets, and they are already talking amongst themselves.

MR. SCHROMSKY: Okay.

MS. HARTMAN: I am learning all about how WYDOT is structured, as they bring the folks. But they will be subbing out to these other partners. Actually, one of the interesting things that has happened is New York DOT brought UPS and their urban goods delivery team.

MR. SCHROMSKY: Okay. Because Mahwah, New Jersey, is right across --

MS. HARTMAN: Right. Well, we have had a couple of offsite meetings. And the New York folks said, "Hey, we're working with UPS. Do you want a contact for Wyoming?" And ICF/Wyoming's eyes lit up like, yes, that would be great, because they know who is traversing the

corridor and they know they have got a lot of UPS freight trucks. So, they have made that connection and they are pulling UPS into the ICF/Wyoming project.

So, it is a lot of coordination, a lot of moving parts. One of the things we are trying to do is keep the communication open and talk to folks and leverage some of the synergy that we can get.

Yes?

MR. KISSINGER: Are any of the vehicles tracking any data are they just receiving --

MS. HARTMAN: Yes, they will be.

MR. KISSINGER: Can you describe that a little bit?

MS. HARTMAN: Not in detail because we are still going through the planning process. But some of the sensors on the vehicles will be pulling up some of the weather information.

MR. BELCHER: How many vehicles? How much roadside equipment?

MS. HARTMAN: I should know this. I don't know off the top of my head, and I can get back to you.

MR. BELCHER: Okay. Are they all in the same fleet, so that you are getting reoccurring data?

MS. HARTMAN: No. No. They won't be in the same fleet. They won't be. Because not only do we have the different WYDOT, the emergency response and the snowplows, we are getting different commercial vehicles, fleets. So, it will be coming from different places.

MR. BELCHER: How will you get kind of the density or can you get the benefits of --

MS. HARTMAN: That is what we are trying to figure out right now. That is kind of the planning and whether we are going to get enough and how we get the performance and evaluation measures to mean something.

There's another picture of the actual corridor. As you can see, it stretches from east to west across Wyoming. They are talking with some of the bordering states, because if you are going to divert trucks, you need to let the other states know what is going on or at least see how much they want to be involved.

So, New York City.

MR. DENARO: Can I ask a question first?

MS. HARTMAN: Yes, yes, yes. Sure.

MR. DENARO: Do you know if they plan to, in addition to measuring weather in small locations, they plan to do any predictive weather as well?

MS. HARTMAN: That is the plan. There has been a lot of weather-related work out in Wyoming. And so these folks, this isn't new to them, and that is part of what made their proposal so strong, is that they had a lot of -- we actually have an ITS weather program, and they have done a lot of work out there. So, they are building -- and I think the NCAR and the WYDOT and some of the other folks on the team were part of this weather work. So, it is a continuation of some of the E-Weather program work that we have done, and I believe that that is part of what they are trying to do.

MR. DENARO: So, there are private companies involved in some of the weather work as well? Do you know? Besides NCAR?

MS. HARTMAN: There are a couple of other folks, and I can get the details on that to you. Again, we are more at the planning stage and so, trying to --

MR. DENARO: Yes, yes.

MR. LEONARD: I know McFarland has --

MS. HARTMAN: McFarland. Thank you. Thank you. McFarland is in there, which is a private company.

MR. SCHROMSKY: Kate, is NOAA or the National Weather Service involved in this at all or not?

MS. HARTMAN: They are not directly involved. They are not contracted with.

MR. SCHROMSKY: Okay.

MS. HARTMAN: But they are aware of it. Because I know that the weather team has been briefing out at different presentations. So, you are more than welcome to have people aware, but we have got a contract. So, we have got to kind of follow the Federal Acquisition Regulations in terms of who we are working with there.

MR. LEONARD: So, NCAR, which is the National Center for Atmospheric Research in Boulder, Colorado, works with -- it's not government, but it works very closely with NOAA and the National Weather Service. They have worked with the PORTS systems lab in Boulder to create a system called MADIS, which is a surface weather system, which the Weather Service has made operational. So, a lot of the weather detail, while NCAR is the entity that Wyoming is contracting with, would be using National Weather Service data and, also, experimental data that NCAR might be experimenting with.

And Paul Pisano, who is the weather lead I'm sure could provide details --

MS. HARTMAN: Yes, his staff is intimately involved and on the review team for the project.

MR. LEONARD: And also, I don't know if you did any work with NCAR, but Ariel has extensive work with Amazon Web Services, NOAA and making National Weather Service data

public. Weather is an important part of the program, particularly in place like Wyoming where you have all seen the videos where you get one of these whiteout conditions and you are driving along at 55 miles an hour and you don't know whether to slow down or speed up. And something like DSRC is the answer to that. If you have weak penetration, you will now know what the vehicles around you are doing and be able to respond appropriately.

MS. HARTMAN: Yes, we just had a video. Some truck driver in the cab was cussing out the snowplow in front of him because it wouldn't get out of his way. It was like I'm not sure that this project is going to solve that, but --

(Laughter.)

It was kind of like at least we can warn him that there is a snowplow and maybe give the snowplow some better information.

MR. DENARO: Ken, what was that system for service, weather --

MR. LEONARD: MADIS.

MR. DENARO: MADIS?

MR. LEONARD: M-A-D-I-S.

MR. DENARO: M-A-T-I-S?

MR. LEONARD: M-A-D-I-S.

MR. DENARO: Thank you.

MR. LEONARD: I don't remember what the acronym stands for.

MS. HARTMAN: Anything else on Wyoming?

(No response.)

So, New York City, all kinds of different pieces and parts. I have got to say the biggest

challenge in New York is corralling all the pieces and parts. Again, 10,000 vehicles, all kinds of different fleets, lots of people with ideas, lots of New Yorkers with ideas.

(Laughter.)

Jonathan Walker in the Federal Highway Office of Operations is leading this project. We couldn't think of a better man to take it on. He is doing a great job there.

But the New York City vision is to kind of bring all these pieces and parts together to help make New York a safer place to not only drive your vehicles, but use transit and just get around in and, also, make some of the commuting better.

Like I said, 10,000 vehicles that frequent midtown Manhattan and, also, central Brooklyn.

Who was asking about the numbers? Two hundred and thirty-nine traffic signals, 10,000 vehicles. So, I do have numbers in the slide deck for the New York site.

They are also putting some of the roadside equipment along FDR Drive. New York City DOT is the prime for this contract, which was interesting. Again, we kept being told government entities aren't going to contract. The states and local government entities will not contract with the Federal government. Well, New York City figured it out. So, right there, we figured that is a big win for kind of the institutional issues. New York City figured out how to do it.

And then, they have got these sub-consultants with JHK Engineering, Battelle, Cambridge, KLD Engineering, and Security Innovations. And so, they also have some folks that they already contracted that work with DOT and who are embedded in the New York City DOT way of doing things.

Yes?

MR. ALBERT: Kate?

MS. HARTMAN: You're asking a question about New York City?

(Laughter.)

MR. ALBERT: Yes. You know, years ago when we did model deployment initiatives, New York City did one and it kind of failed because of institutional issues. What brings you to a different conclusion, that now they can actually address institutional issues in New York City? Is it that the FHWA person is really knowledgeable or is it your staff are embedded in the other agencies, or what?

MS. HARTMAN: Yes, it's quite a bit -- I'm not exactly sure of the project. I think I know what you're talking about, but I keep thinking about the congestion initiative where we required rule changes or changes by the legislation in Albany, which blew that one up for the congestion initiative.

MR. ALBERT: It was before that.

MS. HARTMAN: Okay. So, before that, I'm not quite sure, other than I think they have got a vision being led by the New York City DOT lead.

MR. ALBERT: Okay.

MS. HARTMAN: And that is public record, the proposal letter. So, I don't think that is a secret. They made that known publicly. So, I think they have got leadership from the top.

And any big project, we are taking a risk, but we see that this is being driven from people who matter. We have got the CIO pulled in on this. We have got folks from across the Department. And we are also seeing things pop up in other parts of the Department. And the leads here, Steve Galgano and Mohamad Talas, are getting in and corralling them and saying, if you're going to do something, you're going to do it through here or you're not part of this.

MR. ALBERT: Right.

MS. HARTMAN: I don't know whether they have grown up, got different people, people have gotten more experienced, but --

MR. ALBERT: Maybe their turf issues are gone to some degree.

MS. HARTMAN: I think they still exist, but I think they have got some strong directions, some strong leadership. And some of that is coming out in the planning process as we go through and it is like, "Oh, yeah, you need to go talk to those guys and get them under control."

MR. ALBERT: Thank you.

MS. HARTMAN: These are the three sites here and some of the more detailed information. In the interest of time, I am just going to just leave that up there and let folks look at it. You can come back to it. I think everybody has got slide decks. I am more than happy to get into some of the detail.

MR. DENARO: With the calculation or with the 10,000 vehicles, was there a calculation of the expected V-to-V interactions?

MS. HARTMAN: No.

MR. DENARO: Okay.

MS. HARTMAN: That is, again, some of the stuff we are doing through the performance measure. And it may not be 10,000. We may get under. So, we are trying to get our arms around it. It is not going to be two, though. It is going to be a multiple of thousands in there.

You know, this is not trying to go to regulation with getting these statistically -- I mean, we want to get enough information from the interactions to make legitimate conclusions, but we are not going to a formal rulemaking process with this. So, the restrictions on what we need to do or

the data points are a little bit different than what we did with safety pilot.

MR. DENARO: But, nevertheless, in these activities is there in place yet what is going to be measured?

MS. HARTMAN: Well, that is what we are working on. We are right now in the middle of a performance measurement plan.

MR. DENARO: Okay.

MS. HARTMAN: One of the things I think I should have said at the beginning is everything that we are doing is getting posted publicly.

MR. DENARO: Okay.

MS. HARTMAN: So, when we get a performance measurement plan that is approved by the corps, it will go up on our website. We have got approved ones for Tampa THEA and ICF/Wyoming, and we are in the process of going through the publication steps that we need to do to post them on our website.

But, again, this is part of the planning process, to nail those down, and there are a lot of discussions going on. Most of it is, "Oh, I didn't know you meant that." or "Oh, I didn't think about that." And so, it is a good process. I still feel strongly that this year of planning is useful, especially for these large projects.

This, again, is kind of how the vehicles and the applications are divided across New York City. You can read it for yourself. It has got limousines, sanitation, buses. Oh, commercial vehicles are not large freight vehicles or urban delivery vans; they are box trucks. Tampa THEA --

Yes?

MR. SCHROMSKY: Once the performance measures are established, are there also

requirements on how do you provide that or gather that information?

MS. HARTMAN: That is part of this whole -- there is a performance measure and evaluation plan, and that has been a challenge in other large-scale projects about who collects the data, how do they collect it, how do they share it. And so, we are really trying, and most of us have scars on our backs from having gone through that process.

MR. SCHROMSKY: Okay.

MS. HARTMAN: And we are really, really trying to clearly identify who does what. And that is part of the planning process. That has been a lot of the discussion, too. It is like, "I didn't know you needed that. Really? How are you going to get it?" "Well, I didn't...."

MR. SCHROMSKY: Well, is there flexibility to say you have to do it either digitally or electronically, not just paper? How you do it --

MS. HARTMAN: That is what the --

MR. SCHROMSKY: And kind of competing to say, "Hey, New York City did 1 through 5 extremely well; Wyoming did 6 through 8 really well, and Tampa did 9 and 10 really well," and take it all together.

MS. HARTMAN: Because, yes, each location is a little bit different in not only what they are doing, the teaming arrangements and what they have got.

And so, we are in the midst of doing this, trying to hire an independent evaluator to do a lot of this work. But, while we are doing the planning phases, we have got some strong support in helping us shape that as we go forward.

As a matter of fact, we have got some of the SPMD (Safety Pilot Model Deployment) team that helped on safety pilot. So, talk about scars from having gone through this before. They are

bringing their experience into what we are doing as we are helping these sites develop their plans.

Yes?

MR. McCORMICK: Kate, one of the things -- and I don't mean to jump ahead; if this is part of it, I apologize -- but, you know, listening to this, one of the things that would be, I think, of huge value at the end of this is to come away with a primer in terms of: what are the lessons learned? What are the best practices? What are the -- you know, all of those things, so that other public entities and other private implementations can have a book on how to do it? I mean, we did that, you know --

MS. HARTMAN: So, the reason I am up here first is because I have got to get back to a meeting, but we have a list of action items. The first action item that comes up in every weekly meeting is lessons learned. And so, we are documenting the whole from our end, but on the other end is the sites are doing it. We actually have this is how you get to a deployment plan, and that is step one, step two.

As these sites are doing that, we are having webinars; we are getting the documents; we are posting them. And we hope to have some type of at the end documents of lessons learned not only from the federal side to talk to other folks, but also from the site side for deployers that would be packaged in with these benefits and evaluation data.

So, the form of that, you know, I can't tell you it is going to be an 8.5x11, a 20-page document, but --

MR. McCORMICK: Well, what my thinking was is that somebody like AASHTO's SSOM already has a framework by which they do that, if I am correct, right, Kirk?

MR. BELCHER: To some extent.

MR. McCORMICK: To some extent. That might be worthwhile.

MS. HARTMAN: So, this is something -- you know, AASHTO, obviously, we talk with AASHTO. We have got the Federal Highway Operations team that is very conversant with AASHTO and what they do. So, I think as we move forward, the shape of that will start becoming clearer. Right now, what we are doing is making sure we have all the data to fall into it. So, what it is going to look like on the other end, but we are very clear about the deployment steps. We are trying to be as transparent, open, and public about what we are doing here as we possibly can right now.

MR. McCORMICK: And is all that information also going to go into the affiliated testbed?

MS. HARTMAN: Well, the affiliated testbed is a different animal. I mean, we are not spurring deployments. I mean, we are not paying for deployments in the affiliated testbeds.

MR. McCORMICK: Right. But, I mean, it is a knowledge base.

MR. FEHR: The short answer is that we are trying to pass as much of that to that organization as it becomes available.

MR. McCORMICK: Okay.

MS. HARTMAN: Yes. It is like this: there is pretty much nothing other than contractually-sensitive information that isn't being shared --

MR. McCORMICK: Okay. Thank you.

MS. HARTMAN: -- to anyone who wants it.

I keep getting walloped at my meetings when we harangue them with action items.

MR. DENARO: So, instead of lessons learned, do you have a well-documented record of

lessons learned from the safety pilot?

MS. HARTMAN: I believe we do. I know there is a document. I don't know if it has ever been made public.

MR. DENARO: Well, it sounds to me like that should be a starting point.

MS. HARTMAN: We have seen it. Oh, we have seen it.

MR. DENARO: Okay.

MS. HARTMAN: But it is not our document --

MR. DENARO: Yes. Yes, I know, but --

MS. HARTMAN: -- and I am going to shut up now and let somebody else who might know --

MR. LEONARD: Well, I mean, we do have a number of reports out of the safety pilot, and a lot of that is driving the regulation that Nate is going to talk about.

But we have talked about, and we haven't quite settled on the form of capturing all these lessons learned. You know, you have seen in libraries "The Idiot's Guide to...." or the "Dummy's Book for...." What we are really doing here and what we are learning in the safety pilot, what we are going to be learning at these sites and other elements like the affiliated testbeds, we want to write that book. It is probably not going to be a bestseller in the library, but there is going to be a community that it is very interested in that.

Because what we are doing in these four locations, counting ours, we want to have happen in 40 and, then, 400. And so, we are writing and publishing a whole host of documents and resources that we want to assemble. So, if anyone says, "Here, I want to take my Aldridge grant" or "I want to take my FTA grant money and put it in my transit buses, and I want to get the right

roadside equipment in, I want to get right vehicle equipment in, I want to share the concepts," we want to assemble this information, so that we can accelerate the point.

And I was going to talk a little bit about that in more the discussion of where we are in deployment issues, but we are kind of getting into it a little bit now. So, we can talk a little bit more about that.

We want to assemble this body of knowledge, so that the community that wants to see DSRC deployed and is willing to put the energy in to do it has the resources, so that this is not the first time we are putting a spacecraft out. You know, we have got lessons learned that people can learn from, making it easier to do the next time.

MR. DENARO: I think at the end of the day that is one of the most important things that come out of these pilots.

But, actually, my question is a little more focused there. I am looking for the connection between these two. Safety pilot has a bunch of lessons learned. There's really bad lessons as well as some good lessons. And I am hoping that those are going to fall under here as a baseline and say, all right, you know, we are doing differently with respect to what we saw in the safety pilot.

MS. HARTMAN: Now again, we do have a lot of folks that were in the safety pilot. I mean, we have worked with NHTSA. NHTSA absolutely is involved in what we are doing here with connected vehicles. But it is not their V2V-focused regulations that are not necessarily front and center, but they are absolutely involved. They were involved in the planning. We have gotten lessons learned from there.

But, again, this isn't a V2V deployment going to a rulemaking. So, we did learn, but it

is --

MR. DENARO: I understand that. But, for this particular test to have maximum value, I would want to really solidly understand what happened before. With respect to New York City, for example, there are a lot of V2V applications, as you said. And you mentioned earlier that two of them didn't go so well in Michigan. Well, okay, what is going to be different here?

MS. HARTMAN: Right.

MR. DENARO: I mean, that is going to be very interesting to me if I were to --

MR. FEHR: If I may just comment, because I have been involved in this since 2005. I am probably the only person whose client was involved with a proof-of-concept exercise back in the late 00s.

A tremendous amount of material was produced, paper and other documented material. Virtually none of that has ever seen the light of day. I don't know if anybody around the table has read the summary of a proof-of-concept. Roger? Okay.

MS. HARTMAN: Yes, and some of that is internal DOT, but, again, I can't speak to releasing it. So, we have seen that. We have got a lot of the people -- I'm sorry, I'm getting to the time, yes.

MR. FEHR: But what I want to say is that we are trying to come up with more effective ways of combining these lessons, not necessarily just documents, but things like the certification things we are doing now, the reference architecture. Those things actually embodied a lot of those --

MS. HARTMAN: Yes. So, a lot of what was learned has been incorporated into how we are doing things.

I am going to quickly go through Tampa because we are out of time. This is more of a suburban/urban commuting activity. This is congestion and safety, Tampa Hillsborough Expressway Authority. They have got HNTB, Siemens, Booz Allen, CUTR, and Global-5 Communications. So, again, these teams are good. They are teams that have done pilot deployments before.

Yes?

MR. WEBB: Just for the first bullet, this is only going to be happening between the finite, what, 6:00 a.m. and 9:00 a.m., or something like that, as far as this whole effort?

MS. HARTMAN: It is the reversible lanes. It is on the lanes both ways.

MR. WEBB: Right, but this is only during morning commuting hours. So, I mean, New York I assume is a 24-hour operation. Wyoming is a 24-hour operation.

MS. HARTMAN: That's when the problem is. Where is your problem and what are your proposed solutions to solve it? This was their documented problem.

MR. WEBB: Right, but I guess, particularly the interaction of the vehicles with each other, vehicles with the other users as pedestrians and bicyclists, and whatever, that occurs all day long.

MS. HARTMAN: Yes. We're not going to take the technology off after the three hours in the morning.

MR. WEBB: Okay.

MS. HARTMAN: So, we will keep going. How much we collect of the data and the like, because it will be a much larger problem to collect --

MR. WEBB: Right.

MS. HARTMAN: It is a challenge.

So, they came in here. We asked them to identify a defined problem and propose solutions. And so, that is what this was.

MR. WEBB: Okay.

MS. HARTMAN: So, this is it. its.dot.gov/pilot. We have got so much information up there, and if you can't find what you're looking for, feel free to email me.

One more question and, then, we'll email you.

(Laughter.)

MR. CALABRESE: I know there's some other smaller projects going on, to include Cleveland, with the buses and pedestrians, called the Tri-Project. How are those rolling into this?

MS. HARTMAN: I don't know anything about that.

MR. CALABRESE: Eighty buses, 12 locations.

MS. HARTMAN: Who's funding it?

MR. CALABRESE: We should talk later.

MS. HARTMAN: Yes. Who's funding that?

MR. CALABRESE: FTA.

MS. HARTMAN: FTA? Well, we need to get out to our FTA counterparts because they need to let us know what's going on, because we don't have it. Kate.hartman@dot.gov, feel free to send me an email.

(Applause.)

The floor is yours.

NHTSA UPDATE

MR. BEUSE: All right. Well, good morning, everybody.

I'm Nate Beuse from NHTSA. I see lots of familiar faces. I think some of you folks don't know who I am. So, I am in the Research Office at NHTSA on the vehicle side involving lots of things these days. It is probably easier to talk about what I'm not involved in than what I am involved in.

But I thought what I would do is just give you kind of an update on what is going on V2V, obviously, automation, and maybe a little bit about cyber because I saw it is on your agenda. I am not sure many people actually do know what we are up to.

So, let's start out with sort of the big one on V2V. Right now, we are still in the throes of the regulatory process, as they say, the sausage-making. That proposal is over at the Office of Management and Budget, which happens with all big proposals. It is coming close to what is called the traditional 90-day review, which would end mid-April. I have never known a rule to actually meet that 90 days, but we can still hold out hope.

There are lots of meetings happening, both between OMB and the Department, but also with outside stakeholders. So, folks are definitely exercising their right to talk to those folks about the rule.

So, there is not much more beyond that I can say other than we still remain fully committed to it. There's obviously lots of discussion going on about spectrum at the same time. We are jointly working with FCC and NTIA on the spectrum issue, particularly on the sharing side and developing a test plan on that to make sure that there's no harmful interference should some device show up that can actually share the spectrum. So, that work is underway. In fact, there was a

meeting just a week ago, I believe, at FCC Headquarters to talk about that test plan.

So, that is sort of where V2V is for light vehicles. For heavy vehicles, we are still engaged on heavy vehicles. We just haven't talked much about it publicly. Part of the reason for that, frankly, is a policy issue and wanting to not complicate the light vehicle rulemaking. It is already complicated enough. You can imagine if we throw in a whole other set of vehicle and issues. That makes it kind of a gargantuan task in and of itself. So, that is sort of where heavy vehicle sits.

We still remain on the same path of trying to figure out some technical issues with the trailer and things like that, but, for the most part, we have been relatively quiet on it. But it is not to mean that we are not working on it, because I know there was some discussion about this last time. So, that is where we are.

Any questions on that?

Yes? Shoot.

MR. WEBB: Speculate on timeframe.

MR. BEUSE: Speculate on timeframe?

MR. WEBB: I mean, are we looking at two more years or six months or --

MR. BEUSE: Unfortunately for you, I used to run a rulemaking office, and I know very well not to speculate on timeframes.

(Laughter.)

And anyone who tries to give you a date on that is probably dead wrong anyway.

Nothing else?

MR. DENARO: So, the process is that there is a 90-day review. What happens right

after the 90-day review?

MR. BEUSE: Nothing.

CHAIR WILKERSON: What was the question?

MR. BEUSE: What happens after the 90-day review?

MR. DENARO: What happens after the 90-day review?

CHAIR WILKERSON: Oh.

MR. BEUSE: Nothing. That is just what OMB sort of imposes. That is a self-imposed deadline.

MR. DENARO: Okay.

MR. BEUSE: But there's nothing magic about it other than they got past it.

MR. DENARO: Right. Yes.

MR. CAPP: Now on this spectrum --

MR. BEUSE: Yes?

MR. CAPP: -- beyond just we're working on it, what is your view? Do you see a solution like with FCC to support the rulemaking moving on?

MR. BEUSE: Yes, I think at the career level there is a very good understanding and, frankly -- and I think Ken would agree -- a lot of support. I think there is a lot of pressure being placed on political people, obviously, from Senators, from Congressman, from folks that write big checks, about sort of freeing up the spectrum and making use of it beyond this.

There is also sort of this continuing misperception that nothing is happening. And so, we are kind of continuing trying to correct that record, you know, noting what manufacturers said publicly, noting what states are doing, noting some of these pilot sites, but it is still just sort of

mantra that nothing is happening; it is not being used; these are experiments, prototypes, blah, blah, blah. And so, that is a kind of resounding sound from the other side about why the spectrum should be given up.

But at the staff level, in terms of working on the test plan, I would say there is really good agreement, and Walt is working on that as well. So, there's a lot of us that are back-and-forth with him on it. But, of course, Commissioners put out statements all the time, too.

All right. Moving on to automation, there has been a lot happening on automation, not to say there was not a lot happening before, but I would say a lot more maybe more public-facing stuff.

So, ever since last May or so, we have been involved, we, NHTSA, have been involved in a number of efforts on vehicle automation. One is kind of continuing to refresh our research program, which is obviously important, to make sure that we are looking at operation characteristics and testing and things of that nature.

But, also, we started looking at our kind of regulatory framework. One of the things that the Secretary asked us to do back in May was to make sure what impediments were there. So, we actually had commissioned a study, with Ken's help, to Volpe to kind of look at the regulations that are on the books now to see what impediments are there to automation.

Essentially, what that came out with was, basically, if you are building a normal vehicle, there really are no impediments as long as you meet the normal FMVSS. If you try to do other things like, you know, take seats out or take the steering wheels out, or things like that, then, yes, you run into some problems because there are certain parts of the standard that require those controls.

And so, that was the answer. We kind of knew that. We have been actually saying that. But, if you actually go back and look at what was being said in the press a year ago, it was that NHTSA was standing in the way of automation. So, there you have it.

That report, though, also highlighted that we actually need to think about some other things. One of the things that the Secretary announced in January was looking at sort of operational guidelines because I think we looked at that and wanted to make sure that everybody was kind of playing by the same rules in terms of if they were going to release a vehicle out into the public.

So, a series of four initiatives got announced in January. One is operational guidelines. The other one is model state policy. The other one was like an all-call, global we'll call it, to the manufacturer, the suppliers, or whomever, that have some safety innovation that they think is being blocked by a standard. There was an all-call put out to say give us your request for interpretations, or whatever, and we'll take a look and see what we can do with those. And then, the other piece of that was sort of us exploring what new authorities we might need or want in the future.

All of these activities are going on right now, and they all need to be done within the next six months. One of the first ones out the gate is the operational guidance that we are having our first public meeting, actually, next week, Friday, where we are going to explore a series of 12 topic areas related to operation of vehicles.

And just to give you a sense, if you didn't see The Federal Register notice, it covers everything from what you would think, you know, how would you test a vehicle to make sure it is safe enough, all the way to and including data, cybersecurity life cycle, software life cycle, things

about human factors, depending on what type of vehicle you have, right? If you have a vehicle with no controls, there is no human factors really in a kind of crude sense. But, if you are going to have this kind of shared control back-and-forth, they might have the same capability, but, then, there are human factors considerations that need to be taken into consideration.

So, this document that we will put out will cover kind of all those topic areas. And one thing I will say, just to level-set expectations, is this is not going to be, for those of you that are used to reading NHTSA documents, 300 pages of red text and do the test with this curvature at 60 miles an hour, and all this kind of stuff. That's not what we are producing.

We are producing more of what I would call a framework that will maybe eventually lead to tests like that, but right now it is a framework for operations. So, it is sort of to kind of put something in place, set a bogey for what we, NHTSA, would expect from manufacturers, and all these manufacturers at large, not just Google and Ford or Mercedes, but also these guys in the garages that are doing sort of kit cars. We feel like they need to have some structure as well.

So, there might be something from us that might talk about registering with the agency, right, similar to what is being done right now with drones? So, we are taking a very expansive look. It is not just about vehicles that pick up people, either. We are also looking at what I would call kind of ROGO delivery vehicles. Those are in the mix, too. So, that is all in the operational guidance for automated vehicles or highly-automated vehicles.

The state model policy piece, we are working with AMVA, in particular, on that, as well as some of the state governor folks. One of the things we want to do there, obviously, is to kind of temper the need for legislatures to run around and start passing legislation.

There is an interesting article that Brian Walker Smith, many of you know who are

aficionados in automation, he just put out an article that was pretty interesting talking about this very issue about states wanting to show that they're open for business inadvertently putting in roadblocks that aren't there now. And he actually cautioned strongly states against doing that. Well, I don't think many state legislatures are reading Brian Walker Smith because I just heard recently there's some activity that has started to pick up yet again on the state level.

So, what we hope to have with our model state policy is sort of a clear dividing line on where states should be spending their resources and efforts versus what parts NHTSA is going to take care of. And one of those things might be, on the state side, it is actually they need to look at their own regulations that are in place.

One of the things I was kind of shocked to understand was that many of the states aren't even doing that. So, they are running around saying, "We're open for automated vehicle business," but none of them have even done the hard work to go back and look at their own regs that are on the books to see what is in there. So, everyone complains about the NHTSA regs or we write a report; there is no issue. They haven't done it, and there might be more issues because of the way that things have been enacted over the years at the state level. There is some kind of alarming stuff in there, actually. So, that would be a good exercise for them to go under.

The other two pieces are kind of more opaque. We have gotten some requests for interpretations. Some of them have made big news. Probably the most notable one was the Google interpret on AI, which probably nobody in this room actually read the whole thing. If all you read was the headline that NHTSA said, "AI is the same as a driver," you got it wrong. That's not what we said.

It was a very specific request to very specific standards. And if you know how the federal

interpretation process works, the interpretation only applied to that specific request. So, we did not say, for every standard on the book, AI is the same as a driver. What we said was, for these 16 -- I can't remember what the number was -- requests that Google had, in those particular instances, yes, you could consider the artificial intelligence the same as the word "driver" in those particular standards. That was it. It took 25 pages of legal text to explain that, but that's what it said.

The other thing that is notable in that interpretation is, again, the idea that the Secretary, the Administrator, NHTSA as the agency, we are not trying to stand in the way of innovation. And so, you will see lots of parts in there where we have talked about, well, this isn't allowed, but if you provide some additional information for us, you know, there might be a way through exemption for you to do something with this. So, that is where that stands.

On the new authority, that is just more looking at what other modes already have within the Department, even outside the Department. So, we are like having conversations with FTA, for example, about what tools they have that we could apply on the vehicle side to sort of make our regulatory process a little bit more nimble and flexible versus what it is right now.

So, that is a quick update on automation. I'm sure there's lots of questions. So, why don't I just stop there and, then, I will touch on cybersecurity before I leave?

MR. DENARO: So, I understand a little bit. You were talking about testing and this would provide a framework, basically. Is that basically a process that leads to vehicles being decertified to operate automatically?

MR. BEUSE: No.

MR. DENARO: Okay.

MR. BEUSE: This document has no force of law at all.

MR. DENARO: But, eventually, is that where that is leading?

MR. BEUSE: Eventually, yes, NHTSA will have craft regulations.

MR. DENARO: Yes?

MR. BEUSE: What the form or shape of those regulations takes, who knows? How fast they go? I mean, part of it is, you know, frankly, if there is no impediment there, everyone would have to ask the question, why would you put one in place with the regulation unless it is really necessary?

The other thing to think about is just that process is long and hard. I mean, I have been involved in rulemakings that have taken 10 years.

MR. DENARO: Right.

MR. BEUSE: It is just that is the nature of the beast. And so, maybe you use a different authority to do some of the same things you might have done through regulation. But the idea in this guideline document was not that a manufacture would have been able to check the box, "Yup, I'm done. NHTSA says I'm safe," or that there is something going to be here that they certify to.

What it would say, I suspect, is that, if NHTSA has a question later on, let's say two years from now or three years from now someone puts something on the road, and we say, "Well, where is your" whatever, duh-duh-duh-duh-duh? They don't have it. Then, we have got a problem.

MR. DENARO: Okay.

MR. BEUSE: They have a problem.

MR. ALBERT: I am about to conduct kind of a SWOT analysis for connecting vehicles, autonomous vehicles, for what our university might be able to do.

MR. BEUSE: Yes.

MR. ALBERT: And I am wondering if the categories that you have done, the operating categories or framework --

MR. BEUSE: Yes.

MR. ALBERT: -- would that help me kind of divide things up on where we might go? And if I could get a copy of it?

MR. BEUSE: Yes. We have a document that is going to come out pretty soon that does that.

MR. ALBERT: Like within the next three weeks?

MR. BEUSE: No, but I can get with Ken and I can get this group something similar.

CHAIR WILKERSON: Can you repeat that?

MR. BEUSE: He was looking for the operational characteristics that we have been sort of binning things in. So, broadly, we have kind of a low-speed category, a high-speed category, an urban shuttle, whatever. Yes, we'll get you something.

MR. ALBERT: Thank you.

MR. DENARO: How does this work in limited environments? I have seen some proposals of current automated vehicles maybe being pertinent to, say, campuses --

MR. BEUSE: Yes, yes.

MR. DENARO: -- or retirement communities, and so forth. I know some of those places, they are trying to grow this, but they have got a lot of people who ride in golf carts now, for example.

MR. BEUSE: Yes.

MR. DENARO: How does that all work?

MR. BEUSE: That is exactly one of the things we'll cover in this operation guideline document. So, I think the idea is not to ask for perfection everywhere. The idea is to have this document kind of those factors into consideration.

MR. DENARO: Right.

MR. BEUSE: So, two extremes. If you are in that kind of environment, perhaps the number of tests you need to do or the protocols you need to follow would be different -- I won't say lesser or greater, but they will be different -- than, let's say, a vehicle that is meant to go between states on the highway at high speeds.

MR. DENARO: So, someplace there is going to be a list specifically of these environments or --

MR. BEUSE: We will see where we end up with it, right?

MR. DENARO: Yes.

MR. BEUSE: But the idea is to kind of be considerate of those very real options, so that you can have sort of that occur naturally versus trying to say, "Nope, everything has to do what the highway vehicle does."

MR. DENARO: Well, and one aspect of the environment is it looks like, willingly, some of these organizations or companies are limiting the speeds to very low speeds.

MR. BEUSE: Yes.

MR. DENARO: Trying to mitigate some of this.

MR. BEUSE: Yes. Yes.

MR. DENARO: Okay.

MR. BEUSE: It seems a reasonable consideration.

MR. DENARO: Yes.

MR. BEUSE: Other questions?

(No response.)

I can't believe that nobody asked me about the money.

CHAIR WILKERSON: That's coming up later.

MR. BEUSE: Well, I can talk about it now.

CHAIR WILKERSON: Well, go for it.

MR. LEONARD: Nate, we will do a recap, and people will ask questions about certain things.

MR. BEUSE: Yes. So, part of that January announcement was also this giant announcement about the '17 budget that had the \$200 million coming to NHTSA in fiscal year '17 and \$4 billion over 10 years. That was one request. And the same request, there is a \$60-million plus-up for NHTSA.

The difference between the two, the \$60-million plus-up -- by the way, both of those include resources, people, because it doesn't do any good to get a lot of money with no people. It is more about sort of near-term crash-avoidance technologies. So, those things like automatic braking, but, obviously, the next generation of that technology, looking at systems that automatically steer, that kind of work. That is what the \$60-million plus-up is for.

The \$200 million, you know, \$4 billion over 10 years money is more about deployment and actually getting large-scale fleets up and running to sort of learn experiences from all those things. Think of sort of a field operation trial, if you would. I mean, that is sort of the difference

between the two. One is geared more towards sort of near-term stuff, and the other one is more deployment in the field, connected in automated vehicles, learning, whatever, different vehicle types, et cetera. The chance of getting that money, who knows?

MR. BELCHER: That was my next question.

MR. BEUSE: Yes.

MR. BELCHER: So, are you getting any indications from OMB or the Appropriations Committee outside of the normal budget process?

MR. BEUSE: Yes. So, they are all interested. We had a briefing at the building about three weeks ago that was pretty packed, where we invited Hill staffers from the Appropriations Committee, in particular. Because after the announcement came out, you know, we were getting flooded with requests. It seems like I could spend my whole time up on the Hill and never get anything else done. And so, we tried to corral it into one meeting, and it was very widely attended. And that has since spawned other discussions.

I think people are interested. Whether they can find the fund, you know, it is anybody's guess. But they are definitely interested, and folks seem to understand the need.

I think the other thing that is happening, obviously, is test facilities and people looking to fund those is also in that same conversation.

MR. BELCHER: Did you get the sense that it is a zero-sum game within the DOT budget?

MR. BEUSE: No, because this was above and --

MR. BELCHER: No, I know, but when we were talking -- I mean, there is a budget process which, as you said, the likelihood of it is, who knows?

MR. BEUSE: Yes.

MR. BELCHER: We can all guess. And then, there's the real budget process.

MR. BEUSE: Correct.

MR. BELCHER: And in the real budget process --

MR. BEUSE: Correct.

MR. BELCHER: -- if they are going to plus-up, it is either going to come from the existing DOT budget or it is going to come from someplace else?

MR. BEUSE: Yes. No, there's been --

MR. BELCHER: Do you get any sense --

MR. BEUSE: No, there has been no discussion about that other than both inside the building and outside the building there is general support for many of the activities that we outlined in that budget document, one of which is very simple, right? So, great, we identified that there are some barriers if you want to do something with no steering wheel. Where is the money to fix all that?

Because one of the things people don't understand or don't appreciate is that, you know, they want to run around and say, "Well, oh, NHTSA doesn't want to allow this vehicle on the road because it doesn't have a steering wheel." That is not what it is about. It is about that steering wheel is there so that the operator who is there could control the vehicle. Well, now if there is no operator, the standard still wants to ensure that the vehicle has some controllability. That is the intent of the standard.

And so, the challenge is now we have to come up with a different test, my shop. So, what is this new test going to look like, right? Do you run it straight and throw something in front of it

and see if it is steered? I don't know. So, we need funds and resources to do that. And that is just one of many tasks that we outlined that needs to be done in that.

And so, I think there is general agreement that the FAST Act grew onto something like 12 or 13 more additional regulations before any of this automation stuff was even in the conversation. And so, I think there is general support for getting NHTSA the resources to get a lot of this work done.

CHAIR WILKERSON: Nate, I have one question. The last time you briefed us, you shared some insights about the topics we might want to take a look at or, as we consider after we take the break, we are going to be looking at our next Advice Memorandum.

MR. BEUSE: Yes.

CHAIR WILKERSON: Do you have any thoughts or topics you would be willing to share with us?

MR. BEUSE: I have been working on cloning so I can solve the problem of being two places at once.

CHAIR WILKERSON: Okay.

MR. BEUSE: So, can we move on to cyber? Cyber is something that is kind of continually evolving. We have been sort of, I would say, leading the charge a little bit, much to the chagrin, I would say, of some of the manufacturers, not all of them, but some of them, and even, surprisingly enough, some concern from the Hill about that we were sort of making a big deal about vehicle cybersecurity when there was no, in their words, "no there there".

Well, we obviously felt differently. And so, we did a whole bunch of things. If you have been following the chronology here at the agency, we started a new office. We put a bunch of

effort through Ken and others looking at sort of what other sectors were doing in this space. Started working closely with DHS. And all of that kind of resulted in sort of where we are today.

So, fast-forward four years. Where we are today is that the auto industry has an ISAC, which is good. It is actually up and running and functioning. People are sharing information across. Many of the companies -- I don't know kind of tally-wise, but I know those that I have talked to -- have sort of now a lead cybersecurity guy that reports pretty high up in the chain of command, meaning that it is not very down in the organization, that people are taking kind of responsibility for cybersecurity. Now it is getting the attention that it needs.

We are convening lots of meetings, one of which we just did in January where we convened sort of the who's who of hackers, as well as kind of the who's who of government agencies that are in this space.

And one of the things we were talking about was the basic idea of, are there a basic set of guidelines, best practices that NHTSA could put out and get to automakers as a starting point? And so, the resounding theme from that whole one-day meeting was yes, and we are working on that right now.

But, in parallel, what is also happening is in the industry is responding. So, the industry is actually working on its own set of guidelines. So, presumably, the two will meet in the middle, and we will have a better posture than where we are right now, which is nothing. All we have is an ISAC. We don't have any sort of best practices that are laid down that anybody can point to or that anybody is following.

So, things are moving pretty rapidly. I think this has all happened within like the last eight months, I would say.

The other thing we are doing, there's lots of meetings and happenings -- I was just on one yesterday -- within government trying to figure out how to share information better across sectors within the government. There are obviously a lot of discussions about best practices versus regulations going on, especially how that impacts on the international front.

There are also lots of discussions happening about how to coordinate better on the vehicle side, in particular. So, some of you may notice the FBI put out a PSA about the GPAC. You know, it was seven months later or something, but it was the fact that they are interested in this was sort of interesting. Because when we were involved in that, we were mostly concerned about, is it something that is a defect? Do we need to do a recall? How do you get it fixed, that kind of NHTSA's bread and butter. They were more concerned with kind of, you know, Department people get notified and all of that. And we were doing our thing and doing it staying in our land and didn't really think about anybody else we had to communicate with. So, that is all changing now, much to show that even NHTSA will have its own kind of standard procedures for when something like this happens again, because it will.

So, summer is coming out. A blackout will happen. I am sure there are lots of paper already that will come out. So, the idea is that, before then, NHTSA will absolutely have a document that we will get to the industry about a common set of best practices that will cover not just kind of layers-of-defense strategy, but also things like making sure you have a point person inside the company who has some authority to do X, Y, and Z, you know, maybe consideration for a bounty program. That is pretty commonplace in the IT land. Some manufacturers have already set up their own, things like that.

So, that is sort of where we are heading on cyber. The next stage that we want to do,

obviously, is to kind of continue to refine those best practices because, the way cyber works, you could be secure today and, then, tomorrow you're not because someone figured something out. And so, you have got to be able to respond and adapt to that. So, that is sort of where we are heading on cybersecurity.

It is a whole lot of work. It is a fast-moving target, but there is a lot of effort being put behind it for sure.

Questions on that? Yes?

MR. SCHROMSKY: So, you mentioned the Bureau.

MR. BEUSE: Yes.

MR. SCHROMSKY: What other law enforcement or DoD, because the implications are -- I mean, I equate this to almost some public utility companies, right? When you talk about you connect vehicles, it is almost like taking down a grid, right? So, it is not just the hackers in the United States, but it is also nation-state at that point, right?

MR. BEUSE: Yes.

MR. SCHROMSKY: So, I am just curious to see -- you know, a big case this week, right, regarding cybersecurity in Silicon Valley?

MR. BEUSE: I would say it is everybody you think of and everybody you watch on TV.

(Laughter.)

Seriously. I mean, DOJ, DHS, DoD, FBI, NSA -- I mean, I could go on. It is not worth the time to do that. There's a lot of people involved. A lot of people are paying close attention to what's going on on the vehicle side.

MR. DENARO: If we are done with cyber --

MR. BEUSE: Yes.

MR. DENARO: -- I want to go back to a question --

MR. BEUSE: Automation?

MR. DENARO: Well, partially. Expand on how this AEB activity came along.

(Laughter.)

I mean, normally, I would expect you guys were regulating that, but my understanding is that the industry has kind of come and said, "We're going to do this."

MR. BEUSE: Yes.

MR. DENARO: And so, you guys say, "Well, that's pretty cool." I mean, so how does that work?

MR. BEUSE: I actually wasn't sure it was going to work.

MR. DENARO: Okay.

MR. BEUSE: So, long story short, the Administrator challenged the industry in September and said, "You guys have got to figure out how to make this technology standard. It's way too important."

MR. DENARO: Right.

MR. BEUSE: He said it a lot nicer than that, but --

MR. DENARO: Okay.

MR. BEUSE: And so, about 10 automakers signed up initially to say, "Yes, we think we can make that happen."

Then, over the course of about four or five months, myself and David Zuby attended many nauseating meetings -- Capp was in some of those -- with the industry trying to come up with what

would have meaningful improvements in safety, meaning not run to the lowest common denominator, but something that would get the technology in some form out there to everybody quicker than a regulation. So, that was a simple task; it sounds simple.

By the end, we ended up with 20 companies, basically, the entire light vehicle fleet wanting to do that. One of the misconceptions is that we are doing that instead of regulation. No, none, not at all. The regulations stick. They're still on. I mean, it is sort of like, if you have the stick, you don't have to show it.

So, we still have some other work to do, like on the pedestrian side of AEB. I mean, AEB is a very complicated technology. There are many different versions of it. So, one of the things this agreement actually helps to do is sort of standardize at least at a lower level what basic AEB means, which was for the first time will mean crash warning and braking. Because right now in the fleet AEB for some manufacturers means just braking; for other ones, they call the warning system AEB. And so, it is all over the place. Or some people offer AEB without a warning system. So, this says no more of that. It is all going to be FCW and some form of automatic braking.

The other thing that is happening is that I'm working on it with the heavy vehicle guys. So, that work has started.

Yes, I mean, it was just sort of the right mixture of leadership from the industry, I would say, that really helped pull this off. There were a couple of companies that, maybe this many that actually showed like just leadership to make this happen. And it was just David Zuby and I making sure that they came up with something that could not get blown out by certain people who only understand regulation.

MR. DENARO: So, the work independently is very helpful --

MR. BEUSE: Yes. Yes.

MR. DENARO: -- and they can tell these things, but it doesn't preempt regulations?

MR. BEUSE: Not at all, no.

MR. DENARO: Okay. Thank you.

MR. BEUSE: Capp, anything you want to add?

MR. CAPP: Great summary. It was fun.

(Laughter.)

MR. BEUSE: I would use another word.

(Laughter.)

MR. CAPP: Actually, it really wasn't that bad. Just when you get a big group working --

MR. BEUSE: Yes.

MR. CAPP: -- to get common denominators takes a little bit of work.

MR. BEUSE: Yes.

MR. CAPP: The outcome was pretty good.

MR. BEUSE: Yes, the outcome was great. Yes, I mean, the outcome should be celebrated more than my sort of tainting of how some of the meetings were very painful for me because I'm just like let's get there.

MR. DENARO: Yes, and the other piece, of course, is you can say, with 10 companies or how many, there certainly is the opportunity that somebody is going to show up with a car in the U.S. that is not part of that group, and they need to meet those requirements.

MR. BEUSE: Yes, yes, yes.

MR. DENARO: Okay.

MR. LEONARD: So, Nate, segueing off of that --

MR. BEUSE: Yes.

MR. LEONARD: -- the model that you went through, despite the pain of getting to where you got to, I know you have said in the past that often regulation is getting the last 20 percent of the industry to comply with something --

MR. BEUSE: Yes.

MR. LEONARD: -- that has been generally accepted.

MR. BEUSE: Yes.

MR. LEONARD: Do you see that as a potential path forward for other ITS technologies, and specifically DSRC? And if you do, have GM pioneering this summer. My sense is that the industry is looking for the regulation to reduce uncertainty. But is this an environment where the industry could say, look, we have a lot of knowns now. A lot of the technology risk has been taken out?

MR. BEUSE: Yes.

MR. LEONARD: "We're seeing pilots demonstrating that this system can work. We can move forward, in the absence of government action, to create an ecosystem."

MR. BEUSE: Yes. And I would say, equally important in that conversation or equally folks that should be thinking about that are the states because they have a responsibility, too. So, states could actually think of ways to do similar kind of agreements, commitments, because this was really a commitment that the auto industry did, as well on the V2I side. But, yes, certainly, if all the automakers got together and said, "We're going to do V2V by whatever date," that's all

gravy. It is all good.

I mean, I think one of the things -- and I should have started with this -- one of the things that we are just looking at as a nation really is the fact that, if the numbers hold true, in one year, in 2015, we will have wiped out -- wiped out -- essentially almost a decade of gains on the safety side because the numbers are going up that much. So, that is something that we are taking a very, very hard look at and making sure that we are using all of our tools to try to stem that tide, because right now the current estimate is a nine percent increase. That is the National Safety Council came out with that.

MR. BELCHER: Nate, isn't that mostly because of the travel interest --

MR. BEUSE: It very well may be, but that means we still have to do something about it.

MR. STEUDLE: Nate?

MR. BEUSE: Yes?

MR. STEUDLE: I would offer from a state's perspective that those numbers are exactly right. Our number is basically it is wiped out all the gains that we had in the last seven, eight years.

MR. BEUSE: Yes.

MR. STEUDLE: This is the highest number it has been in 10.

MR. BEUSE: It is very sobering, yes.

MR. McCORMICK: Was it across the board, this growth in all areas and types of accidents? I couldn't hear what you said.

MR. STEUDLE: We don't have that much detail yet of all the numbers.

MR. McCORMICK: Okay.

MR. BEUSE: Yes.

MR. STEUDLE: Interesting enough, fatalities are up; serious injuries are down.

MR. BEUSE: Yes, yes.

MR. STEUDLE: So, we are just killing them.

MR. BEUSE: Yes, yes.

MR. STEUDLE: There's nothing in between.

MR. BEUSE: Yes.

MR. STEUDLE: I guess we can attribute some of that to the motorcycle as well, but that is small number.

MR. BEUSE: Yes.

MR. WEBB: Nate, you mentioned that the states are a potentially important component in this process. What role do you see them playing? You know, five of them take leads. What happens to the other 45?

MR. BEUSE: So, one of the continual challenges we hear and get about V2V and V2I is it is going to take too long; it is not going to get there. So, I think NHTSA's role is only in the vehicle lane, and that is only 17 million vehicles a year. It is going to take a long time to get all the fleet turned over.

So, one way to accelerate that and one way we are envisioning -- at least in talking about it -- was the retrofit after-market, and Bob had a lot of comments about that.

But that doesn't do anything if there is not also some, let's say, exciting or sort of compelling V2I side to sort of make people want to do that. And so I think that is sort of where, if states are thinking hard about that and they can sort of work with their fellow states to sort of figure

out, if it's a corridor, if it's a network, you know, whatever it is, sort of committing to sort of that V2I, I think that would open up a lot of possibilities. And I also think it would sort of show that it's more than just the autos that see value in connected vehicle technology.

MR. STEUDLE: Nate, I would offer that, to the extent that NHTSA has some ideas to take from the states, you know, we try to pick different areas, but as I work with three neighboring states -- Wisconsin, Ohio, and Indiana -- the question is, okay, but what and where? What gives you the biggest bang for the buck? Where should we do it? And that would help me, and three or four of my other counterparts that are kind of leading the way here, to say, "Look, here's some direction." It doesn't have to be formal, written guidance, but here's how we can help that.

I think states, they're willing to go forward. They are trying to figure out what, where. What has the biggest impact so we can help that whole discussion and maybe move it along better?

MR. BEUSE: Well, maybe that's something you and Ken and I can talk about.

MR. STEUDLE: That would be great.

MR. BEUSE: I mean, that sounds like something we could do through a study or something.

MR. STEUDLE: Whenever there is a big meeting, I will routinely have four or five states who will come to me and say, "What do we need to put out and where?" And until DSRC standard in the traffic signal is set, if that's what it's going to be, then we could start putting them in traffic signals. We can do a lot of things, but there still seems to be too much nebulousness out there.

So, any kind of guidance -- there are people that I think want to help, want to go, want to deploy. In fact, we have a big meeting this weekend that will have many of them were there. So,

any guidance that we could provide them would be very helpful. Even unofficial guidance.

MR. BEUSE: Yes, yes. Walt?

MR. FEHR: Kirk, I was just going to say that one of the most useful things that people can do right now is actually looking at certification activity that they are doing. Whatever you put out, what it will likely be is uniform automation wide scale. One of the more practical ways of assuring that is to use the certification practice so that anybody's equipment common standards. When you give any advice to any of these people, tell them to make sure they look at that.

MR. STEUDLE: I know of examples of municipalities that have a whole bunch of like technology from five or six years ago, thought they were upfront because somebody came and sold them something and they said, "That's neat."

(Simultaneous speaking.)

MR. BEUSE: Right. That is not what we are suggesting, and I wouldn't want anybody to do that.

(Off-microphone comment.)

MR. BEUSE: Right. Good. Any questions?

MR. LEONARD: Ned, I missed your opening remarks on the regulations. I just want to ask you a question.

MR. BEUSE: Yes.

MR. LEONARD: I know you are in active discussions with ALARA and OMB on the regulations.

MR. BEUSE: Yes.

MR. LEONARD: And I know that they are inviting in a lot of opinions. It's a public or

semi-public process.

MR. BEUSE: Yes, yes.

MR. LEONARD: In your sense, are they hearing from who they need to hear from? Are they getting the full picture to understand both the importance of the regulation and the role it plays in addressing issues like this 9-percent apparent climb in fatalities?

MR. BEUSE: That's a very good question. I'm trying to figure out how I answer without getting myself in trouble.

MR. LEONARD: And I am trying to give you room to answer it without getting into trouble.

MR. BEUSE: Probably the best way to answer that is, because OMB doesn't really post -- I mean, they post who has come in, but I don't know if they actually put the name up there. I forget now. But, since I can't remember, I'll say that it is about 50/50 right now, meaning that the folks that are sort of the stalwarts are in there, an equal number to the folks that are not wanting to see V2V go forward.

And the arguments are what you would expect. They were in all the NPRM comments. You know, they cover everything from, oh, the point that Kirk was just bringing up, you know, this technology is old and there's new stuff around the corner. There's better uses for the spectrum, and all that kind of stuff. So, right now, I would say it's about equal number. That's about the best I can say without spilling the beans.

MR. LEONARD: I do have one other question. You talked about the Secretary's call for the Department being mindful about regulations that might encumber innovations.

MR. BEUSE: Yes.

MR. LEONARD: And you talked about it in the context of automation. But at NHTSA are you seeing this across other areas of regulation? And do you want to elaborate on that?

MR. BEUSE: Yeah. Essentially, the call was actually for any safety technology. We really didn't limit it to automation. The buzz in January was about automation, but we've gotten things about how BMW had a self-parking system, arguably not anything related to safety, but it was blocked by one of the standards that -- like one word in the standard kind of thing. GM had one on a mirror that we responded to that, arguably, would improve safety. And so that one we responded to.

So it's kind of been, frankly, not as many as I would have expected given some of the rhetoric that was happening last year, but, you know, it is what it is. Maybe more will come in; I don't know. But there's not been a lot.

There will be more. I have been forewarned there will be more.

CHAIR WILKERSON: Is there a timeline that they wanted?

MR. BEUSE: No. No, it was more just like, hey, give us your stuff and we will try to process it as fast as we can.

MR. McCORMICK: It's not a question, and I don't think this fits anywhere else in our agenda, but I did want to bring it up. I met with the representative of the China Telecom group that are doing the 5G tests in Hunan Province, because I'm trying to schedule an opportunity to go review. Next month they are doing their field deployment test. And this one is substantially more than the one done by China Unicom last year.

They also have told me, in the test that I'm trying to get to they are going to do a point-to-point, a 5G point-to-point. They do have the preliminary results of the latency, and it is

well under 1 millisecond. And China is actually looking at if that's how they are going to possibly deploy.

So, if I am able to wrangle that visit, because they are going to look at doing point-to-point between a bus and other vehicles in the test, from what they have told me. So, if I do get that, I'll send back to the Committee whatever I discover.

MR. BEUSE: Sure. Great.

CHAIR WILKERSON: Any other questions for Nate?

(No response.)

Well, thank you so much.

MR. BEUSE: Thank you guys. It is always a good conversation. I appreciate it. Thank you for being engaged. And thanks for letting me tear up your schedule.

CHAIR WILKERSON: Oh, no, we appreciate your time.

We're going to take a break at this juncture. And then we will come back and start talking about the proposed 2016 Advice Memorandum topics. So, I think we should go ahead and plan to come back at 10:15 so we're back on track.

(Whereupon, the above-entitled matter went off the record at 9:55 a.m. and resumed at 10:20 a.m.)

FUTURE MEETING SCHEDULE AND LOCATION

CHAIR WILKERSON: Okay, so one of our key responsibilities, as members of the advisory committee, is to act solely in an advisory capacity to the Secretary through the ITS JPO, to make recommendations to the Secretary regarding the ITS program needs and objectives and to

plan various approaches and content for progress.

We submitted our 2015 advice memo back in October of 2015 after much deliberation. After we formed five different subcommittees, we explored several topics for consideration. I will go into those, but one of the things that I've asked Stephen to do was to tee up where we are, so we know where we're going, or where we've been, so we can have some idea of where we need to go.

MR. GLASSCOCK: Quick update on the 2016 report to Congress, your advice memo to us. We had concurred, I think, on all but one, and we partially concurred on that. We had just sent it out to begin the process, and we had the budget revisions that significantly impacted our rate forward. We pulled the report back, so that we could still concur, but with a caveat that depending on the budget, it might affect some of the things that you had recommended. We revised our comments, and then it's moving up into the process. With the FAST Act, the due dates moves from February 1 to May 1st, so we just may make that. Then more importantly, I want to say thank you to everyone that's willing to serve again. This has been a great group.

I was very happy that all 18 agreed to serve again, so thank you again. We have two people that we're recommending for the vacancies. We're meeting with some senior people tomorrow, and then we hope to move that forward. As always, it's the Secretary's discretion if he wants to nominate someone, but we're hoping that we move forward with these 18 and our two new people.

Sheryl asked me to give a timeline showing how things are going to go. My suggestion is the fact that I -- let's feel confident and move forward as if all 18 of you are coming back. I would not let your term expiring affect what you're going to do. I would just move on and do your work

as if your term just continued without interruption. Does anybody have any questions on that?
Yes, sir?

MR. DENARO: I'm a little confused. The memo we did through last year, the JPO did respond to that?

MR. GLASSCOCK: We did inside the DOT. We made our advice memo and the next step is the report to Congress. The package was done. We just sent it up, and then we go through these budget revisions. So we pulled it back because we needed to put some caveats in there because we didn't feel comfortable saying we fully concur, right.

We just altered our comments, and then it went back up. That's where it is. It's in the process.

MR. DENARO: If I go on the website --

MR. GLASSCOCK: You're not going to see the report to Congress.

MR. DENARO: I'm sorry?

MR. GLASSCOCK: You're not going to see the report to Congress, but you should see -- I don't know if I posted the advice memo or not. I usually post --

MR. DENARO: It's there, but it doesn't work -- at least it doesn't work for me. I only get the first page.

MR. GLASSCOCK: Okay, I'm glad to know that. For some reason, a couple years ago we waited and we posted the advice memo with the report to Congress. I'm not sure why, but I'll correct that.

MR. DENARO: Then you said 18 returning, which is great, but I thought in previous years, didn't you try to replace a third --

MR. GLASSCOCK: There's no set rule. We did, but this year, I was pretty adamant. I think you guys did a great job, so I said I don't see any reason, since we have two vacancies, just those two, and then moving forward. It made it easy because all 18 agreed to serve another term, so we'll see. There's a change of administration. We'll probably --

MR. DENARO: January 1st -- I'm sorry; I'm confused. Okay, January 1, '17, that would be, in essence, from the new term.

MR. GLASSCOCK: No, that's the current one.

MR. DENARO: That's the current one?

MR. MCCORMICK: Yes, that would be the current one, the January 1, 2017.

MR. GLASSCOCK: It's going to be the new committee, because the new committee starts January 5, 2016.

PARTICIPANT: The new committee starts once --

MR. GLASSCOCK: That's true. We start once the Secretary's signed the nomination letter.

MR. DENARO: There has been, in the past, some reasonable gaps in that.

MR. GLASSCOCK: Right. Your term really doesn't expire. I think the official determination is until a new committee is --

(Simultaneous speaking)

Yes. There's nothing that says that you can't meet in the interim.

(Simultaneous speaking)

That's why I suggest just ignoring that your term expires and move forward with how you want to do it.

PARTICIPANT: Just keep pushing.

MR. GLASSCOCK: Yes. I will suggest that --

(Simultaneous speaking)

MR. GLASSCOCK: Yes, or at least to let you know that with the change in administration, you may play a part in what you want to put in your advice memo or --

MR DENARO: Exactly.

MR. GLASSCOCK: I would just maybe want to call that to your attention. I'm going to turn it back over to Sheryl.

CHAIR WILKERSON: Okay.

MR. SCHROMSKY: So question. Do we have ideas for convening a meeting?

CHAIR WILKERSON: That will be up to us to -- we'll talk about it before we leave. So the floor is open. First of all, are there any more questions on the schedule while we have the staff here?

MR. MCCORMICK: Well, I kind of would like to figure out what the general timing might be for meetings, just because --

(Simultaneous speaking)

CHAIR WILKERSON: Can you refresh -- I don't have the list in front of me. Actually, I can go back in my notes for the meetings that we held. I was looking at 2015. We had one in February.

CHAIR WILKERSON: August. Yes, one in August.

CHAIR WILKERSON: Yes, I'm going back to my 2014s, but I don't have the exact dates with me. I wish I had those up here. I guess I can look on the website.

MR. MCCORMICK: My first question would be is our next meeting -- will that be a telecon, or would it be another face to face?

CHAIR WILKERSON: It will be face to face.

MR. GLASSCOCK: Okay, because a lot of the committee members -- we could do a telecon, but there's no rules that say we have to, so we would just -- we'll do what you want to do.

CHAIR WILKERSON: I know there was some chat in the past about holding one of the meetings locally and there was another one about having it out on the West Coast; Vegas, I think it was.

MR. GLASSCOCK: Okay, so your meetings were August 13 and February fourth and fifth.

CHAIR WILKERSON: We got a call.

MR. GLASSCOCK: You had a --

CHAIR WILKERSON: May call, I believe it was.

MR. GLASSCOCK: For the February in-person meeting and May 13 teleconference, and an in-person August 13th. The telecon really would not be necessary.

CHAIR WILKERSON: About three months.

MR. GLASSCOCK: We can just keep on going with an in-person meeting. I, personally, think those are more productive, but it's your call.

CHAIR WILKERSON: Today, March, or technically April, these periods have been, on average, about three months apart. To answer your question, it would be, in general, three months from probably April or March, so May, June, July, possibly.

MR. GLASSCOCK: So I just said continue on as if your term doesn't expire, but if you do

it in July I believe the nominations will be set. I would try not to do it in the month of June.

MR. MCCORMICK: Actually, that's what is nice about a telecon because you don't have to worry about travel. But it's whatever you prefer to do.

MR. DENARO: If we have two new people it'd be nice to do that.

CHAIR WILKERSON: Can you repeat that? I'm sorry. The air conditioner on this side is --

MR. DENARO: My comment was that if we have two new people filling the vacancies, it'd be nice to have a meeting face to face, so that they would get to meet everybody and participate and so forth. Like I said, participation on the phone is not as active as it is in person.

MS. JOHNSON: And perhaps we look at August, so we can sort of make sure that we know.

CHAIR WILKERSON: Let's go back. The issue was when might be our next meeting. We said on average, we've held them every three months, so the time frame would be sometime between July and August. The last one we had around this time was August 15th. Is there anyone who has thoughts on the floor about time frames that might be good? Second, would you prefer face to face or teleconference, in light of the fact that we will likely know who the two new committee members might be by that time?

MR. BELCHER: Sheryl?

CHAIR WILKERSON: Yes?

MR. BELCHER: An observation that might color when we have the next meeting. We're at a presidential election time, and we will have a political transition. We've been in the current administration for eight years. You're going to have a completely new political slate that

comes in starting in the January time frame.

We might want to take this opportunity and this memo and think about it slightly differently than we have the last couple of memos. We might think about who our audience should be. In my mind, our audience might be the new set of political leaders at DOT. We might want to take the opportunity to affirm the things that we think ITS JPO is doing well and the decisions that they've made.

That might be the most valuable thing that we can do. Because as you know, when a new administration comes in, they almost, by definition, need to change things because they're a new administration, regardless of whether things need to be changed or not. We might want to put our stake in the ground about the things that we think they shouldn't monkey with when they're going to be monkeying with everything else. If you go that way, if you're really thinking about -- you're probably going to see political appointees in the -- it actually isn't going to be in the fall of next year. You need to give yourself time to get that memo done.

CHAIR WILKERSON: I don't disagree. I don't know if anyone else has comments. It says here, one of the topics January 1, advice memo due. That would mean the July time frame would be where we would take those issues. I think the issue is still on the floor about the time frame.

MR. MCCORMICK: I think she makes an excellent point that maybe what we can also do for that January report is to provide some summary history of what's been accomplished through this committee over the years and how that relates to the needs of the Secretary and the country. For someone coming into a position -- comes in as the Secretary, they generally are a political appointee. They don't necessarily have much transportation experience, other than that

they may have used some transportation, so I think it's an opportunity to provide them with some -- that kind of thought leadership.

CHAIR WILKERSON: If I may go back to the question that's on the floor. Your initial question was what is the time frame by which we should be thinking about that before we go into the topics that we will address in the next report. Is that fair? I just want to close that up, so we're not talking about it again.

The timeline is July and August. Did everybody hear that? Can you repeat that again?

(Simultaneous speaking)

CHAIR WILKERSON: There are two recommendations. One is we can always affirm what we've done. Second is we can include -- start to formulate some summary of what we sort of -- go ahead. When would you think we might have some semblance of a new administration and know who we're reporting with? That's going to be a year from now, at best.

(Simultaneous speaking)

MR. LEONARD: I think sometime around November 4th (Laughter) I think it's November 8th, the first Tuesday in November.

(Simultaneous speaking)

MR. LEONARD: We'll know who the new administration is, and then it's about a four-month transition, where the cabinet members are being identified. A year from now, at best. But we don't get -- I don't know when -- the cabinet tends to get filled in fairly early, at least in key positions. I don't know when: Probably not our next report that's going to go to a new administration, probably the one after that.

MR. MCCORMICK: That's what I was thinking. If we use the January 1st time to do the

document that I just spoke about, I think we do have time to get that done. I don't think we have time to do another set of recommendations that wouldn't be due until January of 2018 anyway. We have all of 2017 to accomplish that set of recommendations.

CHAIR WILKERSON: You mean May.

MR. GLASSCOCK: Just to be clear, January 1, 2017. It will not go to the Secretary's desk until March/April.

MR. MCCORMICK: Which is about the time --

MR. GLASSCOCK: Then as far as the next meeting and the committee, I would think that if there was any change in the membership, it would be one-two, at the most. Again, if you want to operate as if you're continuing on, I think that would be the best because -- don't let that change your plans. We will know that probably in the next month.

CHAIR WILKERSON: Is that helpful?

MR. ALBERT: I think, to Scott's idea, to help repackaging something, seems to me it would make a lot more sense. We'll look at the background and accomplishments, without taking away responsibility, really, for writing for what we already have, rather than looking at new hot topics that we want to include now. It seems to make a lot more sense.

MR DENARO: We just want to have some vision of where we're going.

PARTICIPANT: Yes, we do.

MR. ALBERT: Maybe that document could have some impact. What I'm saying is maybe we do something that says here's a vision, and here's how we accomplish our vision, but then repackaging some of the stuff that we've already done. We could have a few bullets or an outline before we got to our face-to-face meeting, then I think we've got something to appreciate.

(Simultaneous speaking)

MR. KISSINGER: If I'm voting, I would vote for a face-to-face meeting in July.

CHAIR WILKERSON: Thank you.

MR. KISSINGER: Use this meeting and the meeting in July to decide what it is that we want to report in January, and if we need another meeting in the fall to sort of fine tune the letter --

CHAIR WILKERSON: Sounds good.

MR. KISSINGER: -- I think we can do that by telephone.

(Simultaneous speaking)

MR. MCCORMICK: Kate's report all through 2016 is all the work that they're doing on the program, that will allow some visibility to how that's going and whether or not there's recommendations relevant to it.

MR. DENARO: I have a different opinion on the content of our next memo. I agree with the general idea. As opposed to 17 or 20 specific recommendations, be more general. I wouldn't recommend going back to history and saying all the good things we've done or whatever. I would focus more on what are the critical topics moving forward that we need the government to stay focused on -- automation, connectivity, some of these technologies and policies and so forth. Maybe couch it in that form.

MR. MCCORMICK: It doesn't have to be the history of this group. It needs to be something that provides an educational foundation for the incoming secretary.

PARTICIPANT: By the way, I don't know the TIA's calendar, but from all the events I'm looking at, the last two weeks in July and the first two weeks in August, I actually have nothing anywhere in the world going on.

CHAIR WILKERSON: If I may digress again, go back to the time frame, several people have commented July would be a good time frame, and then at that point, we would then determine if it would be appropriate to have one for the fall. Peter, did you say face to face?

MR. KISSINGER: I think face to face.

CHAIR WILKERSON: Is there consensus that the next meeting should be a face to face? Consensus?

PARTICIPANT: Yes.

CHAIR WILKERSON: Great, that's good. Then what about the month of July, early July, late July? Is July a good month, or would someone like to offer --

MR. STEUDLE: I would say the 27th.

CHAIR WILKERSON: Somebody's got -- I'm with you.

(Simultaneous speaking)

MR. MCCORMICK: The 18th through the 29th, those last two weeks, I show absolutely nothing going on.

CHAIR WILKERSON: If we don't get consensus.

(Simultaneous speaking)

MS. GOODIN: The automated vehicle symposium is July 18th.

CHAIR WILKERSON: Let's go through -- if you have your calendar, can we think about some key meetings that people might be going to that might conflict, and then maybe get some of those out of the way? Is that right?

PARTICIPANT: Is that right? Do I have the date right?

CHAIR WILKERSON: So 18th through the 22nd? Oh, yes.

The last two months, yes -- last two weeks.

MS. JOHNSON: The first week of August maybe. The first week of August?

CHAIR WILKERSON: Okay, that's a possibility. I don't know. There are a couple of people saying first week would be. What we can do is if we don't have consensus here, we can go back and do the poll and see where the majority is, if we have a couple folks who aren't here, and then see what people will likely be here, but --

MR. MCCORMICK: The only thing I'd add --

CHAIR WILKERSON: Can you speak up? I'm so sorry.

MR. MCCORMICK: Can we check to make sure there's not nuclear power conventions or whatever going on during that time frame.

(Simultaneous speaking)

MR. LEONARD: Nuclear summit snuck up on us. I don't know why, but I didn't realize that was going on.

MR. WEBB: I threw out the week of July 11.

CHAIR WILKERSON: July 11th? The first part of the week is better for me than the latter part. Anyone else?

PARTICIPANT: That first part of the week is the only --

CHAIR WILKERSON: The week of July 11th, are there constraints? Can you raise your hand if you have constraints with that week? There's one, two, three, four, five, six. That sounded good.

MR. DENARO: Did we reject the first week of August? I didn't hear that.

CHAIR WILKERSON: How many folks have constraints the first week of August?

Two potential. Do you have a third? One, two -- who's the other person? Wednesday, Thursday?

PARTICIPANT: Thursday is good.

CHAIR WILKERSON: August 4th is a date that's on the floor right now. Is there anyone who has a conflict with August 4th?

Kirk? And you're on vacation, George? Okay. We're going to have some conflicts, but there are a couple dates that have come up, and we can include those in a poll. I don't want to have a whole month. It would be very hard. I won't be here. Somebody else will chair, though.

The week of the 25th is the only week that I --

PARTICIPANT: In July?

(Simultaneous speaking)

CHAIR WILKERSON: I have a conflict. I wanted other folks to weigh in, as well.

August 4th was one day that had the least amount of conflicts. Were there any other times in July?

MR. WEBB: The week of the 18th looks completely open.

CHAIR WILKERSON: How about the latter part of that week, Wednesday/Thursday?

MR. WEBB: Yes, that's fine.

MR. LEONARD: Did you say July 18th? Isn't that the automation ---

CHAIR WILKERSON: Oh, yes. I was looking at the latter part of it, the 21st, July 21st?

Conflict? Okay, so we have one with a conflict on July 21st. Two, three. It's going to be tough. It is tough, otherwise we're moving into September. Any other recommendations on potential dates? Otherwise, we will try to come up with some dates, but I hate to do a Google poll

that has a whole month. It would be very hard for each of us to go through our calendars and do that.

I'm sorry?

PARTICIPANT: It will be in D.C.?

CHAIR WILKERSON: We can discuss that. It's open. Any other recommendations? Okay, I'll throw out some dates, and then we can always try to do this online as best we can. One recommended August 14th, Kirk did, August 15th. I know that's the AMPA conference, and I have off-site with our leadership team on the 17th, 18th, and 19th, but the 15th, I'm open. August 15th, are there dates --

PARTICIPANT: Not for me.

CHAIR WILKERSON: Any other conflicts?

PARTICIPANT: August what did you say?

CHAIR WILKERSON: August 15th.

PARTICIPANT: Which is a Monday.

CHAIR WILKERSON: For those two? Okay.

(Simultaneous speaking)

CHAIR WILKERSON: Yes, that would be the 16th. How about August 16th?

PARTICIPANT: Yes.

CHAIR WILKERSON: Okay, we'll try -- can I ask one other question? For July, I know the last week of July had the most conflicts because we had the convention and some others. Was there any other -- then July 4th is never, obviously, a good week, right? Was there the 11th or the 18th that had the least amount of conflicts?

MR. MCCORMICK: Yes, other than the 18th, itself --

CHAIR WILKERSON: Right, that 18, 19, 20. I will be looking at possibly throwing out some dates -- we will -- the week of the 11th through the 15th or after that TRB, those three dates, and then the first two weeks of August. We'll do our best. Is that fair? That would be a face-to-face meeting. Are there any suggestions or preferences that the meeting remain in Washington, or constraints? I'm wondering about the budget constraints. Do you have any insight on that?

MR. GLASSCOCK: No. It's always safe to have it here, but we can -- the problem usually is not our traveling.

CHAIR WILKERSON: That's what I mean. Are there financial constraints that would hamper your ability to --

MR. LEONARD: If you have a meeting someplace other than Washington, we will send only a few people. But notwithstanding, there are other locations. I think if you have something you want to see in a location -- places that occur to me would be pilot site locations. If there's some ITS technology --

CHAIR WILKERSON: Where you could duplicate work.

MR. LEONARD: I think Volpe was mentioned, where there are a lot of ITS technologies. The other possibility would be to hold it out where we have Proctor-Turner-Fairbanks, about they're hosting it, and we could incorporate a Saxton Lab tour. I think we're going to know somebody out there real soon who wants to show off some of his technology. To throw another little kink into it, my contracting with Citizant, who handles this, expires February 17. Funding is put on to it, so that may play a role into it. If you can maybe think of an alternate site for '17, not

in '16, it might help, but again, it's whatever you want to do, I'll try to make it happen.

CHAIR WILKERSON: That's fair. Floor's open. Thoughts, comments, in light of what Stephen has said?

PARTICIPANT: That's fine.

CHAIR WILKERSON: Scott?

MR. BELCHER: One option or suggestion is TIA could host the meeting, if that would help. Our facility is big enough that we could all meet. I don't know about the other part. It's located about a mile from here, so it's centrally located, if that helps.

CHAIR WILKERSON: Okay. Any other comments or thoughts?

(Simultaneous speaking)

CHAIR WILKERSON: Anyone else have any concern? Is it fair to say that there's some consensus for keeping it here in Arlington or nearby or in Washington?

(Simultaneous speaking)

CHAIR WILKERSON: Okay, that's progress. Let the record show we are looking for something in July or August, and then we will send a Google poll. The recommendation is that it be held here and be a face-to-face meeting.

PROPOSED 2016 ADVICE MEMORANDUM TOPICS

CHAIR WILKERSON: The last time we had our discussion -- and this leads back to where Scott and others were talking -- what we did was we formulated some subcommittees. Do we have that chart? I'm sorry.

MR. GLASSCOCK: The old subcommittee chart?

CHAIR WILKERSON: Yes, just to show people what we did, just to refresh their memory. I don't know if it's up there.

MR. GLASSCOCK: Yes, it is. We can pull up the new one, not the old.

CHAIR WILKERSON: The new one is fine. It may not even be useful now because other folks may have ideas for us to talk about. I just thought it would be helpful to show the chart that we used. It's not filled in, based on what we had. Last year, we had a chart.

We don't have to do things the same way, but I just thought I'd refresh our memory. We compiled a chart. We came up with about nine topics, and then we narrowed them down to four. We asked each of the members to prioritize one, two, three, or four, which they would -- actually, we went into greater detail about each of those topics, and we came up with a lot of subtopics for the nine or so that we had.

We then narrowed it down to four. You may remember there was one other -- there were a number of things up there -- fleet. We can always go back and look at those topics. I think I have a list here with us. Then we asked each member to prioritize. At that meeting, we then came up with these top four. At the bottom of this chart, which you can't really see, we then started talking about who might be interested in leading those subcommittees, and then I think they -- yes, and then we asked each person what their top personal preferences were for the subcommittees. On the agenda, the research that Stephen did, there were some topics that folks came up with for this year, which are on the agenda for today.

Oh, okay, they're at the top there. Thank you for doing that -- was automation, scenario planning, traffic safety culture, vehicle hacking, or I guess cybersecurity was also -- I think was also included in that topic. Today, based on our comments that Scott and others raised, is the

issue of what should we be offering for the next administration?

I would beg that we should put those two topics. One was the vision for where we think we should be going, but also some sort of recompilation or summary -- or affirmation, I think, was the word that Scott Belcher used -- to ensure that those -- that some of the key topics we think are essential for them to continue moving forward or that the JPO is undertaking be reconsidered for the next administration.

MR. KISSINGER: Kind of a question, Scott. I think I'm supportive of what you're suggesting. I think my question is, is that really more of a question of what are the big picture priorities that the new administration should consider, as opposed to getting down into the weeds of all of the details that we have done?

MR. BELCHER: Yes, that would be my recommendation. You get a bunch of new people and they're trying to figure out what they're going to do and what they're going to change. We could go on the record and say the JPO's invested heavily in these areas.

Over the course of the last six years, the advisory committee's been supportive of these areas. I suggest the following tweaks to it. I think that might be helpful. Based on that, we can put down some path to success stuff. I wouldn't get into the weeds. I think that's very doable.

MR. MCCORMICK: Well, I think there's another topic I wanted to talk about.

CHAIR WILKERSON: That's great. We would add a topic up here on the chart. We can get rid of any and everything that's up there, but the goal here is just to talk about what we should be talking about in this next advice memo. How would you like to define that, Scott?

MR. BELCHER: How about reaffirmation memo, something like that? That'd be fine.
I think that's --

CHAIR WILKERSON: For the next administration?

MR. BELCHER: Yes.

CHAIR WILKERSON: Then there'd also be a cyber topic going forward? Is that what we were leading at? There were a couple things. One you said what are they currently working on and what resources should we continue to make sure that they're doing? The other was somewhat of a visionary statement. This is what I wrote down from the conversation we had. The other was sort of a visionary about where we might want to be going forward.

I'm sorry -- think it could be included?

(Simultaneous speaking)

CHAIR WILKERSON: Reaffirmation is sort of -- I'm sorry. Reaffirmation is basically reiterating what we've done, right? It's reaffirming those things. I was saying vision in light of what --

(Simultaneous speaking)

CHAIR WILKERSON: Right.

MR. BELCHER: Okay.

CHAIR WILKERSON: But if you see them, I just wanted to make sure those two points were included.

MR. BELCHER: Okay.

CHAIR WILKERSON: Okay. I'm sorry, Peter was next.

MR. KISSINGER: My sense is more in tune to what recommendations about priorities moving forward. It can be done under a reaffirmation note. I don't care what the title is. I think Scott and I are in agreement as to what we're looking for substantive wise.

MR. ALBERT: Yes, I'm all for the reaffirmation memo, but if we are going to get down in the weeds of the traffic safety culture, it'd interest me because I have about 15 staff working on it and working in about 40 states right now.

CHAIR WILKERSON: Can you guys go more in depth?

MR. ALBERT: The thing I was going to recommend is if you want to know about traffic safety culture, maybe we bring someone in here to give a brief analysis for what's going on with that area, rather than a lot of people.

CHAIR WILKERSON: You want to put that topic up there. We have several hours to talk about these things, so why don't we add -- that topic is up there, traffic safety.

MR. ALBERT: Peter and I can kind of do that.

CHAIR WILKERSON: Then who over here had a comment?

MR. DENARO: I think it's worth considering taking a new look at this. I don't disagree with those topics, but two things have happened since we last met. A, the marketplace has moved forward with a lot of very interesting things going on, and B, for the first time, we're talking about the new formulation of this memo targeting at a new administration and so forth.

To me, the biggest things that are happening related to what's going on here -- and they're in the strategic plan. We go back to the strategic plan -- is connected vehicles and automated vehicles. There's a lot of issues that can come with that. In terms of recommendations, as a committee, one thing I think we're a little weak on right now -- we, the community -- is the connection between those two. There's a lot of debate and opinions about whether connected is part of automated. Is it essential, not essential, and so forth? I see us maybe weighing in on that. By covering automation and connected, and then how are those two tied together, I think is a good

message to the new administration about the importance of those things to safety and so forth, but then we're getting into where we think the government's role needs to provide some guidance and leadership.

CHAIR WILKERSON: Any comments?

MR. MCCORMICK: Our board explored that question. The conclusion was that we feel that automated vehicle and connected vehicle -- one is not necessarily inclusive or mutually exclusive of the other. The difference is really in that without connectivity, almost all your safety is reactive.

With connectivity, your safety can be more preventative because it can be made aware. There are a lot of -- I'll call it commercial forces at work when you look into that. I'm not sure that -- I think it might be useful to explain the value of both, but I would hesitate to say we should group them collectively together yet.

MR. DENARO: I'm saying that it should be three, they should both independently have their value and so forth. I think our messaging on how to tie together is terrible right now. I think our messaging is very unclear. It's not specific. Different people are taking different sides to this thing.

I think that needs to be brought together. I think there needs to be better messaging. I agree with what you said, Scott, the value of communications with automation. I just don't think it's been documented well enough and that there's a consistent enough message about that, so that message gets through. Part of where this is going is kind of showing the new administration why both of these are important and why they are complementary. I just don't think that's clear in the messaging right now.

MR. MCCORMICK: I think there was something collateral to that. I forget who had brought that statistic last time. I think we have about 5 million miles under automated vehicles, and a good portion of them was Google's car. But the statistic was that they'd had five times the number of accidents and four times the number of injuries as piloted vehicles, regardless who was at fault. Because we're going through a period of time, at least in a decade, where there's going to be everything from a Level 0 level of automation to at least a Level 4. The other issue, which I think is one that I wanted to revisit, was really in terms of the fundamental aspect of safety.

If you have everything from -- if you have a perfect world with everybody sitting in their automated vehicle being taken wherever they want, it's fairly simple to say here's where the benefits are from congestion, and here's where the benefits are from all this.

But when you have an environment where I'm going to be driving, and I don't have any ability to send or receive messages, and over here is an automated vehicle that works as an ad hoc self-forming network when the other automated vehicles or communicating vehicles tell them they're going to be changing lanes, slowing down, or speeding up, you've got a chaotic environment. Because having everything from machine intelligence to human intelligence has never meshed well in any environment. The primary information comes out of aerospace, but it has never meshed well. I think there's other issues that -- in terms of rather than worrying about the end game, we figure out what help we can provide or guidance we can share or suggestions for study on what we see as the things that may be happening over the next five years.

When you have this mix of technology and the aspects that are going forward, that we talk about connectivity and automation in that. But our purpose is to say how to ensure that in this changing environment, what are the things that should be considered to maintain its safety.

CHAIR WILKERSON: Bob, do you want to respond back to that? Your issue is --

MR. DENARO: I basically agree with what Scott said. At the end of the day, the purpose of our memo is to recommend directions for research by the JPO. They're a research organization. These topics -- where I see is I would like to see the JPO step in on topics that are still fuzzy and could use some resolution, and for which they are best suited to do that, as opposed to expecting that someone else is going to do it. That's the find that we're after is what can the JPO contribute to this in resolving some of these questions that are there?

CHAIR WILKERSON: Roger, do you have any insight or comments?

(Simultaneous speaking)

MR. BERG: We're not here to solve the problem. Ken's group is there to solve the problem. If we have our own opinions from a diverse background about what are the appropriate things for that team to look at, that's where we need to focus, not at solving the problem.

(Simultaneous speaking)

MR. STEUDLE: I would agree with Bob. Our role is to advise JPO you need to be looking at these things. To the extent that we would highlight for them hey, this seems to be a confusing topic, we think you should look at that, I think that's an appropriate role. If we're going to engage in a conversation about what is right or wrong (simultaneous speaking) that's the wrong thing for this committee to do. It's not our charge to do that. Our charge is to provide JPO with some guidance, say hey, this is stuff that's not getting done. We think you ought to look at it.

CHAIR WILKERSON: Good point.

MR. SCHROMSKY: Research would have to be designated to that.

CHAIR WILKERSON: Okay. How would you articulate that topic, that we can just at

least throw it up on the screen and come back to it and revisit it later, while we're cross-pollinating on these ideas? Between the -- you said fuzziest, but there's probably a better word -- way of articulating the automated and connected vehicles. How would you define that? What'd you say, Scott?

MR. MCCORMICK: Why don't we just put CAV - connected automated vehicle? We can flesh that out.

MR. BERG: I think it might be more general. There's a cross-pollination between all of these ideas and things that we think is going to happen. Do we need to do -- we need to advise that some research should be focused on this cross-pollination or these cross-cutting things, or there should be maybe individual study?

MR. MCCORMICK: What would we title it is the question. That's what we're trying to figure out.

CHAIR WILKERSON: I know what you're saying.

Is it part of what Scott Belcher originally said? We're going to obviously discuss recommendations for sustained or new research.

MR. DENARO: If you pick automation and connected vehicle, then a lot of the stuff we're talking about falls from that. First of all, I've stated my concern about there being a better job of showing the relationship and --

CHAIR WILKERSON: I would say interrelationship.

MR. DENARO: -- it really falls from that, and a whole bunch of other things fall from that. I'm trying to keep it simple. In other words, if we're going to provide this memo to the new administration, I think we've got to really work hard at a similar understanding and clear

thing. We have six different topics that are -- they're kind of hard to understand how they're related, then it's difficult. If we pick two big things, and then other subsets flow from that, to me, it's more understandable and more readable. That's kind of where I was coming from.

MR. MCCORMICK: I have to agree with Roger. I like the idea that we call it the cross-domain impact or --

(Simultaneous speaking)

CHAIR WILKERSON: I was just saying the pollination, but the interrelationship or -- put interrelationship.

CHAIR WILKERSON: Or connected and complicated -- but the interrelated issues affecting both automated and connected vehicles. I think we get it, and I think you should be listed -- I think we should put Bob here as the potential chair of that one. You had safety. Safety was the next topic.

I wanted to re-characterize it slightly for a reason.

CHAIR WILKERSON: Bryan, you commented on safety, too. Was it in response to Scott's safety or --

MR. SCHROMSKY: Just some observations we discussed this morning that we've made some strides and it's a very good point. We're already -- we're using some of this technology now. Is it making a difference? Is it not making a difference? Is there research that shows this? Do we know what we can do? There are state and local municipalities using this technology that think it should be done. The impact of any of this is the matter of the adverse effect. Is it really helping what it's designed to do? You know, if safety is the ultimate goal then it serves me that all the money you spend --

You're still 9 percent up, I mean personally, in the State of Michigan you're up again, so you know, is it creating new problems?

CHAIR WILKERSON: Is that something that this is likely to take on itself? Or is it something -- what's the goal for --

(Simultaneous speaking)

MR. BERG: There's a whole study at Carlisle about why there's an increase traffic accidents or fatalities. No question. We don't have to tell them to do that.

CHAIR WILKERSON: What part of that is false in --

MR. STEUDLE: I don't know that that's JPO's to figure out. I mean there's a whole safety section. I mean to the extent they have the data -- we may be asking them something that is just way too big for them to solve because that's a department issue.

MR. LEONARD: What I'm hearing in Bryan's comments, though, is really what -- preliminary statistics are showing these significant increases in fatalities. Some of the public data I've heard about talks about a significant uptake in pedestrian and vulnerable road user fatalities in particular. And so I think the question we have to ask is -- we've had this beautiful down trend for 40 or 50 years in fatalities, with a couple ticks up, some of which have to do with economic conditions. I think that's one of the reasons we're seeing an uptick. But we've done that all through crash survivability. That's how we've achieved that. So what is the role of ITS systems in moving from a crash survivability to a crash avoidance environment, and what is the potential impact? Can that get us back on that downward trend towards zero fatalities? That's something to think about.

MR. MCCORMICK: The other thing is we don't have to come back with a

recommendation for Ken to go do more work to solve the problem. Nobody can answer the question in this room, from what I understood, of why it went up. We might know areas where it went up.

CHAIR WILKERSON: I think people, lack of knowledge, new technology.

MR. MCCORMICK: Maybe what we need is just a framework, in terms of how one would analyze the data year to year. And NHTSA does that.

MR. KISSINGER: All of that stuff. I mean there's studies underway looking at that right now, so.

PARTICIPANT: That's the one I wanted to talk about.

MS. JOHNSON: Because that's what I was saying, distraction, as well.

(Simultaneous speaking)

MS. JOHNSON: -- and so forth.

CHAIR WILKERSON: Lack of stewardship of knowing how you use the technology that's out there?

MS. JOHNSON: Exactly.

CHAIR WILKERSON: There's all kinds of --

MR. MCCORMICK: That's really the one that I wanted to add to the list because of the difference. A number of years ago, Secretary LaHood approached us and said you see, we've got to do something about distracted drivers. And we did that. It was probably four or five years ago now. What we're seeing is a different kind of problem than we had forecast. It's not just from those. I know we've gotten TransUnion to talk about that and their ideas about it. What some of the studies I've read have indicated, that because of -- I wish John was here now but maybe Roger

can help with this -- because of the increasing level of automation, because of the driver load -- the cognitive load reduction that's going on -- my car will work by itself. My car would do anything.

What we're seeing is that the amount of time -- the latency that it takes for a driver to recover and pay more attention to what he's doing is as much as 20 times what it was before because now, they're not paying attention to -- I don't really pay attention to whether or not I'm in the lines anymore because it keeps me there.

The issue is really one of it being a different kind of driver distraction that is only going to get worse. Because as we get more and more automation in the car, as we offload the requirement for the operator to maintain himself in full attention and control of the car, and as we start stepping through those levels of automation, what we're seeing, and what we're going to continue to see, is that there has to be something done to figure out how you maintain that cognitive awareness, how you maintain that reaction ability. I don't know what the question is. I don't know what.

MR. SCHROMSKY: It's something the FTA has been struggling with for years with commuters and with commercial pilots.

CHAIR WILKERSON: Then he raised a good point. Can you articulate that again? You said that we've gone from a crash.

MR. LEONARD: A crash survivability to a crash avoidance.

CHAIR WILKERSON: Crash survivability to crash avoidance, and then there are other complements that go to that, right? You know your seatbelt's going to hold you in. You buckle your seatbelt, now you've got to be armed.

MR. KISSINGER: I guess I feel compelled to just mention that we've probably done more research on the nature of cognitive distractions, and we have just launched a major center for

distracted driving research, where we're expanding our protocol. We will not just be looking at mental. We'll be looking at physical and visual and time on task. We'll be qualitatively evaluating new systems, and we'll be doing quantitative evaluations using a similar protocol on a 1 to 5 scale, like we did previously. We anticipate that protocol will be flexible enough that we can handle a full array of all of the infotainment systems, all of the ADAS technologies that are being put in vehicles, as well as as we move towards automation, all of that, as well, just looking, again, at the issue of distractibility, not necessarily of does this ADAS system work. Others are doing that. The Insurance Institute has a major program underway to evaluate the variety of proactive technologies that are coming into the fleet from the perspective of do they do what they said they do. Are they repeatable? Are they effective?

MR. MCCORMICK: I think there's a recommendation here to make that's somewhere but whether that's merely being informed and aware of the kind of tools or knowledge that others are generating, but because of the difference between what we viewed as distracted driving five years ago to what we're seeing now and for what we're forecasting is going to be an increasing problem. I would like to add.

CHAIR WILKERSON: How do you define that, given that we said that NHTSA will likely study this to death? You're saying your organization's already looking at some of these issues. We're moving from sort of a crash survival to crash avoidance. You earlier mentioned the impact of reduction and state laws. You talked about are there things happening at the state level, also, that could potentially be impacting some of the losses and gains that we have? How would you articulate what it is that we would recommend based on those?

MR. KISSINGER: I mean, I would again point out that NHTSA is committed --- if only

Matt were still here. They are committed, I think this year, to publish Phase 2 guidelines for distraction. They are also committed to doing Phase 3 guidelines for distraction. There's a lot of effort underway in that. I don't know that -- I looked at Ken. I don't see -- this is an important issue. I'd love to talk about it all afternoon, but I don't see this as a JPO priority.

MR. LEONARD: Believe it or not, we do actually fund work in human factors. We tend to fund it at NHTSA, but we also have some folks at Turner-Fairbank who work in this area, as well.

MR. MCCORMICK: Our charter is to advise the Secretary, which includes all aspects in all departments. It goes through the JPO, but if we have an overarching recommendation or proposal, it doesn't have to be something that the JPO.

CHAIR WILKERSON: Yes, I think that's fair.

MR. LEONARD: But I will also talk later when I give my presentation about some of the limitations we've had on our funding of human factors research.

CHAIR WILKERSON: That's interesting.

MR. KISSINGER: The other thing that you mentioned is really the issue of the interface between humans and machines. It's almost a separate subject than looking at distraction, per se. That's at the heart of this whole issue of automation. It's the argument between the way Google's approaching it and the way Tesla's approaching it. Are humans ever going to be able to regain situational awareness in time to take over control?

MR. BERG: The overlying thing that so many of these things are intertwined.

MR. MCCORMICK: Yes, I think that fits under the interrelationship.

PARTICIPANT: I'm okay if everybody says we don't need to do a distracted driver.

CHAIR WILKERSON: This is part of what we're supposed to be doing for the next hour, so I just want to make sure --

MR. BERG: I'm just saying the difference that really hasn't been addressed, even though you're addressing it independently through NHTSA. The question is, is there something -- is it worth revisiting or not? I'm okay if the group says no, it's not.

CHAIR WILKERSON: I was just trying to articulate what that is. But it is something we would be revisiting. Any thoughts?

MR. MCCORMICK: Well, my question is that some of the increase has also been attributed to distracted driving. It may be premature for us to look at it until we understand what the actual results are from --

MR. BERG: I know what would fix distracted driving. Ride the bus. You don't have to worry about it all.

(Simultaneous speaking)

CHAIR WILKERSON: I just want to ask are there issues regarding providing increasing mobility to people, right? There's this effort about safety and mobility. Are those new modes of mobility also creating or adding to the loss of gains because people are --

I don't know. I mentioned bike sharing, ride sharing. Lane changes, the way the lanes --

MR. SCHROMSKY: If you look at fatalities on the highway in terms of severity, is there a distinction that these types of happen more in an urban environment compared to a more rural environment. I don't know if those distinctions can be made.

(Simultaneous speaking)

PARTICIPANT: The FARS data does break down rural and urban --- it's a pretty good

statistic.

MS. JOHNSON: I would add to the urban aspect. If you talk about mass transit and everybody wants to leverage bike sharing, or you have a major thoroughfare, whereby you could have bus rapid transit light, as we call it, you also have share-os, those biplanes. When you think about a bus being on a major thoroughfare with bicycle riders that aren't at the -- especially if you're doing a bike sharing program, you have a multitude of safety issues that come into play.

Oftentimes, you don't have these entities speaking to one another, and you're creating a recipe for disaster. All of these things come into play because we have to keep in mind that there needs to be co-existence, but oftentimes, in our world -- and I'm sure you know this as well, Joe -- we need to think about co-existence.

But you have bicycle people over here advocating for some things -- not all of them. I don't want to make a blanket statement. But they're advocating for aspects that don't tie in with the needs of transit, and they're the same corridors that we're talking about because we're trying to provide --

MS. JOHNSON: Exactly. We're trying to provide so many mobility options. Then with the TNCs, the transportation network companies that are coming on board, all of that gets mixed in because they don't have designated stops. Now they're leveraging carpooling aspects, as well, into their model.

MR. DENARO: It would be great if some of these decisions could be made based on facts, and not on political pressure.

MS. JOHNSON: Exactly, thank you.

MR. MCCORMICK: That's an interesting idea. If we look at mobility more as a service,

now we're not -- now we're the mother of all inclusiveness, whether you're on a bus or a tram or a bicycle or a horse. The question is, is there a purpose in us looking at that to provide a recommendation of how they may wish to rethink whatever they do in order to be more inclusive of that as a spectrum of modes of transportation, rather than here we are with commercial interstate vehicle, here we are with passenger vehicles. It's all very siloed right now.

MR. ALBERT: A lot of it relates to bikes and political pressures and lack of engineering. Maybe what we need to be thinking about is how does technology help with shared mobility, whether it's walking, whether it's biking, whether it's a standard workout, whether it's all the other spectrums of connected vehicles.

It's really kind of a shared mobility, shared values initiative. Everyone wants that piece of the road. Everyone's saying we want to do that because we want to promote bikes and peds and other things. But there's only so much right of way out there. How do we do that, and how does technology enable us to do that.

MS. JOHNSON: So maybe it's technology in active transportation directions.

CHAIR WILKERSON: And active transportation, how does it get into the shared right of way?

MS. JOHNSON: Because when we talk about active transportation, walking, peds, mobility and all that comes into play.

CHAIR WILKERSON: Can we put that topic up there? Can you repeat that again?

MS. JOHNSON: I said ITS and active transportation or information technology in active transportation.

PARTICIPANT: That's probably best.

CHAIR WILKERSON: What was that, Joe?

MR. CALABRESE: How to safely share the lane so we can go faster.

(Simultaneous speaking)

MR. ALBERT: I think the active transportation idea is something that really does work, because it's something that congressman really hear and it's meeting a constituency.

MS. JOHNSON: Put in mind that America's obese now, so in the circles that I'm in, that's something you talk about all the time. If you look at the FAST Act, and there's been money allocated for health and human services aspects to get people where they need to go, medical appointments, transportation, so that in some form people can get at least 30 minutes of activity a day. So I would restate that very good point to use that to bring some attention to it.

MR. ALBERT: Especially the cycling.

(Simultaneous speaking)

MR. ALBERT: In almost town, whether you go to Bozeman, Montana, or whether you go to Atlanta and everything in between, the cycling community is probably the most politically active group that you'll ever run into, and the smartest politically active group you'll ever run into. We're going through this right now. One of my staff is probably going to be.

CHAIR WILKERSON: That's right. A great addition. Scott has a thought.

MR. BELCHER: Maybe a different topic. I heard Ken give a presentation about how 5.9 interfaces with 4G LTE and 5G. Maybe one question that's worth discussing is what is the future after 5.9? We've spent so much time talking about 5.9. For the JPO, the question for this group is, is the JPO, which is a forward-leaning organization, is it spending enough time thinking about that transition and enough resources starting to move to the next step? I don't know the

answer to it.

CHAIR WILKERSON: It's been about, what, 25 years since, when I was at the NTC, we looked at it. It was ninety --- I can't remember what year it was.

PARTICIPANT: It was '99.

CHAIR WILKERSON: '99. I think I was there still at the same time. Now, look how much time we looked at what we're talking about.

MR. MCCORMICK: No, that was kind of what we were trying to do with that is to question the assumptions and have them put together some type of technology roadmap, and then map that, as Scott says, how you do your activities.

CHAIR WILKERSON: That's a good point. Scott, would you like to add that one up there?

MR. BELCHER: I think it's an interesting topic. I threw it out there because I think it's something that seems like it fits with the kind of discussion we can have with the JPO and give them feedback, that's all.

CHAIR WILKERSON: If I may, one other way of looking at this, another angle, is not singling out 5.9, is I think that talked about the impact of interagency discourse on these issues. You mentioned health and human services. Somebody mentioned Department of Defense. Is there --- there's the FCC. Is there some aspect of this that would tie into that, or is it just solely spectrum?

MR. BELCHER: No, I think there is. I think Bryan, at Verizon, you could -- you've got the folks at AT&T, you've got the folks at FCC that could clearly inform this group about where things are happening. No, I think that's right. But I always go back to Roger's touchstone, which

is what our role? I think our role has always got to be not solving the problem, but here's a bunch of smart people, and a bunch of smart people think this is an important issue. We just want to know if you're -- our advice is it's an important issue. Are you looking at it the right way? If not, maybe look at it a different way.

CHAIR WILKERSON: Right, or go a step further than going with that one rule.

(Simultaneous speaking)

MS. GOODIN: Okay, so I'm going to talk a bit, I suppose. Where I come from, you're working with state and local policy makers. I think there's a lot of understanding and knowledge in the role that technology can play, ITS can play in solving the problems that they have in serving the travelers in their community needs. What I think we're heading towards with -- my perception is less federal investment in actual deployments, the notion being that the local communities and the states need to step forward and make those investments for deployment.

I think this points to the importance of a role of ITS JPO in deployment assistance. I know they're doing it now. I think back to one of the first meetings, where we were talking about we had less emphasis on communications and outreach.

What I am hearing now from Kate and others -- and I look at your website and the resources that you have and the discussion about safety pilot versus connected vehicles -- you're really taking great strides in being transparent, very open, and sharing the information. I think that's the kind of thing that's going to help deployment. Maybe this is a reaffirmation of what you're doing, but I think it's a really important role that the JPO can play in helping local communities do their own investing and see the value proposition, so that you propagate this throughout the country, rather than trying to top down.

CHAIR WILKERSON: Any comments, thoughts?

MS. GOODIN: It's moving into more of a strong role in that area.

CHAIR WILKERSON: Would you like us to add that one? Right now, we're just sort of throwing things up and then we can figure out, out of the topics we have, whether they're priorities, or maybe we take them all off. How would you articulate that? How would you -- deployment assistance?

MR. WEBB: This is just out there.

CHAIR WILKERSON: Driver's licenses and driver's education. It's a huge problem.

MR. KISSINGER: You can mention do you think we're doing enough at the federal level to answer that, or is that a topic the JPO should take on?

MR. STEUDLE: I think the more conversation we have about that the better. To George's point, there's still lots and lots and lots of communities and lots and lots of intersections that are under local government that have zero knowledge of what's going on and assume somebody else is just going to take care of this.

Or when they get the notice that the traffic signal -- the upgrade that they thought was going to cost \$20,000 is now going to cost \$80,000? Why am I paying for this? There is a big pushback coming. To answer your question, I think we kind of addressed in one of the prior memos that talked about communications to the public official areas primarily the states.

There's some states that are thinking somebody else is going to do it. It's kind of a long answer to your question, but I think there is always more that can be done. Next year all cars are just going to drive themselves, and it's just going to happen.

CHAIR WILKERSON: Right. They're going to stop at their state line. Is that a

recommendation or topic you have?

MR. KISSINGER: First of all, Scott, I think, has suggested about reaffirmation. That would be part of it somewhere in the intro.

It's probably not going to necessarily appreciate that, even if they've been briefed by all of their people in the DOT. I don't know where that belongs. I guess I would throw one other thing out. Steve talked about working with me and some others on the traffic safety culture.

One of the things that effort is all about is raising the political priority of safety. It's not accepting the status quo. I think we all would admit, if we think hard about it, is that every one of our agencies, for years, has said safety is our top priority. We haven't necessarily lived the talk. We haven't created a climate that's going to allow us to pass the laws to spend the money to do the research that's necessary to move us -- and now is perhaps that time. We're facing a 10 percent increase in number of deaths on our highways in 2015. If we don't do something now, drastic, to move it down, we're going to still be living in this age we have, where we lose one person every 15 minutes, which is, quite frankly, outrageous in this society. Yet, we, as a society, accept that. There is a culture of --

(Simultaneous speaking)

MR. KISSINGER: There is a culture of complacency which, for the most part, we accept.

MR. SCHROMSKY: It goes back to the safety of our cars. I'm curious about the research of a topic that obviously less electricity being used, less power consumption, so it's a benefit to me, in terms of my actual cost. That's something I'm also curious to research. I'm also curious to research that I think if we all go to a city or new airport we might be kind of amazed to see you know what, this is all coming out of my pocket. In terms of redeveloping an area --- I was

just reading about Detroit on my phone right now and they've put \$4 or \$5 billion into the city. At the same time, we've got money for roads now. We've got money for lights, there's economic development in there, and cities use the smart technologies to their advantage.

(Simultaneous speaking)

MR. SCHROMSKY: Yes. I'm just curious to see you have been using this technology. Is it perceived as a competitive advantage.

MR. STEUDLE: I think it's viewed as a disadvantage. It's becoming the norm if you're a new modern city. If you don't have it you're the city of the future yesterday.

CHAIR WILKERSON: Right, which goes to the smart cities challenge and the competitive nature of the challenge itself.

MR. WEBB: Michigan is the poster child, at least in my role, nationally, for the smaller counties and townships taking what was an asphalt roadway and taking it out of the ground. You know, they have the funds to maintain their facilities. The idea of implementing ITS issues run off the road in rural type situations. Kurt has seen all the numbers, as far as rural access and the large number of fatalities that happen and whatever. I'm just not sure that I see ITS playing a big role in the next X number of years relating to that issue. But it is -- it's all back to money.

MR. KISSINGER: It certainly begs the question whether we can afford V2I when we can't afford to maintain.

PARTICIPANT: Our roads.

MR. WEBB: Absolutely.

PARTICIPANT: I think that's an important question.

(Simultaneous speaking)

PARTICIPANT: There's a lot of talk about that. I don't know whether anyone is.

CHAIR WILKERSON: We're moving so fast that we're going to have the last mile issue that the telecom industry had. Maybe that's not a great way of putting it, but inevitably, you're going to have this patchwork but we've talked about it. I have the technology, but I can't go anywhere.

MR. SMITH: The flip side to that question would be can we not afford V2I.

(Simultaneous speaking)

MR. STEUDLE: If you look at it from an urban/rural perspective, two thirds of our accidents/fatalities are on rural roads, 60 percent of all public roads in Michigan are gravel. There's some that we've turned from asphalt back to gravel, but by and large, 60 percent of them are gravel roads, and they're very low-volume roads that will never have a paint line on them.

I don't care how good the paint quality is, your automated car will never see it because there isn't one. It's gravel. There's so much, from the technology perspective, that has to come along. Whether those roads would ever have connectivity on it is probably very, very remote, but frankly, we don't need to get this coverage over everything. We need it at critical points.

CHAIR WILKERSON: I was going to say that's where I was getting at the telecom. There's still places that don't have telephones. We had subsidized access. Maybe you don't need it now, but you would never --

CHAIR WILKERSON: You'd have to start a whole new network. We have no choice. You've got this infrastructure that's there, that's crumbling.

MR. STEUDLE: People who think about Utopia and say that tomorrow would be Utopia. That's neat, but I have to deal with how do we get from today to Utopia, which is about 25 years

apart.

CHAIR WILKERSON: That issue is not really being addressed.

MR. SCHROMSKY: V2V, in my mind, that's limited in a sense. Whereas, you go to V2I, exponentially increases. You've got a non-traditional. Whereas, V2V is a much smaller community in all aspects. It seems that everybody's jumping to V2I already.

CHAIR WILKERSON: How would we articulate that?

(Simultaneous speaking)

MR. ALBERT: It's so lovely to hear you guys talk about rural. Last week, I wrote a speech for our U.S. senator to give to the Congress on his opinion -- he's also on T&I -- about the challenges for connected and autonomous vehicles in rural areas. If we're going to sell safety, we really have to be thinking about where safety is. The interstates aren't the problem.

They're four times safer than a secondary road or a county road. I think it's important, if we're going to talk a little bit about safety, we make sure we keep that stakeholder group in mind because that's where the real problem is with 60 percent of the fatalities and 60 percent of those being run off the road, blah, blah, blah.

I know if you're interested in this then in November, in Denver, we're holding a national rural traffic safety summit -- working summit -- with a disparate group than might normally come to these types of conferences. It includes congressmen and tourism. It includes the traditional partners -- to really kind of come up with a white paper for Congress. Part of that, one of the cross-cutting areas, is connected vehicles that we're going to be talking about. It might be something this group could get behind.

CHAIR WILKERSON: Would that fall under rural? Do you have deployment? What

was his?

PARTICIPANT: Smart rural program.

CHAIR WILKERSON: Would that fall under the deployment issue that we had there? I can't remember who suggested that.

PARTICIPANT: What was the question?

CHAIR WILKERSON: The last topic that's on the first row, deployment -- I can't see it from here.

PARTICIPANT: Assistance.

CHAIR WILKERSON: Deployment assistance. I can't remember -- I'm not sure if it falls under that. I can't remember.

MR. ALBERT: I would call it rural deployment assistance, so it doesn't fall back into urban recommendations.

(Simultaneous speaking)

CHAIR WILKERSON: So maybe you could add rural and urban.

PARTICIPANT: You can just keep urban out of it.

(Simultaneous speaking)

CHAIR WILKERSON: No, I think you're right. I was recently at a visionary focus group, and one of the issues was talking about there could be a paradigm shift in how you deploy technology. So rather than going to the urban cities, you pick a rural city that's confined, that has limited roads, where you're able to deploy a safe network that can incorporate all these technologies and create this microcosm or this new ecosystem, where it's conducive for the new technology to have the greatest benefits and the greater services, but also simulate the economic

development in those areas. I like the idea.

PARTICIPANT: We've identified five different types of deployment for rural.

CHAIR WILKERSON: I know Susan actually -- she's not here -- by the way, I did send an email to the folks who aren't here to ask if they had suggestions or comments, so if I do hear from them -- so Susan had actually talked about some of the business models of shared use, some of the most successful ones were in some of the rural areas because they were defined and had the least amount of constraints. Are we getting close? Are there other --

MR. DENARO: What about that topic of shared use? Susan isn't here to defend it, and I don't have a strong opinion whether we should consider it or not, but it's obviously a big phenomenon right now.

PARTICIPANT: Huge.

CHAIR WILKERSON: It came up in your conversation, right?

MS. JOHNSON: It did.

PARTICIPANT: Right.

CHAIR WILKERSON: So --

MS. JOHNSON: Sort of the interdependencies, in the sense that we look at these, oftentimes, as being competing, as opposed to complementary. So I think it could be folded in, but doing something solo, as well. I'm not totally married to that. I do think we need to talk about it, though. We'd be remiss not to.

CHAIR WILKERSON: All right, so it's included in the one that you -- okay.

MS. JOHNSON: Mm-hm, but I said if we want to branch out -- if you hear from Susan and we want to do more of a focused approach, I'm amenable to that, as well.

CHAIR WILKERSON: I haven't received any feedback from her.

MR. BELCHER: Ken, don't you have somebody on your staff who's focused on the shared use right now?

MR. LEONARD: The mobility as a service, mobility on demand.

PARTICIPANT: Could you put that into shared use?

MR. LEONARD: Not so much on the Uber/Lyft phenomenon, by itself, and in bike share and things like that. But generally, under mobility as a service, mobility on demand, Bob Sheehan is our focal point.

MR. BELCHER: Is the question going out to what -- again, I think the framework Roger set up is the right framework. We should go through all these questions. Is the question then is the Joint Program Office investing sufficient emphasis, sufficient resources, sufficient priority on the shared use phenomenon? Is that how you would frame it, Roger, if you were --

MR. BERG: Yes.

MR. BELCHER: Is that our goal? Would that be helpful, Ken?

MR. LEONARD: Anything that you suggest is helpful. Listening to this discussion, I'm now regretting having swapped my time slot with Nate because some of these issues come up, particularly, some of the budget constraints we were facing this year. Remember that whatever you suggest we have to fit into the context of what we're committed to and the resources we have.

MR. CRONIN: I might add one thing because this has been big in the news this week. What I haven't really heard is the discussion about how do we bring technology to the discussion around opportunity. Are we doing shared use only in communities that have people, or are we doing automation only. One thing to throw out there would be does the committee look at ladders

of opportunity and the technology divide in some of these solutions as a part of the shared use or as a part of the automation.

CHAIR WILKERSON: That was what I was getting at the digital divide. I think that's a good point.

MS. JOHNSON: I want to say I think that's a phenomenal point because at a conference I attended, the American Public Transportation Association -- it was at the CEO seminar, Joe -- where we had a conversation. When we talk about these individuals that are leveraging the transportation network companies, 7 percent, according to the FDIC, do not have a banking relationship.

As we, being Joe and I, are transit providers, often TNCs will go to those people that are more fluent and have technology, and then they take our riders. When I say they take them, what I mean is because they have those means in which to be more mobile. But then again, we're left with the other disenfranchised population, and nobody really cares about that disenfranchised population. Then moreover, as you go forward and we talk about what's happening, the Ubers, the Lyfts, the Bridges, they have information that they don't want to share with transit agencies, and our information is public.

So then what happens is you have this data, and then they can swoop up our customers. You can see it in San Francisco. You can see it here, in D.C., in other metropolitan areas. It's happening in L.A. It's happening in my service area, as well. How do we compete with this?

As I said before, we want to be seen as being complementary entities, but then they have a leg up on us because they are not regulated, per se. So I think, to your point, we have to look at that going down the road, relative to getting everybody on the same page from a financial vantage

point, from a technological vantage point. It is bridging the digital divide.

(Simultaneous speaking)

CHAIR WILKERSON: I'm sorry. I'm just looking at lessons learned. Other sectors of the industry have had these problems. The telecom industry had it in E-911. Then they had next-generation E-911. All these issues were issues that were different segments. How do you use the funds?

MR. LEONARD: You can argue that the Postal Service faced this issue with UPS and FedEx. I have had some discussions, in bringing people who have data together with some of the shared use providers, because everybody has a particular interest. One of the things we were talking about was transportation deserts, where underserved communities exist.

The problem -- the people who provide the shared vehicles want to go -- they want to put 20 cars on K Street, but they don't want to put 20 cars in Anacostia because in that community, not as many people have a credit card to use it. I said what you really need to do is bring a couple more partners into your discussion. You need to bring the city government in, and the city government then has to bring in a local bank and say maybe we're not going to be issuing you a Visa with a \$25,000 credit limit, but maybe the bank can issue a card that's related to transit that lets people use a Zipcar or a Car2Go, whatever. Now, as part of your granting 20 parking spaces on K Street, you also say you need to make sure that part of your franchise serves these underserved communities.

Then you need to make sure that there's also the resources there to make sure, in any location, those resources aren't vandalized, the community appreciates having access to them, and that you're meeting the transportation need of those underserved communities. You can't just do

it with the private sector, alone, because the city plays a critical role in getting services to those communities.

Then the financial community and others that have the enabling technologies, in terms of credit cards and such, to complete the triangle, so that people do get the services. That's a little outside of -- it's creating an ecosystem for mobility of the service part of what we're calling it.

PARTICIPANT: Right, through P3s.

CHAIR WILKERSON: We're at a point where we're going to get ready to have lunch in six minutes, but I have just a thought. The agenda includes lunch from 12:00 to 1:00, and then we're supposed to come back from 1:00 to 2:15 to continue our discussion.

In light of what Ken said about the topics coming up and the things that he's going to say, or Brian, we talked about smart cities and other things, my recommendation would be rather than come directly back at 1:00 to 2:00 to sort of cross-pollinate, is that we have Brian and Ken come and talk.

They might create some other topics for us to discuss or add to this list or take off the list. That would be from 1:00 to 1:30 we'd have Brian, 1:30 to 2:00, Ken, who should still be here. 2:15 to 2:30 we could have a break. 2:30 to 3:30 we'd be back on track, on schedule, and just have an hour for follow-up discussion. Is that okay?

Before we break, are there any other thoughts about what we should move forward, additions to the agenda, action items, clarifications?

MR. CALABRESE: So we're taking an hour for lunch with no work?

CHAIR WILKERSON: That's what we could switch.

MR. CALABRESE: I never get that back in the office.

(Simultaneous speaking)

CHAIR WILKERSON: No, that's what we have scheduled. We sent out the proposed draft, and we didn't get any other changes. We can come back. It's up to you. It's up to all of us to figure out what you want to do, if you want to come back. We can present during lunch, if you'd like to do that. I just want to make sure we have enough time to do what we need to do.

(Simultaneous speaking)

CHAIR WILKERSON: Is that fair?

PARTICIPANT: Yes.

CHAIR WILKERSON: Okay, so we will take --

PARTICIPANT: Ken, you can take the lunch line first.

CHAIR WILKERSON: Our break will be technically 12:00 to 12:30, and then we will come back at 12:30 to have a working lunch, and then I'll adjust the schedule accordingly.

MR. DENARO: Are we still having the distracted driving discussion?

CHAIR WILKERSON: Yes, I had timed it so that we would still be able to do that. That will start at 3:30. I'll revamp the schedule while we're doing break, and then I'll come back and share it with you and see if that's okay. Let's take a break.

(Whereupon, the above-entitled meeting went off the record at 11:56 a.m. and resumed at 12:32 p.m.)

FAST ACT/2016 ITS JPO BUDGET

CHAIR WILKERSON: We're going to get started. We agreed to do a quick half an hour lunch and then start the next part with Ken, who we've alluded to you twice I think now.

MR. LEONARD: That's okay.

CHAIR WILKERSON: During the last discussion I think three kinds of issues we're working on came up. So we think it's a great idea for you and Brian to talk about some of these issues. And hopefully it will stimulate our thinking before we proceed.

MR. LEONARD: Al, that's, that's Brian's presentation. We'll start with mine. Start with page 29. The slide number 29, at least in my book.

CHAIR WILKERSON: No. I think further down. Keep going. There it comes.

We'll start with FAST Act; right?

MR. LEONARD: Yes.

CHAIR WILKERSON: Okay, you've got the floor, Ken.

MR. LEONARD: Okay. So I'm going to do two things here. One, just very briefly talk about the FAST Act, and some of its impact on the ITS Joint Program office. And then I'm going to give you highlights from the Management Council presentation we gave last month to the JPO, I guess JPO Management Council which is shared by the Deputy Secretary and attended by all of the mobile administrators. Although we actually had a number of deputies at this one because we were competing with a freight conference going on in the building at the same time. The Management Council oversees and comments on the work of the ITS Joint Program Office.

So very quickly, this is a very high level slide, not JPO-specific, about what the FAST Act is. We're excited it's a five-year act. It did increase some top level funding for the department, although not for the JPO.

OST-R, which is the organization that we operate out of on a day-to-day basis, did not get an increase. But there were a couple significant focus areas in highway freight and in block grants

that I'm going to talk about a little bit later that did have an impact on us.

So specific to the JPO, if you've been watching solicitations, there is this new notice of funding opportunity that went out for the ATC and the T grants last week. It's a \$60 million grant program. The JPO is contributing \$21 million to that, along with our colleagues in Turner-Fairbank and operations.

A lot of what is eligible under that grant program -- and we just had a webinar on that this Tuesday -- is very relevant to the ITS portfolio. So we're in a period between now and the end of May or June -- I don't remember the precise date -- June 3rd, where that solicitation is open, and we're going to see what we get back in terms of deployment activities.

And so we're a research organization but Congress wants to see more deployment and so we're hoping to see a lot of model deployment activities along the lines of ITS technology.

The language specifically called out V2V, V2I, and automation technologies along with some of the things we group under our Smart Cities activity.

There is also language in there that talks about the ITS Joint Program Office as administered by Federal Highways. This was a little confusing to a lot of people in the building because we've always been, you know, my badge and all the JPO members we are, we are employees of the Federal Highways organization and so we've always been administered through them, and work through their legal, we work through their H.R. But on a day-to-day basis through memorandum of agreement, our strategic guidance comes from the Office of the Secretary through Greg Winfree, the Office of Technology Research.

So what we're doing is refreshing a 10 year old memorandum of cooperation with the old RITA organization, which is now the Office of the Secretary, to clarify that.

But FAST Act also identified freight as an area that they wanted ITS to get involved into. They put in a request for us to comment on cyber security. And we're in the process of coordinating a report back to or a White Paper, or actually a fact sheet was what they asked for, on cyber security around the building so that we can submit that to Congress.

MR. SCHROMSKY: What's the focus? What do you see as the focus?

MR. LEONARD: The movement of goods. So --

MR. SCHROMSKY: Freight, trucks, mail.

MR. LEONARD: Trucks. Last mile. You know, I think they're -- this year, and I'll touch on this, we for the first time have brought the St. Lawrence Seaway and MARAD into the fold. Those, they actually were not even covered under our previous memorandum of understanding as being members of the Management Council. Have not traditionally attended.

If any of you were in Pittsburgh for the ITS America last year, the administrator of MARAD got up and talked about all the ITS programs he wanted to work with our office. And he identified four. We're starting with one pilot project with them. But we recognize that trillions of dollars are spent on the movement of freight.

And ITS systems can play a role in that global supply chain from ship to rail and truck down to the last mile. And if we can introduce ITS systems -- and we've had a program, Kate didn't really talk about, where we prototyped some technologies in the Port of Long Beach to facilitate port movement.

So anywhere in that space we think there's opportunities for ITS to be involved in across multiple modes. So it's highways, it's NHTSA for vehicles, it's MARAD and the St. Lawrence Seaway for the ocean-going and inland ports along the Seaway.

You've all seen these.

MR. DENARO: One last question on the FAST Act.

MR. LEONARD: Sure.

MR. DENARO: Is it, do I understand that it's a max of \$12 million for any grant?

MR. LEONARD: I'm going to get to that in a minute.

MR. DENARO: Oh, I'm sorry. I'll wait.

MR. LEONARD: You've all seen these, the strategic plan before. And all I really want to say about this is we are getting great enthusiasm.

Again, in the FAST Act they specifically identify that all of the Modal Administration Team will provide strategic and modal plans. And the Modal Administration and Joint Program Offices. So we were actually in the position of having the strategic plan signed out by the Secretary. So this first year is not going to be heavy lift for us, but this is something we will update on an annual basis through our modal plans.

But there's been broad acceptance as you know, because when you listen to the things the Secretary has been talking about for the last nine months, it's been Connected Vehicles, automated vehicles, Smart Cities, which is part of our emerging capabilities portfolio. So this strategic plan has really been embraced by the Secretary and by the Office of the Secretary broadly. So we're excited about that.

It does increase the visibility of a lot of the work we do. And as Brian will tell you later, it comes with a rapid turnaround cycle and a lot of coordination. But we're excited about it.

I want to talk a little bit about Connected Vehicles. And Kate really talked about three pilots. And I don't, I don't want to go into any detail on them. She did mention the geographic

diversity. I think that's important.

She also talked about, you know, over half the applications that we have talked about were being, are now being prototyped and deployed as pilot model deployments. This is a significant advance over where we were in safety pilot. But, also, they're not just safety applications. And sometimes in discussions around Connected Vehicles we hear people saying, "Well, you just need to save that 5.9 spectrum with DSRC only for safety applications."

And we really do see this portfolio in Connected Vehicles addressing all of the three important areas: safety, mobility and efficiency, both energy and pollution efficiencies in the transportation system. And those are three important DOT goals that we think this program gets to.

And not just safety, because safety is incredibly important, but it's also important to recognize that some of those applications she pointed up there use the latency features of DSRC to achieve some of these congestion reduction and fuel efficiency and pollution reduction goals.

I think the other thing that became apparent -- and, Ginger, you talked about this -- is the transparency with what we're doing. Because I think Kate identified that we -- she is having regular public webinars and meetings that a lot of people, people who didn't win one of the pilot locations, are participating in. Because we recognize that there are many locations, that even though they did not win one of the pilots, see that Connected Vehicles are in their future and they want to learn from what we're doing.

And that's our objective. I said this earlier this morning. It's not the four locations, it's not just 40, it's getting to 400 communities and beyond, and getting national deployment. And so we're excited about what's happening in that program and the transparency within it.

We've continued to wrap up. I'm going to go through fairly quickly a lot of the application, a lot of the accomplishments we had in '15. But we closed up our work on AERIS. And actually this is one of those areas where our budget was impacted by having to reallocate resources. We had hoped to move some of this work into deployment. At this point we don't have the resources to migrate that technology into deployment.

We are, however, working on the SCMS, the security system that's critical. So in the Connected Vehicles areas we focused on those things that are critical: cyber security, particularly the SCMS, and also spectrum, and addressing the current challenge to spectrum through the FCC potential rulemaking that would require sharing of the 5.9 spectrum. And we need to understand the impact.

So we've worked with FCC and NTIA to create a draft test plan. FCC is in the process of refreshing the record, calling on industry to provide devices that can share the spectrum. And then they will start the first phase of testing of three that they've identified: a first phase in their laboratories at Columbia; a second phase using some field testing; and the third phase, more robust testing that I think they will largely look to our prototype sites and other places where we can simulate a kind of real world environment that a Connected Vehicle environment can understand the implications.

MR. McCORMICK: Two questions. One, who did the initial research on the potential management system. What is the next step here?

MR. LEONARD: I'm sorry, I missed that.

MR. McCORMICK: What is the next step after your initial research on the security management system?

MR. LEONARD: Oh. Well, we completed the initial research. We now have a contract awarded to design and develop a functional prototype that will be able to accommodate 17 million vehicles. So on that scale.

So that's an interim step that allows us to get into the initial stages of Connected Vehicle deployments, both Connected Vehicles and roadside equipment. Clearly there's a next step. We have to go up an order of magnitude or more to be able to handle a quarter of a million vehicles. But this work is designed to be scalable so that once this is complete and we have this available in prototypes, and for the commercial products that are coming out, we will be able to scale that technology up.

MR. McCORMICK: And when will be that be completed initially?

MR. LEONARD: This work will be completed in time to support the prototype deployments that Kate was talking about.

MR. McCORMICK: Okay.

MR. LEONARD: The 250 million clearly we would plan to scale that up in a time frame consistent with when we would expect that many vehicles. We would not expect to see 250 million equipped vehicles by the end of this decade. But we would, we'd need to make sure that before we get to 17 million vehicles we have, we are able to scale up that system.

MR. McCORMICK: And my second question is, you said you completed research to enable the V2V decision. Any insight or guess on when that decision might be forthcoming?

MR. LEONARD: I would only reiterate Nate's clear explanation of the economy.

MR. McCORMICK: We have a roomful of people to ask that question.

MR. LEONARD: Well good. I took notes while Nate was talking, so I have that answer

prepared.

Automation, clearly important. The Secretary is talking about it. Nate talked about this this morning. We did some important work this year in terms of working with Volpe on research plans, doing some of the human factors work. This was what I was saying. I'm starting to regret not having covered some of this because some of the things we were talking about in terms of human factors we have done some of that work. We have published some of the concept work around distraction and how you transition when you have a driver who's disengaged. And we funded some of that work at both Volpe, Federal Highways, and NHTSA.

We also, and this we may have spoken about this before, but we did convene the half dozen states that were kind of on the leading edge of automation. And one of the things we heard consistently from all of them is they were looking to understand. It's this issue, Kirk, you were talking about. Nobody wants to support Betamax on Connected Vehicles. And everybody knows that automated vehicles are coming, and they're not quite sure what they have to do to get there.

And as Nate said this morning, they want to be progressive. They want to embrace the technology. And in doing so they sometimes put, unintentionally put barriers in place. And so we are, one of the things we are exploring is how do we, how do we help everyone understand that environment to the best of our ability, because I don't think it's clear to anyone exactly what the pace of innovation will be and exactly what technologies will be embraced.

Industry is working very actively in this area. We believe that government also needs to be working actively in this area, both at the federal and state level.

On the emerging capabilities program, I don't know how many of you are familiar with our

ATTRI program, which is Accessible Transportation Technology Research Initiative. This is to help people with disabilities of varying kinds in accessing the transportation system.

In DC, for example, we have a transportation system for people with disabilities called MetroAccess. And if you wanted to get across town to a meeting you might have to plan or schedule three hours to get across town. And, you know, if it took all of us or each of us three hours to get across town there would be a rebellion in the streets.

And so as we think about Connected Vehicles and automated vehicles, what we're trying to embrace in the JPO is that we're designing a transportation system for everyone, not bolting on "oh, here's how we're going to handle the disabled," as an afterthought to designing the system. So we're trying to incorporate that thinking. And we're working with multiple partners in other agencies: the Social Security Administration, the Department of Education, the Department of Labor.

Now, DOT and the ITS JPO is still the largest funder of this activity, but neither has contributed \$2.5 million to robotics-assistive devices to add to this partnership. Turner-Fairbank is actively involved in this area. So I see this as an important area because if you look at the composition of Americans, and you look at the issues they face, at some point we all may face a disability.

You know, we have people who are born with disabilities. We have people who acquire them through car accidents and through, veterans through war. And we have people who acquire disabilities if they live long enough, the disability that they shouldn't be driving or we don't want them driving because of a lack of safety because, you know, they lose the skills at a certain age to drive.

So and we all hope to live that long to maybe not be driving. We want a system that keeps those people mobile and meets their needs to visit the grandkids, to get to the doctors, and to partake in what everyone in society wants. So this has been an important focus area for the JPO. And despite budget cuts, it's one that we really, we've slowed a little bit of work in this area but we're continuing to press forward with it.

MR. CALABRESE: Ken, let me interject a little bit.

One of the reasons why some of these current transit services are very slow is because the provider, be it WMATA or us, try to combine several sorts of people in the same trip.

MS. JOHNSON: Right.

MR. CALABRESE: Because we're providing a \$40 ride for 2 bucks.

MS. JOHNSON: Right.

MR. CALABRESE: So it's not the technology, it's the financial system. And our agencies may be getting \$40 to provide that \$40 ride, but we're expected to do it at a, at 5 percent of the cost.

MR. LEONARD: And I recognize. And we have participated, the ITS JPO has a history with the Mobility Services for All Americans of creating that program to try and help people and help communities pool the resources to do exactly what you're describing. To get the cost savings --

MS. JOHNSON: Right.

MR. LEONARD: -- of pooling rides. And recognizing --

MR. CALABRESE: What we're all seeing is not just federal and state agencies but other non-profits who find out they can't afford their transportation are now also using --

MR. LEONARD: Right.

MR. CALABRESE: -- those clients at a loss, and we're dying.

MR. LEONARD: And so we were talking earlier about under-served populations. What we don't want to do is say we're going to have a transportation system, an intelligent transportation that's designed for 90 percent of the population but leaves the percentage that's under-served. We don't think that's an approach we want to embrace in the JPO. And we're trying to move beyond just getting the financial efficiencies, which are important because it frees up resources to do more advanced levels of work in this area.

And you can think of things that you don't traditionally think about as disabilities. If you're going to have an electronic farecard system, I don't speak French, but if I'm in France I can press the U.K. flag or the U.S. flag and all of a sudden the whole transaction is displayed for me in English. So there's technologies that we can incorporate into our systems that help people with -- who maybe don't speak the local language. We don't traditionally think of that as a disability, but it certainly slows people down in the transportation system.

MS. JOHNSON: Ken, I have a question. So is that ADA paratransit program or, because I noticed when you used MetroAccess as an example to explain it to everyone, but that's an ADA paratransit program and whereby you're talking about, --

MR. LEONARD: It's a paratransit program.

MS. JOHNSON: Right. When you're talking about people with disabilities they may have a disability that wouldn't be qualified under the ADA. So it could be, you know, cognitive. And so I wanted clarification to this specific program you're talking about that would fall within the confines of the Civil Rights provision?

MR. LEONARD: It certainly addresses people who have ADA-qualified disabilities. I think some of the things we are looking at are not necessarily, certainly not mandated under ADA.

For example, we just did a demonstration inside DOT, from the West Building to the East Building, using interior way-finding for unsighted, an unsighted person who had a device that navigated them around pillars and to elevators and told them where to find the elevator button. So this is some, some assistive technology --

MS. JOHNSON: Okay.

MR. LEONARD: -- that is really the next generation.

And I could picture at some point in time this next generation becomes as standard as a cut-away wheelchair access ramp is today. These are the kind of technologies.

We could probably spend way too much time on this topic, but just one, one other thought. I'll come back to it later if we have time. But I also just wanted to point out the last emerging capabilities area.

You know, I know we talk a lot about 5.9 and DSRC, but we do work with other communications devices. We have an SBIR program on using cell phones for getting pedestrians across intersections. And we do recognize that, as Scott was talking about in his question earlier today, that 5.9 is going to have to fit into a larger spectrum. Brian may touch on that a little bit when we're talking about Smart Cities.

You know, one of the things I'm really proud about is the visibility that ITS has gotten. And one of the things we did this year was we hosted a training session between the U.S. and Mexico that was actually talked about in a Mexican-U.S. cooperation meeting by Vice President Joe Biden, that he was talking about here was this work that the U.S. and Mexico were cooperating

on in assistance. And he specifically mentioned the cooperative training that we've done.

And for the JPO's part, one of the things that we did, aside from the training in our CVRIA, we also paid to get the local Federal Highways staff from the border divisions to train with the Mexicans. Now these are people who know each other and they work with each other on transportation issues, but they weren't doing things together on ITS. So putting them together in the context of ITS is important to our goal of having a North American compatible and interoperable system.

MR. DENARO: Are we working with the Canadians too?

MR. LEONARD: We have a very good relationship with the Canadians. I think we just had or are just planning on having a telecon with them.

I've been up to Ottawa twice. We have a Regulatory Cooperation Council joint meeting with Canada. And I would say they are in lockstep with us on Connected Vehicles and spectrum. And I think we're very compatible.

And they are our largest trading partner. We want a system that works across the border.

Let's see. I, again, talked about a number of human factors systems, guidance that's been issued. Those are available on either the ITS JPO site or on NHTSA's sites or through the National Transportation Library.

We had, we've released additional data sets from Ann Arbor. This was -- we did have some challenges. We learned some lessons about protecting privacy information. It took us a long time to do it. It's a lesson we're incorporating into our pilots and into our other work. Took us longer to release these additional data sets than we wanted, but we're happy to get that out.

This will allow people who want to understand not just the initial days' worth of data sets,

but now they'll have two months' worth of data to actually run some experiments with and see how they can mash that up. And even before you started to hear about Smart Cities we had started the Smart Cities research and had been in cooperation with other departments around the U.S. Government to talk about the concepts and explore the idea of a transportation sector in the internet of things and in Smart Cities.

Hopefully you're getting the impression that in addition to being a research organization, we recognize the importance of deployment and that we do this research so that we can bring things out into, into use by the public. So if we talk a little bit about training and the need for that, we've released some new courses.

We have a new advanced course on Connected Vehicles. We are working on one now which we intend to showcase this summer at ITS America, a discussion on we're calling it, for lack of a better term right now, CV201, but it's kind of the next stage on how you get to deployment. Kind of trying to capture some of those issues we were talking about earlier today about how do you, how do you create this Connected Vehicle environment.

In the time I've been at the JPO I've watched the professional capacity building program going out to reaching under 1,000 students with training opportunities to, when Mac Lister retired this year he was getting out to 36,000 offerings of people. And they're not a single 2- or 3-day course, but where somebody was just getting an hour's worth of information, getting the targeted information they need.

So by going online and finding ways to distribute the information, through packaging information that invites the people to focus on, rather than somebody having to take two or three days and go attend a training course, they can get the targeted training information that they want.

And we're going to -- again, this is an area I'll talk a little bit about having to cut back in some of our professional capacity building work because of budget considerations, we're really proud of what we've done and we don't want to lose the gains we've made in this area.

Kirk, you can probably talk about whether we've been successful in involving Southeast Michigan as an ongoing deployment site. You probably have an opinion on that.

MR. SCHROMSKY: You need more money; right?

MR. STEUDLE: We've asked you to save resources. We're growing it.

MR. LEONARD: I hear you. But also we put out projects in integrated corridor management, 13 planning grants to help localities plan their integrated corridor deployments. And I've already talked about the MSA work.

So this is a small subset of the accomplishments. And just to give you an idea, we have a schedule that probably on a monthly basis has 100 to 150 milestones that we're tracking in any given month. And some percentage of those turn into publications and final results, or specifications, documents. But there is a lot going on across the board and across multiple areas.

These are just categorized in the six areas of the strategic plan. But if you talk to any of the program managers in the JPO, they could probably, each one of them, give you a list this long of projects they're working on, things where they've had accomplishments or they've made tremendous progress in '15.

I'm not going to --

MR. WEBB: If I could, just a quick question. What's the role in your office with the FAST Act direct, just by source of coordinating, compilation of yes, we're attacking all this stuff? Or do you have active things going on with the various test beds?

MR. LEONARD: Walt's still here, so we do have the affiliated test bed program. And, Walt, I can't remember, it's up to 90?

MR. FEHR: It's close to 90 members of that organization. So we do know what some of them are doing. There are others out there though that we don't know about; they're doing it all independently. Again, we're trying to advocate that, hey, you want to do something, that's fine, as long as they understand the environment that they're getting into and understand the need for interoperability, et cetera, et cetera.

So we're just trying to make sure everybody is aware of that without hamstringing anybody's individual initiative.

MR. WEBB: So you're more of an information resource.

MR. FEHR: Yeah. That's the biggest thing that we do is act as that information conduit, trying to get it into the hands of people who use it.

MR. CALABRESE: I'm kind of surprised that it didn't seem like a lot of people were doing it in Cleveland. I mean who's collecting all the data as to what Connected Vehicles safety pilot programs are out there? Shouldn't you be the repository for all that stuff?

MR. FEHR: Well, if they're doing it with their own resources --

MR. CALABRESE: This is FTA.

MR. FEHR: If they're doing it with their own resources, we don't know about it. Sometimes we're not very well connected inside of the building either. You know how that goes.

So we are trying to use what connections we do have out there like these certification entities to help us with that intelligence gathering.

MR. CALABRESE: It just seems that we always should know what DOT projects are

being funded.

MR. LEONARD: And we are assembling a list of, to the best of our ability, in some cases people are funding projects without federal resources. And we find out about them the same way you do: we read about them in the press, because they haven't approached us. But we are trying to pull together a more comprehensive list of where people have the FCC licenses to do things.

And also we're going to do a little outreach to the manufacturers of devices and say, okay, who can you share with us, you know, among your customer base who have projects? Because we know that there is a lot going on in this environment that we don't, we don't have an accurate picture of every -- how full and how expansive the DSRC environment is around the country. It's still in its infancy in terms of deployment but it's accelerating.

And we also want to make sure that those communities tap into the wealth of information that we have, things like Walt's certification issues, you know, and that people understand, for example, they have to have an FCC license if they're going to broadcast in 5.9.

MR. STEUDLE: Ken, I would flip that around the other way and ask if FTA came to you guys, who have been doing this for a while, and said, hey, we want to do this before they decide to go out and fund something, do a safety pilot, and do it on purpose so that we can learn from them. And if FTA is off doing their own thing, they need to come back in and say, look, you're the agency that's been doing this internally, this isn't necessarily your problem. I think FTA is the one ought to be held to the carpet. Why aren't we working with people that are actually doing this technology, doing the testing? Because, again, we did it in the safety pilot. You had a component in it.

MR. CALABRESE: This was set up with the mission safety pilot. It was tied in with New

York City Jobs that affect how it's evaluated. So I mean it seems like people here should know about it. It's not that far off.

MS. JOHNSON: Right.

MR. LEONARD: And it's not necessarily the people in the building don't know about it, it's that we need to consolidate and communicate the breadth of everything that's happening.

MR. ALBERT: This is more of a statement than a question. It seems one of my past positions was for many years as president of a university transportation program. And it always seemed to us and all the other universities that only information that affects really what we we're doing is something that they might be paying for. Not the other things that we might be doing.

And so one of the things I did was go to every single university in the United States and inventory what labs they have so that we could share from the lessons learned. We're building labs, we're not being redundant anymore. And it seems to me one of the goals of the Joint Program Office should be reaching out and collecting things beyond what they pay for so they become a repository not just for a federal agency that's only worrying about what's going to be, and I'm not trying to bash. Just, you know, the things we had with these labs, which was great, we had the specifications and what 180 labs had.

MR. LEONARD: And I'm absolutely with you, one of the difficulties that we had with the UTC program is we often don't know that a university is working in our space until we see the report. And at that point they've been working on it for quite some time. And so we're trying to figure out how to, when people try and get into the space, before they start working in it make sure they are aware of what's going on. In some cases they do, in some cases they don't.

And when we conversely want to be able to be on top of everything that's happening in the

space, that's a tall order when there's a lot, lot going on and not all of it is --

MR. ALBERT: Well, we have a new competition coming out. We've got an opportunity to try to plant those seeds.

MR. LEONARD: I'm going to skip over slides on Connected Vehicles and Smart Cities because Brian is going to talk about those. And then we will have more up-to-date slides as well. But I wanted to come back to the discussion about the deployment grants.

The language is fairly specific about the grants and identifies \$60 million. Said we had to get awards out this year, which is why we worked very quickly to get that solicitation out on the street. Our intention is to award all \$60 million. Though it does have a call-back provision. If we don't get \$60 million in suitable proposals we will pull some of that money back into the offices that contribute it.

If it is awarded, then we don't pull it back even if the project cancels. It then kind of rolls into this pool of resources just because of the nature of the appropriations law. The awards, we can award between five and ten grants, given the specifics. No more than 20 percent of the available funds can go to any single grant, so that really caps them at 12 million.

There is a 50 percent match. So it makes it a little less attractive than some other grant programs but, you know, to do something like the Connected Vehicles or Smart Cities we like to see jurisdictions put some skin in the game. And so this is 50 percent of the way there. Someone will reply and use these resources.

And like I said, if you look at the legislative language and you look at what's in the NOFO, there are plenty of ITS activities around the topics we have been talking about today that qualify for this grant program.

A couple of the research activities that we're -- that aside from these three big programs, and remember Connected Vehicles is a \$42 million pilot program, Smart Cities is a \$40 million program, this grant program is a \$60 million program of which we're contributing \$21 million. That's a large portion of our budget. Even, even doing incremental funding. We didn't have to put all of the funds each year.

And by the way, Connected Vehicles will run for about three or four years, Smart Cities about the same duration. The grant program is part of a five-year authorization. So we picture \$300 million will be spent on that grant program over five years. That's still, that's a significant amount of resources.

These are other research activities that we're continuing to fund, I talked about the PCB, architecture standards, the ATTRI program. I mentioned bringing MARAD and St. Lawrence Seaway. Those are some relatively small efforts that, although they are new, we added into the portfolio because we've been trying to make that happen for some time.

Some of the areas where we had to constrain our budget: we had a much more ambitious vehicle automation program planned; a much more ambitious mobility on demand program. We had to scale back on human factors. I mentioned that we canceled about a million, million-and-a-half in deployment activities around AERIS. We've scaled back on road weather and cyber security.

It's not that these are not important areas, these are critical areas, but we can only -- this \$20 million in deployment grant activity came as a little bit of a late breaking surprise in the budget cycle. We had to look at where we had the resources to fund that activity, and so these things were all impacted.

The good news is some of these things can re-emerge in the Connected Vehicle program, the Smart City program, and the ATCMD grant. So there was some method to where we thought these activities might appear so that the cut might be mitigated by where we had to constrain the budget.

So with that I will take any questions, but I know I am well past my time.

MR. McCORMICK: The last version of the energy bill had the highlight, the keystone of it was that auto makers perhaps could put in three advanced technologies which are going to be defined by a committee to be formed, it probably would have auto makers. Or if they put in the ability to communicate safety information specific to the DSRC, they would be assigned credit towards CAFE or there may be restrictions also to be defined by some future committee.

Are you guys following, tracking that?

MR. LEONARD: In the JPO we are not currently involved in that.

MR. McCORMICK: Okay.

MR. LEONARD: We are working with DOE. They are a partner of ours. We have a great working relationship with Reuben Sarkar. I've been over to brief DOE, all of their research lab heads, specifically maybe six weeks ago on cyber security.

We started a dialog with some of those folks around cyber security. And in particular, we touched a little bit on this earlier today, the thing about Connected Vehicles and automated vehicles, that's critical infrastructure, DOE manages a lot of critical infrastructure, power grids, nuclear plants. We have to have some discussion as a U.S. Government as to how much value engineering do we want to engage in in the cyber security space where we have commonalities.

And do we create a common task factor by having, by sharing knowledge on cyber

security? And to what extent do we have separate approaches to cyber security? So if you can get into the power grid it doesn't necessarily mean you can get into automated vehicles.

So we're having some higher level discussions around critical infrastructure at DOE as well. But there --

MR. McCORMICK: About three-and-a-half years ago, Senator Stabenow sent me the original bill, it insinuated that item and 14 others into the bill which are still there. So we tracked it because we think it's incredibly advantageous to move this space forward. We have a modern technology because if it's going to be mandated, that's obviously the choice to go and put that technology in.

MR. LEONARD: And we have some legislation that puts DOE in the ITS space. Her version of the bill said you must coordinate with the ITS JPO over at DOT. The original version was just sending DOE off on their own.

One of the reasons we've built a relationship with DOE is we don't want them going off on their own. We're pretty invested in this space. And the Federal Government just can't afford to duplicate resources. So we're trying to figure it out.

MR. McCORMICK: I remember the original bill had them creating their own record for that whole Connected Vehicles space.

MR. LEONARD: Thank you.

SMART CITY CHALLENGE

CHAIR WILKERSON: Okay. So if there are no other questions, we'll have Brian get started.

MR. CRONIN: All right. So I'll kind of go through some of this quickly. And actually looking around the room, almost everyone in here was involved one way or the other.

But Ken talked about it. And it would be useful to start out, this really started with our strategic plan. Mark Dowd, who is a senior advisor to the Secretary and our Deputy Assistant Secretary for Research, one of the first things when we met with him we showed him the plan. And he had just come off the discussions about the Connected Vehicles pilot and was really liking that, liking where we're going, liking deployment. And then he said, well, you're talking about Smart Cities but it's like 2018, 2019. Can we do anything sooner?

And so Ken and Egan and Kate and I were riding in a cab over to the White House in mid-September. And this was right around when the White House was talking about Smart Cities and Smart Cities Council and different things. And so mid-September we had in our strategic plan doing something on Connected Cities in 2018 or 2019. Some small things since now kind of building towards that and then on a larger scale something similar to the Smart Cities Challenge. Well, we did it a little bit faster.

So, you know, we really, and why, what's the ramifications of that? And so I would say, you know, normally we like to plan things out, learn something, go to the next step, kind of evolve, and then we get into the big demonstration. This flipped that on its head and said, you know, we want to use experience with the cities and the knowledge and expertise, and let them innovate and tell us what a Smart City would look like. And we'll put some parameters around that, but that's really the mantra I would kind of put into this.

So let's flip this around, let's see if we can accelerate, and let's look at how we use technology and automation, Connected Vehicles, communications and build a Smart City. So we

really looked at going out to the cities and say, you know, what can you do? And how can you be innovative? And what are we going to try to achieve?

So, you know, remember mid-September we hadn't been talking to anybody about this. Nobody knew. You know, so we said we really need to split this into a couple phases.

So we asked her, what's the vision? What are you going to try to achieve? And then and after so we released the solicitation December 7th, so it's ready a little earlier than that, but the FAST Act bubbled up and we had to figure out the ramifications of that. So it was issued December 7th. Proposals due February 4th.

We also did a ton of public engagements in December and early January to educate the community about what we'd been thinking about, why, what are we trying to achieve? The proposals came in February 4th. We selected cities and announced in early March at South by Southwest, which was March 9th to 11th. I didn't memorize this day. But within one month of receiving proposals we got to selection by the Secretary.

And then we issued the notice. And proposals will be due May 24th. So we issued on Friday the second notice to the subset. Proposals will be due. And we'll be announcing a winner before the end of June.

So let's step back and kind of run through some of these things. This kind of highlights what Ken was saying of some of the tradeoffs.

Well, the number, the top priorities in our Smart City was how do you use automation? How do you use Connected Vehicles? And then how do you bring in intelligent sensor-based infrastructure? So a lot of the ITS and technology environment we've been working on.

And it's asking for the cities how are they going to bring these into their city and use them?

So that's sort of the technology side.

And then it went, well, what are you going to do with it? What are the scenarios? How are you going to impact mobility? What kind of first mile, last mile user-focused mobility services are you going to provide? How are you going to use data to do analytics for performance management, for evaluation, for operations? How are you going to share that data for the start-up and development community to make use of it and create wonderful new applications for the public?

Urban delivery and logistics. What are the business arrangements around making this happen? The Smart Grid and electric vehicles, we brought in the Vulcan Foundation. They are very interested in electrification. We've been working with the Department of Energy. We've been working with the White House Council on the Environment working on this issue.

Connected, involved citizens. And then the kind of bottom layer, the interoperability, the architecture and standards, security, and then land use. How does this sort of impact where we're headed?

So this next slide kind of -- we asked the cities for their visions. And we asked them to ground that vision in the problems and challenges they have. And so these are kind of roll-ups from the cities that applied and some of the issues they indicated.

So and it's kind of why I made the comment that I did just before lunch, you know, how are members of the community to get benefit from the technologies and from these innovations that we're trying to bring?

How do we provide first mile, last mile services to the communities? How do we streamline payment and payment services as we look at moving people through the system? So

sharing economy, how do we bring in those different partners and the business philosophies into that?

The trip planning, looking at and understanding the current travel conditions because that impacts the services and options and how you use technology.

Pedestrian safety in particular as they were reaching at that, in addition to sort of bike share and use. Moving goods within the city; lots of interesting challenges and ideas around that.

Data collection. Parking and parking payments, parking services. The climate change. And then, of course, we still have sort of bread and butter issues that have been with us for a long time: signal operations. And how do we bring in different partners for these new business models?

So that's just some of the things that the cities highlighted to us as issues that they were trying to solve.

So we were overwhelmed. We did not think we were going to get 78 proposals. We were hopeful to get at least 40 or so. We received a ton. And probably the reason that the top gray area is, we said mid-size cities, 200,000 to 850. And we got some that were more and some that were less. We did get a few cities that were like 100,000 and tried to make their case. But a great cross-section of the country was interested in this program.

And I talked to people about it was not my challenge, it was not the JPO, it was the Secretary's challenge. It was also \$40 million, and they'll match. So it was a great way to articulate in 30 pages or less, you know, how you could bring these technologies together and what you can do.

And so but it wasn't just that we'd received 78 proposals. We received a lot of very good

proposals, we really did.

And so we also through this brought in a lot of partners, and that's still evolving. So the Vulcan Foundation is putting in \$10 million. We highlighted them right at the announcement of the solicitation. We've also brought in Mobileye. They're going to put in bus safety technology and collision avoidance on all the buses in the city's fleet, wherever we pick.

The Autodesk. So this is an interesting one in trying to look at how do the cities visualize and articulate to their community and anyone what they are achieving through the implementation? So Autodesk has a visualization tool based in -- you know, everyone probably knows them from AutoCAD and stuff, but they are bringing in that service to help the cities visualize what they are trying to achieve and then be able to go and talk to their community or talk to anyone in the country about that.

NXP, V2V, V2X, collision warning, communications technology, Amazon Web Services, bringing in data and cloud hosting services and capabilities in cities to bring it to.

Alphabet's Sidewalk Labs. So this is an interesting one as they've been working and they're basically providing internet service, 100 kiosks that they're going to put in different parts of the community to provide internet service. But then also to have a sort of web-enabled kiosk that you can get ride share information or, you know, whatever web based information about transit services or payment provisions.

So this is really targeting that, some of those communities that might be under-served. And they'll put in 100 of these different kiosks across the community for that.

And then we're actually, we're working with the Department of Energy to provide some services and technical expertise on electrification. And that one is still evolving.

So it's a different, different model. You ask Ken, none of us have been working in an environment where we have brought in partnerships in this way. And so it's new to us. It's definitely new to the cities. And the biggest question we're handling now is how do we differentiate ourselves if we all are using these partners. So, you know, there's still the ability for them to bring in other partners or they can, they could bring in a different partner that does similar things. They'll just need to bring them in as a partner providing resources.

And so there are some other folks that are still interested.

MR. BELCHER: So what exactly is NXP? Or what exactly is NXP providing?

MR. CRONIN: They are providing both on board and at-the-intersection either, either roadside units or on board units with DSRC.

MR. BELCHER: So they will provide after-market service --

MR. CRONIN: Yes.

MR. BELCHER: -- to vehicles in the cities? They will provide roadside units?

MR. CRONIN: Right.

MR. BELCHER: Unlimited number?

MR. CRONIN: I don't know. We don't have that information. I think it's a dollar-capped amount.

MR. WEBB: Brian, continuing that, is that just a determination of equipment or is there is an installation that the city is expected to install?

MR. CRONIN: The city can probably install them.

So you can look at it as the cities are likely installing this anyways. And so we've added probably several million dollars' worth of raising the bar. So a lot of the discussion, when we talk

of mark down, we say, I'm trying to bring resources to the cities and then let them use the four-year federal funds to build out some of the other components.

We have specifically chosen our partners and we've specifically chosen some not to do regarding these. But so we just issued the second solicitation to them. And this really gets into specifically what are you doing and how are you doing it, how are you managing it, how are you going to evaluate it, what is your measure, and how are you going to share the data? How are you going to provide webinars to the public and bring everybody -- keep everybody else up to speed on what we're doing and learning and achieving?

So we can skip those.

We did a webinar last week for the seven cities to kind of get them up to speed. We're having all seven cities at the Department Monday and Tuesday with the partners to kind of go into detail. And, you know, one of the main things, and this is once again the Secretary's challenge. So he's asked us to go back to the cities in the second notice and really, really hammer home how is this technology addressing matters of opportunity? How are we making sure that this is going to help everyone? How are we helping -- how are we addressing safety? You know, so that's two of the Department's major goals in addition.

So that was in the first notice but we're really hammering home he really wants to understand that. And so that's a key piece.

So we're going to have some leaders in the Department talk to the cities about those issues. We're then going to provide technical assistance and create some sort of development around evaluation, mobility options, electrification. We'll have Department of Energy, the White House, Vulcan in talking around that.

And then we have a whole host of sort of technical assistance. We're going to do the cities and so forth related to going out and visiting the cities, doing some Connected Vehicle boot camps, looking at mobility on demand and some stuff like that.

MR. McCORMICK: Does it follow Appeal 1, is that the one out this year? What does that mean?

MR. STEUDLE: Yes. The parties --

MR. McCORMICK: Are we employing tiers to track some of this?

MR. STEUDLE: Yes.

MR. McCORMICK: Yeah, thanks.

MR. CRONIN: So now I'll just answer whatever you ask, most all of your questions.

MR. DENARO: Why seven?

MR. CRONIN: Why seven? It's what the Secretary wanted. Yeah, we said five.

MR. DENARO: Yeah.

MR. CRONIN: And, you know, I will say that we had 78 proposals. We had a lot of really good ones. And, you know, we gave the seven \$100,000, so it wasn't a huge, it was actually 200,000 from us. It's where they, you know, kind of what I talk about, so Walt and Bob Sheehan and I actually briefed the Secretary on the technical results and the tech panel and so forth. And, you know, one of the messages we left with the Secretary and the leadership in the Department is we've caused some national dialog. We really have.

I mean if you had 78 cities thinking about how they would incorporate automation, mobility as a service, Connected Vehicles in their cities, you know, that, you know, the pilots got a certain amount.

This is another thing. The other thing we're about to do is release all 78 proposals. We don't normally do that. We released the seven to the seven but we will release all those and we will release the others in due time. We're kind of working through that.

And that's because we wanted to have a national dialog. We wanted people to see what is the vision and what are these cities thinking about, what are their challenges?

MS. JOHNSON: I'm assuming that will be released after the city's selected; right?

MR. CRONIN: No. So, yes, we did tell the cities in the notice, actually it was an amendment we made about three weeks or so before that, that we intend to release the 78 I believe, release the 71 not selected. So we're still figuring this out.

MS. JOHNSON: Okay.

MR. CRONIN: Because it's a touchy thing if we do or don't want it. But I believe we're going to release at least the 71 or we're going to release some in April, later.

MS. JOHNSON: Okay.

MR. BELCHER: So two questions. I mean it's really interesting that you pointed out the national dialog. And that could be the most important thing that happens.

So the first question is, is the Department or the White House doing anything intentionally to continue that process?

MR. CRONIN: Yes. So we did one thing last week. So this group called Transportation for America actually started and they went out and reached out to all 78 actually. But definitely the 71, that works out to all 78 to start, we're going to start working with them and do like a monthly call to release all of them.

We started talking about sort of some of the challenges we saw, and opportunities. And

this webinar happened last Wednesday. And we outlined all the grant opportunities. The Secretary has asked us to reach out to all 71 cities and talk to them about their strengths and weaknesses. So we're sort of in the process of that.

We've been reaching, we've been reaching the organization ITS America, ITE. Continue to reach out to us about bringing the Department, the cities, the Department to those venues to have a dialog. So we're looking at that.

We're -- you know, so as I said, this came about in late September/early October, so we're about three weeks ahead of where everybody else is. So, you know, we're finalizing the selection process. And we have that criteria, we're finalizing who. So I'm sure in another two weeks we'll probably have some other places we're going to have this dialog. But it's something that they definitely want to continue throughout.

I think it's probably, you know, the Secretary's really talking a lot about ladders this week.

MR. BELCHER: So follow-up question. So one thing, there is a group of seven associations called the Public Interest Groups. AASHTO is one of them that represent, you know, so that's probably some logical place to start.

The second question is, what was the most interesting thing other than starting the dialog that you saw as the result of reviewing all 78? Were there common themes? Was there anything that leaped out at you that you didn't expect to see or anything, you know, that leaps?

MR. CRONIN: Yeah, that gets bounced a little off the table. The most interesting thing was the use of drones for various things that people really wanted to do. I really was not expecting an all-out assault on the availability to try to use that.

But I think on the other side would be just there are plenty of cities that really want to

implement automation and Connected Vehicles. And much more automation. That is the number one priority listed, but there is definitely a lot more.

And the slides, it's on the challenges slide. A lot around first mile, last mile as a scenario in which to try to implement that. Not all in the sharing economy mode. Some of it just sort of a lower speed, you know, automated vehicles and things.

So, Kirk, yes?

MR. STEUDLE: One comment. First of all, one comment, one question.

So, first of all, I think it's a tremendous opportunity to go from five to seven. \$200,000 you got more than that from output from those cities, now continuing the dialog. And, frankly, if they're not the one that wins, they're now talking to people they hadn't talked to. And the spin-off is well worth 200,000 I would think. So that is, that's incentive.

The second one would be, as you look at those, in light of our conversation we had before lunch, how many of those involve using DSRC?

MR. CRONIN: So not as many as I'd hoped. I would say that's a -- that would be sort of a burning opportunity I took from reading them is many got it, many do not. They just equated Connected Vehicle with having internet in a car. And so when -- you know, so many got it. Some talked a lot about DSRC. And they didn't have to say DSRC, although we did put it in the solicitation.

So it was one of the big learning opportunities I took back is really, while 78 cities can talk about automation and can start to talk about Connected Vehicle, there is a gap.

MR. STEUDLE: Can you talk about --

MR. CRONIN: They're fine. And they're going to get more help, whether they like it or

not.

(Laughter.)

MR. McCORMICK: You say you're going to release these proposals?

MR. CRONIN: Yes.

MR. McCORMICK: Do they list who the participants were?

And the reason I'm asking was I was contacted by a number of teams putting this together during the course of it because there's no directory where you can go look up who builds stuff for Smart Cities. And one of the things to talk about security problems was whether or not that would be a useful thing to do. I mean, to have that kind of information in there, that can then be harvested and given out, basically.

MR. CRONIN: So, yeah. So we're releasing the vision but we're not releasing -- they didn't, we didn't ask in the vision document for them to tell us which partners, actually the cover pages usually have it. The partners, we're actually taking that off.

MR. McCORMICK: Okay.

MR. CRONIN: But the other thing we did is we, we had a lot of people say, hey, we want to partner. We want to connect to the city and we want to do this. And we went back and forth of how to broker that into two months. And we really came back and said we want the vision. We want to know what. We're not asking you how to do it right now, we want to know what.

So people brought partners. We did state at transportation.gov/smartycity is we created a list of people who have expressed interest in being a partner so they can put their company name, contact number, and what they do. And so we have some companies listed on there. And we're encouraging folks to, if they want to talk about that, or have it in a public place.

MR. McCORMICK: Is that in a public list somewhere? Is that a public list somewhere?

MR. CRONIN: Yeah, yeah, yeah. I'll make sure that we get you the information.

Transportation.gov/smartycity.

MR. McCORMICK: All right, thank you.

MR. CRONIN: All right.

MR. FEHR: I was just going to bring up a point in sense dealing with exactly that. And that is living appearance of diversity.

A problem we've always had. It would be extremely useful to do, we know that. But as soon as we attempt to do something like that it's always misinterpreted as an endorsement, so we are kind of hamstrung.

MR. McCORMICK: Well, I've been talking with a gentleman at the University of Michigan that's sort of the numbers guy in the Smart Cities meeting they were having down in Guadalajara. Someone was going to forward that list to him so that maybe at that organization, the Smart Cities, whatever they call themselves, household, can be maintaining that knowledge base.

MR. FEHR: Yeah, somebody outside of the federal system should do that.

MR. McCORMICK: Yeah.

MR. DENARO: What would you say were some of the key separation points for the final cities? What made them stand out to these people in general or whatever?

MR. CRONIN: I mean I think that I would say it's clarity. You know, it's sort of the criteria and sort of the clarity, what they're going to do, and how they're going to make that happen. We did get applicants that did not, you know, understand some of the stuff.

MS. JOHNSON: Yeah.

MR. CRONIN: And you get that with grant programs. You know, it's quite interesting, and I'll just leave it at that.

MR. LEONARD: Everybody will have the opportunity to assess whether DOT did a good job in the field when they read proposals and evaluate all 78 units out there, so it's out there for senior people to do.

MS. JOHNSON: So one thing I just want to say anecdotally, it's really interesting having worked in San Francisco for SFMTA, who is a finalist, and considering that they are the DOT for the city and they run transit, i.e. Muni, and being in Long Beach and we're not affiliated with the city. The City of Long Beach puts together an application and contacts us like two days before it was due.

So when you say some cities just don't get it, I shared with Scott, when I read that application I was like, oh, my goodness, they have no idea. And so when I saw that the cities that generally tend to be more progressive and innovative and thinking outside the box about tomorrow and the tomorrows to come, there's no surprise to me relative to my limited experience with some of the entities that I do know.

So I know you can't say that, but I wanted to say that.

MR. LEONARD: And they have. And I think clarity and sort of one of the criteria was your commitment and capacity to do it. So, you know, that, those stand out.

MS. JOHNSON: Right.

MR. BELCHER: So you've been doing this for a long time. So I'm curious, I mean the one thing that government partners can self-select to do this. I did not see, I do not see among that

list any of the big Fortune 100, Fortune 20 companies that Smart Cities is a major part of their business. Do those people find their way over to I want to be a partner for the particular city list?

I mean, how did that happen? I mean I don't want to name names because they're prominent, but we all know who those companies are. And there's probably five companies where that's what they do.

MR. McCORMICK: Well, let me just -- so several of our board, the Ciscos and the Intels, they were in a number of the proposals. But they elected to go in under cover, you know, for whatever reason. That could have been because they were on multiple platforms. You know, they might have been on Denver's, might have been on San Francisco's. But I know that Intel mentioned that.

MR. BELCHER: I'm curious what, Brian, if you can say anything about that or not. I mean I'd assume that. But there's also a reason that they chose they didn't do this. They didn't say "we're going to invest regardless."

MR. CRONIN: I can't really say why people didn't, you know, in part do that. I think I'm going to have to wait. Ask me that next or ask Ken that question next advisory committee meeting. But I guess I would just say "stay tuned."

You know, I think that our first partner was a foundation. So that's very different. And then but now we've been adding partners who have seen the opportunity and they've approached us. We need to sort of, the answer I will say is if anybody wants to talk to us, we're more than happy to talk. And but, you know, partnerships is the main resource at the table. And so, you know, if they're just saying, you know, "we want to be a partner and get part of your 40 million to do this," that's not partnership in our mind in this situation.

So it's evolving. I mean I think this is moving really fast. And it's evolving and it's probably going to continue.

MR. WEBB: Not specifically as part of any question, but I'm looking for input, you mentioned that they can get, if they use connected, as in connected to the internet. I had a speech to my local chapters, and I said, you know, I'm trying to help you and see if we all can get on the same wavelength as far as defining this. I said, "autonomous" means this. I said, then there's connected. There's connection one and connection two. One connection to the internet, another is connecting talking vehicle to vehicle and vehicle to infrastructure. And then there's automated and all the range that's in there.

Am I using my terminologies wrong? And what is the right way -- I guess a little bit over across the table about how the business entities use this as far as when you're talking to people and trying to explain how this is evolving?

MR. CRONIN: Let me respond. That's much closer, when I say we didn't get it, we might have got some internet in a low-connected, but we certainly didn't get V2V or V2I. Or some people -- I'll just leave it at that. I mean some people might say because we're putting in automated, of course they're connected. And so, you know, you'd like a little more detail than that because that's not --

MR. McCORMICK: There's actually been a very interesting evolution that's occurred. When I trademarked the term "Connected Vehicle" in 2004, I provided a definition of bi-directional communication of any -- through any communication protocol to any type of vehicle. So it wasn't defined as land vehicle, it wasn't defined as anything, and it wasn't until you guys wanted to abandon a Teleride that we of course abandoned the ownership on that trademark

so we could use it.

But what I've seen, as this environment has grown to incorporate a lot of interest by a lot of different industries, and I periodically go out on Wikipedia and make some edits there. Because somebody that's pushing internet connectivity in cars, providing a definition that says a connected vehicle is just about the internet. And another one is pushing it's just about cellular.

So there's a lot of myopia depending upon where you are. You know, if you're cellular people, you tend to view the connectivity as being cellular. If you're satellite people, if you're MARSAT or Sirius, that's, you know, that's the inclusiveness that they want to have.

And in the beginning, and by "the beginning" I'll say around 2010 or so, what we saw was that it was very -- people were being very opportunistic business-wise in terms of how they wanted to put more on the term.

But now it's kind of more like Xerox. It's kind of like it can be what I define it to be. And I'm not being exclusive, I'm just saying my definition of it is this for my industry. So I don't know whether it's a bad thing because it's become pervasive.

MR. CRONIN: Yeah. I mean so, I mean I guess I would just leave it as this idea that Kirk and I had was sort of there is still an opportunity for this group and the ITS Office to talk about DSRC-based connected vehicle, and connected vehicle in the term of transportation application.

So even when you don't need DSRC, when you're trying to have vehicle intersection safety application or a mobility application or a cube. You know, something that doesn't need DSRC. But it's not just, it's not just internet connectivity, you know, and so it's for transportation purposes.

MR. CAPP: You have to keep hitting on that other one. They all get blurred together

and nobody's going to get it. And we're, Kirk and I and Lisa's here too, trying to stay on message on, you know, the DSRC, V2V, it's a safety play that's driving it. And all the applications have to be safety, that's what started the argument on the spectrum sharing. We've got to stay on message.

And I shared with some people in our own company, well, geez, if all this automation stuff is happening tomorrow, I guess we don't need to do V2V anymore. What are you talking about?

They have nothing to do with each other on day one. V2V's going to help automation in the future probably. It enhances the sensing capability of the system. But, you know, so that there's a relationship, I don't mean to say that there's not, but it's not one or the other: oh, I think I'll choose this one. It's a required, fundamental safety play to get in place for V2V and V2I and all that kind of stuff. Then the automation is going to be a little more aggressive.

MR. WEBB: But from the standpoint of having conversations, they say, well, I've got OnStar. Are my vehicles connected?

MR. CAPP: Sure it's connected.

MR. WEBB: So that's what you're talking about connectivity. Well, no, not exactly.

MR. CAPP: Right. So I'm connected using the internet. Am I connected? Yeah, they are. So, yeah.

MR. WEBB: So that's what I'm saying, my explanation was the internet connection versus the DSRC or secondary connections.

MR. McCORMICK: Well, a number of years ago I created this rational connection to the cube. Okay. And I would say it's multi-use in the foundation since it shows three burdens. It's got safety, mobility and commercial services. And on our horizontal axis it says -- and there was two versions of it, one includes Wi-Fi, and cell, or excuse me, satellite -- but primarily it's cellular,

Wi-Fi and DSRC.

And then on the Z axis is, is it embedded? Is it after market?

In its color code it says that, okay, only this safety aspect, okay, and only the DSRC are V2V connectivity. But V2I can exist on its own plane. And everything pretty much fits in this cube. If your personal navigation device is a commercial service with a nomadic device, if you're talking about -- and so that cube kind of is the simplest way we found to help people understand the three levels of variation that you have: one by the functionality, one by the communications protocol, and one by the physicality.

So to answer that question: yes, OnStar is right here. It's an embedded activity using this communication protocol, you know, for this, for this version.

MR. SCHROMSKY: I think that John and George's point, and Scott, as you said earlier, yes, it's connected. Yes, it only has some features and you need DSRC to do edition two. So it might be when they go to the politicians when we're doing the budget, it's very difficult. They say exactly what is this V2V? Well, you're telling them, in Ann Arbor, you're in that vehicle when you're doing a test run out there and seeing it and feeling it and understanding it was an eye opener compared to --

MR. CAPP: It's really either accidental or intentional, there's examples of both as you said, about 50/50 of people that are trying to weigh in and search on the media one way or the other, people find reasons to be on either side of the internet.

MR. FEHR: You just mentioned something. I just want to play off here. We're going to be making a series of demonstrations putting down the power bill for April 18, I think there are more of us locally, people who would have experienced that first-hand, we can help you connect

up with a bunch of cities.

MR. LEONARD: I wouldn't say that they're open. I mean there's a limited number of slots. And I think Carl Andersen is working on that.

They have dates for different groups to come in and witnesses. So if you're interested, I would reach out. You can contact us but I would reach out to Carl Andersen at Turner-Fairbank and he should be able to speak to what slots, if any, they still have open.

But it's these three V2I applications using DSRC.

CHAIR WILKERSON: Any other questions?

(No response.)

CHAIR WILKERSON: Thanks, Brian. Good job.

So I think it's best here to break and then we will come back to the recommendations for our Advice Memo, the proposed Advice Memo, we'll see if there are any other topics we want to add. Then maybe we can narrow down those topics. And then we have TransUnion coming in. And then we will have a quick discussion of action items.

I've shortened the meeting by a half an hour so far. So depending on what progress we have.

Is that okay? All right, we'll take a break.

(Whereupon, the above-entitled matter went off the record at 1:53 p.m., and went back on the record at 2:14 p.m.)

PROPOSED 2016 ADVICE MEMORANDUM TOPICS (CONTINUED)

CHAIR WILKERSON: Thank you Brian and Ken for your presentations. I think that

was very helpful.

Anyway, we're going to get started. And we're going to go back to the chart that we had. I don't know if there are any other questions for Brian or Ken before we get started.

But, I took one or two notes about a couple of topics that came up during their presentations that we can raise. But, the floor is open if folks want to revisit the topics.

Maybe we can go over what we have. And then we have -- can we -- I can't see, gosh -- make it a little bigger for us back here. Thank you so much.

So, we have automation, scenario planning, traffic safety culture, vehicle hacking or cyber security issues, reaffirmation, which is not as spiritual for me, but I think we can clarify what that means for those who may not have been here.

The interrelationship of connected and automata -- right? It was Connected Vehicles and automation, right? And then technology and active transportation, and then rural deployment assistance.

Are there any other topics that folks want to talk about? I know safety was a common theme that was raised. I know it's a topic that Tina cares deeply about.

Is there any -- would you have a comment on -- I can open it up to the floor for other people in the room that have questions or comments.

MR. HOEFT: No, just safety that's when they rule on it and play a big role in it. And it was -- I don't need to hear the stats that everybody's been talking about, the eight to nine percent increase in all of these.

So, obviously that's the kind of event we need to explore better.

CHAIR WILKERSON: Tina what -- okay, great. Any other folks in the room have any

other comments? Nope? Sure.

MR. McCORMICK: What are their automations?

CHAIR WILKERSON: You know, I don't recall, I would have to go back in my notes. And I probably should have, and am a little remiss in going back to see who owned those topic areas.

Actually, I could probably look and see who had the lead on that. Bear with me to see if it's on here.

Some of the staff here may also have an idea. Look at my crafts chart. Under -- I don't remember who brought that one up. See if I have the original. We had an original chart. I think we left it out of here.

Does anyone else recall who might have raised automation? I'd have to go back in the transcript. It's not sitting with anyone right now.

MR. McCORMICK: Well, while you're looking for that, we, other than Roger and John, need to --

CHAIR WILKERSON: I mean, I'm sorry, Stephen.

MR. McCORMICK: Make a call to see if can get any traction for anyone who wants to participate in something on scenario planning.

So, unless there's a burden that I don't -- if I knew the people that wanted to participate on that, I would suggest removing it. But you seem to have enough other things to work on.

MR. ALBERT: I think it would be nice to concentrate on the bigger picture of this. Which means I just want you guys to think of nothing but twirl.

(Laughter)

CHAIR WILKERSON: Well, I think it's fair. I think that's fair.

MR. McCORMICK: We do have with that or now it's with a tractor, so I don't think there's much to bring to the party.

CHAIR WILKERSON: I would hope that -- well, I think the goal was to either one to just have some continuity about other topics and respect the topics that came up.

We did have some significant discussion on these. And then to either pick them off or revisit them at a later time when we're making future recommendations.

MR. McCORMICK: Well, I would suggest that automation sort of falls under both the interrelationships and the technology and active transportation. That fits under both.

CHAIR WILKERSON: Okay.

MR. McCORMICK: That's sort of a cross cutting element.

CHAIR WILKERSON: As a subtopic?

MR. BERG: Interrelationships mean all of these.

CHAIR WILKERSON: That's true too.

MR. McCORMICK: Good, yes.

MR. BERG: There's a little piece of everything and now you're not going to have it. The way I look at it anyway.

And that's part of the difficulty of basically getting traction on any one or two or three of these things.

MR. McCORMICK: Yes, my impression is that it's much too -- I would ask, what is it that we can bring to a recommendation topic anyway?

CHAIR WILKERSON: We've got one.

MR. McCORMICK: So there's no understanding of saying this is narrowed again in the first place.

MR. DENARO: Which one? Automated?

MR. McCORMICK: Yes.

CHAIR WILKERSON: I can't -- I don't want to distract from going back and looking at my notes. But, it's --

MR. BERG: Well, I think that what we're tasked with is to be making an opinion on is there too much stuff going on in one of these specialized areas? Or not enough stuff going on in one of these areas?

And are we looking at the right stuff or the wrong stuff in every one of these areas? Or, I think that's what we're tasked to do.

Again, not solve the problems.

CHAIR WILKERSON: Right. So, why don't we skip over -- well, automation if there's nothing and move to scenario planning. Is that still relevant? It's been raised a couple of times.

MR. McCORMICK: I just wanted to say because other than half of it -- because it's the same as automation.

We have it on, I think, other higher topics to address. And I would suggest dropping it.

CHAIR WILKERSON: Okay. Any other comments on the shared thing perhaps?

MR. BERG: As in past results, we can let engineering tell us how you would address any one.

CHAIR WILKERSON: Right.

MR. McCORMICK: And I don't know if that needs to be told at all.

CHAIR WILKERSON: Right. Okay, so we'll incorporate that as possibly automation and some of the other topics as we move along. This -- the third was traffic safety culture.

And Steve, you had some conversations about that, right?

MR. ALBERT: Yes. This was the other. There's a lot going on in traffic safety culture right now. And this is to address a real problem which mainly is crashes due to driver error, not the road, not the vehicle, not the environment.

And that to have someone, probably one of my staff or maybe someone else, come in and present what's going on in that area. And then the Committee can look at the technology applications of the ANC traffic safety culture. What the needs are and maybe some gap analysis.

MR. DENARO: Steve, in 25 words or less, can you tell me what traffic safety culture is?

MR. ALBERT: Traffic safety culture is about changing more -- like more related to psychology.

MR. DENARO: Okay.

MR. ALBERT: Why do people take risky behavior, do risky behaviors? And do classic

--

MR. DENARO: Consumers and drivers and pedestrians, as opposed to officials and planners?

MR. ALBERT: I'm sorry Bob, say that again?

MR. DENARO: Do -- when you say take risks, do you mean the actual participants on the road? Or not the planning managers and those kinds of people?

MR. ALBERT: No. No, the people that belong in that, okay.

MR. DENARO: Okay. And I think the distracted driving issue falls under that same

thing.

MR. ALBERT: Distracted driving, all those things that lead to risky behavior and why does society, their local communities allow such activities to take place. Like why are kids in pickup trucks, you know, throwing beer in the back cab?

You know, how can we hit those target markets with better messaging and better understanding of what the needs are? And there are 20 -- we're involved in at least 20 state pooled fund efforts related to traffic safety culture with 20 states.

And NCHRP work, I know we're doing, we just finished an internet standing tour on traffic safety culture. Peter may have some stuff going on as well.

So, there's a whole host of -- a community of things going on relating traffic safety culture that I think underpins technology.

MR. BERG: So, what's our observation? Are we aware of it?

MR. McCORMICK: Well, I think they're partly. For example, in Las Vegas it's against the law to even have your headset on. You can't talk on the phone.

Just literally they'll pull you over and ticket you. It's actually just 50 or 75 bucks, just for having a headset.

I don't think there's any compendium of what are the practices and what day are they generating. You know, the 22 states that had traffic laws about anti-texting, just forced up --

(Simultaneous speaking)

MR. McCORMICK: But what does this group think?

MR. BERG: What are we -- what output are we supposed to generate out?

MR. McCORMICK: Recommend that they create a knowledge base out of what's being

done. Similar to what they're doing in these other areas. Okay?

MR. ALBERT: So, an example might be, and you can jump in at any time. You know, I'm not the expert in this area. And you've been doing this for many years.

But, one of the things could be, you know, supporting the idea of increased technology within vehicles that might allow them -- I'm making this up.

Might allow them not to be distracted. Or not drink and drive. Or maybe things like that. Peter?

MR. KISSINGER: Well, this issue as you can see is shared values and beliefs for individuals. And it's broader than -- I would argue it's broader than what Steve said.

Because there's the public focus which tends to focus on people that are active participants in the driving, you know, mobility world if you will. But it also -- it's relevant to organizations.

There's organizational culture. There's been most of the work done in organizations. So, we think like the nuclear industry.

And you have space, after the Challenger episode. WMATA here in town where they're talking about the culture within the organization to take care of things and stay ahead of problems, whatever.

As I said earlier, pol -- I think in the country for this group, the most important aspect is either creating a climate within the community, within the country, within the states that's more receptive to investing in the kind of research and technology deployment that we're talking about.

And/or, erase the political priority of safety. So, again, more of the safety-related applications can in fact be implemented. And we all know our horror stories of you know.

I mean, I was at a session recently where a retired executive from Federal Highway, whom

I won't name, said I served under six -- in my 35 years, I've served under six Secretaries of Transportation. Every single one of them said safety was a priority.

Did we prioritize it as number one within the Department? No. Did we put the best people on the problem? No. Right on down the line.

That's the reality. And we've gotten involved with it because we had -- several years ago we had a forum like this. And we were trying to lay out a long range agenda.

And we spent two days talking about bells, food, and speed. And a little bit on distracted driving. Because this was sort of before it became, you know, really high priority.

And someone finally sat up and said, you know, unless we change the culture in the country, within the community, ten years from now we're going to get the same group together. And we'll be having the same conversation.

MR. ALBERT: What we could do is to write paragraphs, kind of like what is it. How is it going to impact us, submitting on what our charge is. To come back before -- come back before the group.

MR. DENARO: Are there best practices examples? Like some European country or whatever, we think does a pretty good job of that?

MR. ALBERT: Yes.

MR. DENARO: Okay.

MR. ALBERT: And that was part of the international standing trip that they went on.

MR. DENARO: Okay.

MR. ALBERT: Kirk, did you go on that?

MR. STEUDLE: Yes. So, I'm in agreement with the culture piece. I'm struggling with

how does this fit the JPO? This is bigger than the JPO.

It's like everybody -- I agree that we need to change that. But, I'm struggling with well, what do we tell JPO to look at? To develop, you know, a safety matrix?

I mean, I'm not seeing the overlap with their mission. That we can actually tell them go look at this area in a little more detail.

I mean, are we telling them go develop a roadmap for safety culture in USDOT and all of America? And that's -- wow. Can you get that done in about six months?

MR. LEONARD: And it doesn't have to be something that JPO does. The charter is to make safety. So, if you support it, then we find 20 percent. But as a Committee, you don't have to say --

(Simultaneous speaking)

MR. McCORMICK: It's important.

MR. LEONARD: One of the things is --

CHAIR WILKERSON: Okay.

MR. ALBERT: It's about procedure. That's really what we're dealing with in the traffic safety portion. Right?

So, the biggest problems are out there later, what can we recommend to the Secretary to do better research related to driver behavior and things that might improve driver behavior. Not necessarily make it worse.

So, that -- does that kind of answer your question?

MR. STEUDLE: It does. And I still struggle with how it fits with our charter.

MS. GOODIN: Well, so here's an idea. And I was making a presentation to a group of

safety professionals a few weeks ago. This is law enforcement education.

And it was just on ITS. And exactly on their vehicles, they're very excited. And at the very end of the presentation, I said well, one of the things that you can do to help move this technology forward is to elevate the crisis that we have.

And one of the people in the audience said we've been trying to do that for years and years and years. But, this technology has a cool factor that can help us communicate.

So, I don't know whether that's a valid idea. But, where is the intersection between the technology and the cool factor in how that can elevate the issues that we have with safety.

And I don't know if there's anything more. But, I thought that was an interesting kind of development.

MR. STEUDLE: There's a connection now. Before then I was not seeing a connection. But now, if we can make that kind a recommendation, then I can see, you know, something that the Secretary can deal with.

Otherwise I just think it's just too broad. This is to develop a safety culture. Well, okay getting across that is very wide. I'm trying to get to, is there something that we can meaningfully do?

MR. BELCHER: Can I -- let me just pivot out real quick what Kirk has said. And put a turd in the pool.

And really, I want to do that particularly with the --

UNKNOWN: Make for good reading for our transcript.

MR. BELCHER: Looking at can. So, Joe and I were having a conversation before -- how many years have you been coming here?

MR. CALABRESE: About four or five.

MR. BELCHER: Four or five, yes. We've both been coming here four or five years. Have we made a difference?

And is this -- is this what this Committee's done made a difference? Are we providing the right kind of advice?

And the reason I come back to it is this conversation about the safety culture, and is it our mission? And so, I think we need to -- I'd like to know that.

Because I don't want to keep coming here and -- I mean, I love you all. But, I really, there are things I want to do with my time.

And we're not adding value. And we're not giving actionable advice. And giving things that are making a difference. Either we should go about what we're doing differently, or you should have a different group.

And I, you know, -- and maybe I shouldn't ask because it's --

(Simultaneous Speaking)

MR. LEONARD: Is that a question to me? Or is that a question to the group?

MR. BELCHER: Well, first for you.

MR. LEONARD: I want to start, well maybe a little bit off topic.

CHAIR WILKERSON: Well, we can go back to our objectives too.

MR. LEONARD: So, on the issues that Scott and Kirk had brought up. Reading from the objectives and scope of the activities here with regard to the charge of the Committee.

The rule of the ITS JPO and the ITSPAC will make recommendations to the Secretary regarding ITS program needs.

MR. BELCHER: Right.

MR. LEONARD: So, back to this issue of oil in the ocean or solving all the world's problems. It is a little -- unless it is tied back to an ITS needs, and we try to bring it into the technology side, it starts to fall outside the purview of this Committee.

Now, you are all citizens entitled to free speech. I'm not going to tell you, you can't put that in a report to the Secretary. But, it might be -- and it might be valued and it might be on point. But, it maybe a little bit outside the scope of it.

But, you could even say, this maybe outside the scope of what the ITS JPO can do. It belongs to NHTSA or FTA or somebody else.

But just recognize that this Committee does have a specific scope. So, -- and you should target your recommendations to stay within that scope.

To your question Scott, I value having this advisory Committee. And you know, I think with one exception where I just had an unavoidable conflict, I think I've come to all the meetings.

Because I value this. And I think it's important. And I think we have a really good group of people. And I appreciate everybody's service.

Sometimes it's hard to say -- are you having an impact? Yes. I think you have an impact on certainly how I think about this.

I think how, you know, you see people from my staff coming in and out and participating. I mean, I think we're listening. We're hearing what they're saying. And we're taking it back.

I have come back from these meetings and talked to the team. And said, you know, this is a good point. We need to be doing more about this.

Or how does that fit in our portfolio? What resources are we doing it with? Which is

what I think an advisory committee is supposed to do. It's supposed to provoke that internal dialog.

Sometimes I think we get some detailed questions. And we see this in some of the response. And Stephen talked about this generally. We had some very detailed things and we had some staff who were writing responses.

Well, of course we believe in this. And I know we believe in it. But we're not putting any resources on it.

So, I don't want -- I don't want to suggest to you that yes, great suggestion. We accept it. We concur. But we're not going to do anything about it.

I don't think that's the -- I want to be candid if I don't have the resources to do something about what you think is important. Because then you rightly get to say, wait a minute. You're not hearing me. This is important.

It's more important than the ways you're deploying resources. And we have to listen to that. We may not act on it. But, we have to listen to that here if that's what you've said.

So again, you know, you talked about this earlier in terms of what do you want your next recommendation letter to say. And I thought the idea of focusing on stepping back and looking at this with a fresh set of eyes.

And recognizing that there's going to be a whole new team onboard. Once setting the expectations for that new group is important.

I actually had this discussion a little bit at the end of the management council. And we, you know, recommend this to the Deputy Secretary.

I said, you know, we're trying through our management council and through the SPG, we're

trying to craft an ITS program that's not just this administration's ITS program. It is the Department's ITS program.

And I believe the Department is going to be here on the other side of the transition. And so, we want to make sure that the work we're doing proceeds and has an impact over time.

And he said, absolutely. This is not just something, you know, this program has been around for 25 years. And I think it's going to need to be around for the next 25 years.

Because I think ITS is the wave of the future. And we have to embed it in everything the Department does.

So, I'm looking for advice that's going to help this very small program office. I know 100 million dollars doesn't sound small to a lot of people.

But, given the scope of what we try and take on, it's a, you know, it's a finite resource. A very small staff, 17 people.

Again, given the scope of everything we try to do, everybody's stretched very thin. We're looking for advice that we can act on. That we can use to fulfill mobile partnerships.

To take concrete research actions and deployment actions. And one of the things I keep telling my staff is it's not just doing cool research and putting it on the shelf.

If we're not thinking about how Connected Vehicles are going to be deployed in society. How smart cities are actually going to be built. How the intelligence is going to be incorporated in the cities, we're not doing the research job that we need to.

So, does that answer your question?

MR. BELCHER: It does, but it's a good question.

CHAIR WILKERSON: I think it does. If we end up going back to that still a tendency to

hesitate. Any other comments?

So, to go back, are we -- so, let me first go back to automation. We looked it up and Stephen found it and it was a Tina recommendation.

So, we'll go back and we'll ask Tina. And she can maybe formulate her thoughts and share that with the Subcommittee before we decide to include that.

Scenario planning we said would also fall back in. And we were just concluding, or at least going back to the traffic safety culture.

And is there a preference to continue to do that? Maybe we can flesh that out a little bit about what that might look like? And --

MR. KISSINGER: I would argue that since virtually no one was around when she was talking about it before. Having a discussion about this.

Because it could make a dramatic change in the way -- it basically focuses one to think more about beliefs, values and attitudes. Then trying to change people's behavior and change people's attitudes.

CHAIR WILKERSON: Okay.

MR. KISSINGER: And it is a squishy kind of nebulous kind of discussion. You can't just snap your fingers and change the culture in the room.

CHAIR WILKERSON: Okay. All right, well, sure.

MR. WEBB: Maybe there is evidence of the safety culture. In 2008 before a panel safety culture that's certainly that's we're talking about going back a few years.

CHAIR WILKERSON: So we'll move on. We'll keep that on the table. Right?

MR. BERG: What again is our agenda?

CHAIR WILKERSON: Right now, what we are here today, are to look at -- come up maybe with a list of stuff. It's whatever you want it to be. I'm just helping facilitate it.

MR. BERG: Okay.

CHAIR WILKERSON: But the goal is --

MR. BERG: So, listing a bunch of things is what we should --

CHAIR WILKERSON: I'm sorry?

MR. BERG: Listing a bunch of topics we think are interesting is necessary. I don't think there's a deliverable effect to be used on account of the --

CHAIR WILKERSON: Well, that's --

MR. BERG: And they know these topics. So, we --

CHAIR WILKERSON: No, no, no. So, let me go back. We did the exact same thing you did when we created the recommendations from the advice memo for the last time.

We can change the format. We don't have to use this chart. But no one else came up with another idea.

So, we thought, let's use what worked the last time. Come up with a list of topics that people think are very important within the scope of our objectives that we can deliver in an advice memo.

These are some of the topics that we had from the last discussion. These are some of the topics we sent to folks in preparation for this meeting, and asked what are topics you want to talk about?

There were only four topics that anyone else raised. We thought, let's go through and see if there are other topics. We raised the affirmation in these other five that have come up.

The goal is to maybe vet those. See if those are topics we want to include as a possible discussion for the recom -- the advice memo.

And then potentially pick people who might want to lead those discussions. Or establish a subcommittee to go into further -- to further vet those issues.

And then do exactly what we did before. But, if you have another recommendation, I welcome it.

MR. BERG: Think of it as an outline really, is what basically.

CHAIR WILKERSON: Anybody else? Is it unclear? Okay. So, the other topic --

MR. LEONARD: Can I ask you to clar --

CHAIR WILKERSON: Sure.

MR. LEONARD: Are you intending these to be topics that you would write something about for the recommendation memo? Or --

CHAIR WILKERSON: For the advice memo.

MR. LEONARD: Okay.

CHAIR WILKERSON: Sure.

MR. McCORMICK: But I think Steve's point is we're not there yet.

CHAIR WILKERSON: Yes. We're not there yet.

MR. McCORMICK: We choose the topics. Then we figure out if there's -- what's being done on your side in that area. And if there's a gap. And then later to make a recommendation. So then you can do more of this or less of that.

CHAIR WILKERSON: So we would -- then the subcommittees would meet. Talk about is it worth a trial.

MR. McCORMICK: Right.

CHAIR WILKERSON: Does it -- are the things we think fit in those scope, are they worthy of making a recommend -- an advice memo. If not, we dump it and then --

MR. McCORMICK: We can make our addendum like scenario planning. So we're coming up with a lot of tracks from behind it to make anything out of it. So, there we go.

CHAIR WILKERSON: Otherwise we can simply have subcommittee meetings. Get subcommittee chairs to come up with ideas and do it by email.

But, this is one way of just sort of facilitating that dialog. The second one was vehicle hacking. That was from last year as well.

We talked about cyber security came out.

MR. McCORMICK: We should let that one go.

CHAIR WILKERSON: Go ahead, you've got the floor you can talk about it.

MR. McCORMICK: We've never had a malicious attack in the White House. Every single attack has been done by researchers and companies that do that work, trying to get more work in the space.

The last survey of the OPMs showed that 63 percent of them weren't concerned about it because of its inability to steal. The ISAC is in place. A beautiful thing.

And it covers a much broader area. Because you guys are even -- with that ISAC, even talk about somebody who's trying to extort a company that stole, you know, designs or something.

So -- and there is conferences. I just chaired one of them. There's at least three more this year that are going on.

You guys have tagged the year as what, the hackathon that we had. And you might have

had tested. I don't think -- I think we're into that point of the Gartner curve that says things are starting to happen when they're supposed to happen.

So, my push back to this is that I'm not clear what more we would add that's not already being done.

MR. BERG: Does there seem to be any topic there?

MR. McCORMICK: No. I can argue a number of those topics. That one I can't substantiate.

MR. BERG: Because it doesn't seem like there's been no hacks so far.

MR. McCORMICK: Because of what -- we're not here to solve hacking. Because of what this Committee could bring to a recommendation that from my purviews they're not already doing.

CHAIR WILKERSON: Right. But we need to talk about cyber security. Right? Because it's a topic.

MR. McCORMICK: Right.

CHAIR WILKERSON: Because our key issue that says up here.

MR. McCORMICK: And until we get to the second phase of the security credential management system, I don't know that we know what the risk is there.

CHAIR WILKERSON: Are there any other thoughts on hacking? That was a topic that we spent a lot of time talking about.

I highly encourage folks to go back and look at the transcripts to see what might have been said. We can leave it on. We can take it off.

We can revisit it later or --

MR. DENARO: Well, I mean, one way to look at this is to envision first the end product.

CHAIR WILKERSON: Yes.

MR. DENARO: Namely or recommendation memo. What does that look like? And then, you know, how do these fit.

I can't imagine -- if we're going to take an approach, because I liked the discussion we had earlier about having this, whether it's a summary or the major topics because we're addressing a new administration and all of that.

I can't imagine that we wouldn't mention cyber security in there. I mean, if I were the new administration people and I read through it and I said no cyber security, throw it out.

MR. McCORMICK: That's different from vehicle hacking.

MR. DENARO: You know, so -- hold on. Hold on. So, if you look at our charter, it says we're supposed to review what are activities that the JPO is doing, are likely to advance the ITS data practice state of the art, where the technology is likely to deploy, and what's the right rule for federal versus, you know, public.

I don't see anything wrong in our summary piece saying cyber security is an immensely important topic. And it is getting a lot of attention.

And our view as a Committee is that the JPO's activities there, given the other stuff that's going on, is adequate to meet that. We don't have to put a recommendation in there.

So, that's all. And that's all the general we need.

MR. McCORMICK: Well, I don't know if it is. Because when -- the thing I objected to was vehicle hacking.

MR. DENARO: Well, okay. We can --

MR. McCORMICK: If you start talking cyber security, when you look at the V2I component, there's a tremendous amount of risk.

MR. DENARO: Okay. So, we can debate that. And then if there's something that we didn't say already, maybe that does become a recommendation. Fine.

But, I think the topic has to be in there some way.

CHAIR WILKERSON: So, we can add that as another topic. Would you like to expand on what you think might be included in that?

MR. McCORMICK: I think we should just rename it to cyber security. I have no objection.

CHAIR WILKERSON: The other part on vehicle hacking, or cyber security, or the combination of the two?

MR. McCORMICK: Just understand, vehicle hacking is a subset of cyber security.

MR. SCHROMSKY: Finally, my question being asked now if it was needed. Because there's a lot of parties of interest in that. So, who's responsible?

What's the answer to that question? Right? So, you know obviously while the other agencies are all concerned about it, and solving hacking maybe.

And you know, let's see whether we call it security or hacking, who's ultimately responsible? Do we use V2V and then to a vehicle? Is it a GM vehicle? Is it them responsible?

Or is it a Ford vehicle? It's a Tesla, or who's ultimately responsible? Is it a separate box outside of your intellectual property?

I don't --

MR. BERG: The answer is the most IT answer.

MR. KISSINGER: This is the kind of issue for a subcommittee. I've got, on the slide -- you had one that talked about a JPO priority.

CHAIR WILKERSON: Sure. That's good.

MR. KISSINGER: And that struck me as the outline that I think Scott and I had been talking about. Is to look at that in the eyes of what we want to tell the incoming administration.

And say, we agree these are the priorities. Or maybe we think these should be a little emphasized. Maybe this is de-emphasized a little bit.

And then maybe there's some stuff after that that you want to add to it.

MS. GOODIN: Well also on the constraints. To talk about the constraints too. Which is the things that he's not able to do because of the budget restrictions.

So, that's on page 41 of his presentation. I mean, maybe we should be looking at those and saying, well, these are important. And we should be spending more on that.

CHAIR WILKERSON: Well, that comes under affirmation, which we're including affirmation. Which is the next topic that we're going to talk about.

Which falls in, you know, some or all of these. But I think the goal is to take time and not just list those people who have recommendations.

So, you know, I'm happy to take them off. Or we can all take them off. But, Bob has said he's interested in cyber security and vehicle hacking.

MS. GOODIN: Well, cyber security is on the constraints list.

CHAIR WILKERSON: Right.

MS. GOODIN: So maybe it might be helpful to understand why.

CHAIR WILKERSON: You have the floor Ken.

MR. LEONARD: Well, simply put you can only spread the peanut butter so far. In the '16 budget we asked for specific increases for Grow America specifically on a nation. And then also increases to the base budget.

We didn't get either of those. So, you know, that led us to having to weed about \$60 or \$70 million out of our planning horizon. And then with the additional \$20 million that had to come out for the ATCMD grants, we really had to make some cuts into the research program.

And it's -- you know, it's not that cyber security isn't an important area. It is an area that we are -- because we're spending so much on the SCMS, which is a critical, it is our number one cyber security issue.

It's essential to the deployment of Connected Vehicles. We had to focus our resources. Now, we're putting something like 16 million dollars into this.

So, it's not that we're not spending any money on cyber security. But we had another small number of millions set aside for additional cyber security research docket.

We fund some of Tim Johnson's research out in East Liberty, Ohio. We fund some other cyber security work and we're just unable to do everything that's on our plate. And do those additionally.

I mentioned Kevin Dopart's automation budget. We had envisioned a fairly robust, I mean, we were hoping for an additional 50 million dollars on cyber -- on automation in '16. We didn't get that.

Even within our existing budget we planned for a more robust program. As we had to figure out -- as automation was the number one goal in Smart Cities, we thought well, if we have to, you know, if we get it here, then the cuts here will have less of an impact.

So, we -- you know, we incorporate some strategy into this. But it, you know, we -- I can't say with certainty what the winning proposal will have with regard to automation.

And to what extent it will overlap with some of the research we had planned. Because Smart Cities are a little bit more of a model.

The appointment approach, I'm sure it will not have -- exactly replace the research and foundational research we had planned on automation.

So, it won't answer some of the questions maybe that NHTSA wanted answered. Or that Transit wanted answered or that we wanted answered.

But, it's not that we're stopping all work in automation. But the nature of that work shifted a little bit with what we have today.

CHAIR WILKERSON: Okay. So, that goes back to the first one. Which was the first topic you said that we were interested in taking out. Which is now one of your constraints.

Can you talk a little bit about the research and the foundational -- what the goal was? Or the scope of what you were hoping to achieve outside of the Smart Cities?

That might help us in figuring out.

MR. LEONARD: Well, and we probably should have the Program Manager here for this. So, I'll invite anybody to jump in on this topic.

But, there's a body of research around human factors issues we saw, which we've talked about in terms of how you transition between stages three and four.

That's research that's got to be done. There's information around understanding some of the technology. There's information on understanding some of the policy issues.

One of the things that I've been having a discussion inside the JPO is this concept of a

grand strategy. There are a lot of people working in automation.

And everybody's working on their little sliver of it with a mental model. But, there's no cohesive view of the auto makers are going to do this. Apple's going to do that. Google's going to do this.

The states have to do this. The Federal government needs to handle this piece of it. It's a little chaotic in the way a natural technology development is.

And we don't know which horse will win on some of the technologies. So, to suggest that we could lay out a grand strategy that everybody will follow is, you know, impossible.

To lay out a grand strategy that says, we know there are pieces of this that the Federal government has to be involved in. We can't have an automation policy where you have to stop at state borders and change license tags to drive across the border.

The Federal government can play a role in that. We know that there are policy issues that we can influence in the states.

We know that there are state issues that they're going to have to address with regard to their drunk driving laws.

CHAIR WILKERSON: CDL, um-hum.

MR. LEONARD: With regard to child neglect. Is it child neglect to put a six year old in a self-driving vehicle? That's a state issue.

So, we can parse out some elements of a grand strategy that help people know how big is the problem they have to deal with. But we're not going to build the cars.

But, as you heard Nate say, we probably will regulate the cars, whether it takes the form of an FMVSS or it fits under existing guidelines.

So, there's a broad area of things we can identify from how do we make sure this technology works and we can ensure people's safety with it. And how can we remove barriers to innovation.

And at the same time, no remove so many barriers that now those fatality numbers start moving in the wrong direction because the, you know, Wile E. Coyote self-driving car company has put out a product that doesn't meet the standards that NHTSA would normally hold everybody else to.

No offense to Wile E. Coyote or the Acme Company.

CHAIR WILKERSON: That's okay. I think it's worthy to, you know, appreciate --- I think we're going back and looking at page 41 and Tab C that looks at that. Because we clearly have said automation wasn't -- the fact that we hadn't revisited it.

And clearly one of your number one constrains.

MR. LEONARD: It's an important area for us. It's our number two priority in our strategy.

CHAIR WILKERSON: So, I think it's worthy of keeping up. I'm happy to talk to maybe Tina to flesh out some of those issues and keep it on the topic list for now.

MR. LEONARD: And I would also say that we see automation as a cross model. And we've talked a lot about it and it's a contest in the context of regulating the vehicle.

But there are going to be profound implications on highways and highway use. And lane sizing and striping and marking. There's going to be a transit component to this.

And there's clearly going to be a freight aspect of automation. But all we're seeing is little demos of, I'll call them turtle pods for home delivery. Instead of dropping a UAV in from the sky,

you have something that pulls up on the sidewalk in front of your house.

So, there are going to be a lot of issues around automated vehicles.

CHAIR WILKERSON: Thank you. Any other comments? So, I'm just going back on that one list that we had on the vehicle hacking/cyber.

Bob, would it be okay to put you as a lead on that? Or are there other people on the group who would be interested in --

MR. DENARO: Not if we're going to have the other one, no. I'll stay --

CHAIR WILKERSON: No. I mean, we can modify that.

MR. DENARO: What's that?

CHAIR WILKERSON: You had suggested that we modify it.

MR. DENARO: To just say cyber. Well, I don't know where it's going to end up yet, so.

CHAIR WILKERSON: I'm sorry?

MR. DENARO: I don't know where it's going to end up yet. So, we'll see where it goes.

CHAIR WILKERSON: Okay. So, do you want me to add -- do you want us to add another cyber security? Or --

MR. DENARO: No. That was the discussion between Scott and I. I think cyber security and hacking are the same thing.

CHAIR WILKERSON: Okay.

MR. DENARO: Although I agree with him that one is a subset of the other. But --

CHAIR WILKERSON: Right. But, which -- I think the goal here is once we -- we know we're going to talk about reaffirmation and then these other topics.

I'm just trying to figure out who after we leave here could create a subcommittee to talk

about it. And then we could maybe as part of our duty, figure out who would be willing too just to run --

MR. DENARO: Yes. No, I don't think I would --

CHAIR WILKERSON: Have a further discussion about this topic.

MR. DENARO: I don't think I would lead the cyber security sub-topic.

CHAIR WILKERSON: I'm sorry?

MR. DENARO: I don't think I would lead the cyber security sub-topic.

CHAIR WILKERSON: Okay.

MR. DENARO: But, before we do that, can I ask a quick question of Ken. I don't want to put you on the spot.

But can you give a rough breakdown of your budget and where it's going? These various chunks?

MR. LEONARD: Off the top of my head -- I mean, let me see. Let me see if I have some notes. It's over \$100 million.

MR. DENARO: What's that?

MR. LEONARD: \$100 million.

MR. DENARO: Oh, yes.

MR. LEONARD: \$100 million is, you know, a rough idea of the budget. Connected Vehicles is probably half of that.

MR. DENARO: Okay.

MR. LEONARD: Okay? Automation is in the neighborhood of a few million dollars.

MR. DENARO: Okay.

MR. LEONARD: Where we've been talking \$20 million to \$10 million. Data systems in the area of a few million dollars.

Emerging technologies in the neighborhood of about \$20 million. Understanding that that is where we book keep the Smart Cities work. Okay?

Interoperability, another five or six million dollars.

MR. DENARO: I'm sorry, how much was emerging did you say?

MR. LEONARD: About \$20 million.

MR. DENARO: \$20 million.

MR. LEONARD: And accelerating deployment adoption in the neighborhood of \$30 some odd million. Understanding that that's where the deployment grants are coming out.

So, there's a big chunk there. But also our standards work and some other activities under that. Our training.

MR. BELCHER: One comment that we did, and I don't remember which advice memo it was. But, it was about communications.

And I was struck by Kirk's question to Brian about the Smart Cities challenge. And about Connected Vehicles.

So, we've now as an industry invested more than a billion dollars in Connected Vehicles. We know that DOT's invested about half of that. And we don't know how much the private sector's invested. But, at least that much, probably more.

And you have an RFI where you're going to give away \$50 million. And you have 78 of the smartest cities, most productive mid-sized cities in the country applying. And very few of them understood what Connected Vehicles was all about.

So, I don't know what to make of that. And I know you're not a communications department. I know that's not your function.

But, it is an interesting -- it -- I mean, it's a pretty big deal. And I don't know whether that's something we can or should comment on.

But, I'm kind of, I mean, I'm not surprised. But I'm floored, you know.

(Laughter)

MR. BELCHER: So, I don't know if anybody else reacted that way. And I don't know what as a community we might want to do.

And you asked the question knowing the answer. But still, I mean, you couldn't have been surprised. But you're probably floored as well. It's shocking.

MR. STEUDLE: Well, then I can remember that recommendation. It was probably two or three sessions ago.

And it really was, you know, for that expertise was not in the JPO. But, you know, trying to make the subs. To talk about these after.

MS. GOODIN: I haven't planned to kind of go forward. This is my observation. Is that the research programs under which Connected Vehicles has been developed, has largely been funded at the Federal level with support from AASHTO through TRB or through other Federal programs.

And cities are not typically part of that. The state highway departments and that's pretty much it with, you know, the Federal government.

So, the cities are not part of that, of that research process.

MR. McCORMICK: It's actually a bit broader than that. I talked to Kirk last year about

having this thing we called the Synergy Project, which is where we get people from Smart City and Smart Grid and Smart Connected Cars, and Smart Infrastructure, cloud processing storage, and get them all in the room. And figure out if there was some way that we could actually create a reference platform of how the internet of things would communicate.

Because, and Walter was at the first meeting last year, he said yes, we've got that all through the Commission of Environment. We believe we could probably use that to show how it works.

The first thing we did was, it became -- it was very obvious that no node really understood what the other one was. I mean, the most was that Smart Car pretty much had their thin slice of the view about what a Smart Grid for them.

And a Smart City had some view of what the Smart Grid did for them. But other than that, none of the nodes really understood any of the other nodes.

So, and with the number of calls that, you know, we both got over this Smart City thing about people wanting to know, well, who's playing in this space. Most of them that were reaching out didn't have a clear understanding.

And so, it's not just the car side. It's all of the "Smart" side. Because there's a thing we have called the internet of things really only exists in total.

You know, it's your Fitbit talking to your phone. Or your nest talking to your laptop. They really don't exist on a large scale framework.

And when you look at the companies that are trying to put something together, the IBMs, the Cisco for the Smart Homes or the Smart Keys, or the Safaris, they have a very thin slice of what the reality actually is too.

To your point, I'm not sure what their role would be in doing this. I mean, you've made a tremendous improvement for me over the years of communicating to the outside world.

Ten years ago there was none. And now there's all of these different webinars and programs that you have.

But, it's the people of faith. It's the DOT and the ITE and the industries involved in this space that I suspect are taking that course and sitting in on those webinars.

And maybe that is a useful recommendation, to create a portal. Or to at least provide that information out to the other agencies mailing list on those other areas.

MR. LEONARD: And you know Scott, I hear what you say. And I think what you're talking about is a bit of a complex problem in that if you talk to a state DOT about what problems they want to address, it's this evening's rush hour.

It's not what technology is coming down the road in three years or five years. And if you ask them about the other things, they'll say you know, what message do you want me to put on the addressable message boards I have to point this afternoon. And where am I going to get good data to do that?

Because they're very tactical. But, there are those localities that are looking at ITS. They realize they can't build the roads, they can't build themselves out of their congestion or their safety problems. So, they're looking to ITS.

We did get quite a number of good Connected Vehicle pilots when we targeted -- remember Smart Cities did not specifically target Connected Vehicles. We sort of solely targeted them.

We did put out a solicitation for Connected Vehicle pilots. And we got quite a few good

Connected Vehicles pilots.

Now, not everybody even in that community put in the best proposals. But, I think from what you saw here today, I hope you'll agree two years from now when we see this on the ground, that we've got some winning ideas here.

I think there are some barriers. I mean, we could be spending a lot of time out spreading the word on a technology, but we don't have an approved regulation. We don't have the approved guidance yet.

And there's a little bit of a starting gate here that has to lift. And we talked a little bit about it this morning.

You know, what is the possibility of voluntary -- of the communities saying, you know what, we're not waiting for the Federal government anymore. We don't need a regulation.

GM has said we don't need a regulation. We're going to equip 20 thousand cars this year. And 20 thousand is not a million.

But, if every manufacturer said, we believe in this technology. And we're looking at the safety numbers. And we don't know how we're going to address that, the increase in fatalities without a new kind of technology breakthrough, and Connected Vehicles is it.

I mean, voluntarily that could happen. But, that's hard. Sometimes industry waits for that level playing field that comes with a unifying regulation, a decision. Because it reduces risk.

And as hard as we're working to nail down the technology and level the playing field, until that regulation promulgates and people see it and believe it's going to happen, there will be people holding back and saying, okay, well how much of my state budget am I going to invest in this technology on the possibility.

It's not only going to be the Betamax, it's going to be the Casio computer that disappears. You know, it's just -- it's never going to gain a foot.

So, I think we're at that threshold. I think we're in a much better place than we were a few years ago. I think there is a possibility for voluntary equipage that didn't exist three years ago.

You know, GM would not have made that announcement.

MR. CAPP: I think you've made it really, really well, Ken. It's at a point where everybody's looking for another proof point.

And the proof point, NHTSA's motion is going to be an important one. You know, we've put in a little help. A value for that.

I think some of the companies will get together with NHTSA's proof point. And the companies will make a real commitment and security stuff will get done.

And then some states will start moving more. And it will -- it's not going to happen overnight. But, it's probably getting done.

MR. SCHROMSKY: But really, you're already doing it to some extent, right? I mean, the area can do five years ago what it can do now.

I mean, they're already breaking now, the car breaks itself. Right? So, there is a camera, now you know, your camera is a forward view camera and there are sensors all around the car, each with attachment.

So, I think one of the challenges of --

MR. CAPP: The thing really, you know, about the DSRC and stuff is either head out of...
(Simultaneous speaking)

MR. SCHROMSKY: The argument is always going to be to the general public saying

you can finally do this. But what is DSRC, you know, have available that I don't already have today?

You know, I believe that Samsung they're doing that in South America. They actually put LED screens in the back of pretty much all cars.

So that if people pass can actually see if when they're almost in front. Yes, so I mean, the industry has already gone there to some extent.

It's going, you know, it's a competitive edge, right? My car can do X, Y and Z. And this person can only do, you know, 1, 2, 3. I can do ten things. Right?

I mean, hey my car had, you know, an airbag. My car had side airbags. All right, so you get in this, you know, competitive advantage.

So, I think one of the challenges in the DSRC, do you even know your vehicle has it? Where do I get that data?

How does this help in dealing with DOT, you state mobile logs. You're really talking Infrastructure at that time. All right? So you need that to communicate to traffic language and the data is a whole other problem.

We're already connected. What data are we getting from it other than too just to, you know, hard breaking two cars off. I stop and it didn't beep.

How are you going to report out on that if you were to? I even mean if nothing happens, or something did happen, is there any reporting mechanisms?

Or just think about that is -- how do you know if everything's equipped, how do I know it works other than tell me. Or how do you --

MR. LEONARD: Well we would expect if every car, yes, was equipped. I mean, that's

the goal here.

And you know, get the cars equipped. Get the Infrastructure equipped. Start getting the kinds of benefits of all those applications that we've talked about.

You should see a reduction in collisions. Which means fatalities and property damage decrease. And that would be the measure of success.

In terms of V2I communications, you would have that data. You could use DSRC data to populate the information you're putting on your addressable message boards.

For states that are experimenting with active lane controls and active traffic management and, for example, say, using a shoulder for hard lane running during rush hour, but then there's a breakdown. They could use DSRC information to help manage those lanes actively to get the priority traffic, say, where you're running your buses and car pools in the right-hand lane, make a space for them where you can get other people out of those lanes so that they can shift into them when there's an actual breakdown.

So, there's a lot of ways communities could use that data if they have it. The trick is getting to the point where everybody has it.

It's kind of like -- and I heard this analogy from the head of Consumer Response. It's like going to high definition TV. How do you get from we all have an analog TV to how do we get everybody over to digital? And that's the kind of transformation we're trying to do here with this too. We'll have a whole new world once you make that transition and once you make that commitment. And we've viewed the regulation as being that tipping point. But I think it opens up a whole new world of possibilities once you get there. But we still have to get there. And we have a couple of barriers in front of us.

MR. KISSINGER: A comment and a question. The comment: there was a major conference that ENO Foundation put on last week called Convergence. Convergence of Transportation and Technology. Part of their digital cities initiative. There was virtually no discussion about connected vehicles as we define them. Lots of discussion about shared mobility. Lots of discussion about how you integrate all of the various options for mobility together.

It's a big space. And, you know, there's a lot going on. I guess the question I had is, which I've been thinking about all day -- and I know we've got estimates for the sort of ultimate effectiveness of V2V. And you guys presented some of the study, and I kind of think it's too hard to number. I don't know that's really a completely solid estimate.

But do we have an official estimate for V2I at this point? I mean, sort of back to Kirk's point. I mean, if you're a state DOT and you want to get ahead of the game, is there something that -- do we think there's so much potential that they'd be fools not to jump in now and start doing it?

Or is that still -- I mean, I'm not aware of it. I mean, you know, there's lots of little studies to tell you, look, you do this for intersections. You know, you do it for stop signs or you do it for crash reporting, or whatever, you know, but --

MR. CRONIN: So, I mean, what we have to date really is just some model results from sort of the mobility applications or the environmental applications and some of the ISE applications for those.

And then maintenance for the ten percent to the one percent. It varies in the application. That is part of why we wanted to see how it's -- to get that definitive, you know, methods information built on pilot tests.

So, you know, we have some model results. It's from 10 to 20 percent just depending on which application. There were pieces in it. It's not -- there's not a -- if you put these 20 applications in this city, we haven't really done that.

But there's definitely a suite of applications that you put in infrastructure and the transit corridor. You will get the safety applications plus you could use it for transit applications. Plus you could use it for just the actual order of operations. So, you know, there's some intuitive pieces. But it's really the safety pilots where we get the first chance see the benefits of implementation.

MR. LEONARD: But I don't think we've calculated those percentage numbers into dollars. I don't think we've put it in economic terms. Which is what I think you were asking. Unless we've done that in drafts.

CHAIR WILKERSON: Okay. So, in the interest of time, we had discussed, potentially, I think around 3:00 having TransUnion make their presentation. I know that one of you has a -- has to leave at 3:30 and another person is on standby for 4:00 or something like that.

In the interest of time, we've got a couple of action items that I've jotted, and if there's others, please jump in. One is that we will do a poll for a meeting in July and August, with potential dates for proposed meetings. And that would be in Washington.

One of the recommendations would be that, since we're going to be meeting then, we could step back, take a look at these topics. I'll be happy to reflect and maybe summarize some of those headings and why we looked at some of those headings. And maybe do another poll asking folks who want to revisit those topics and see which ones and why and what subtopics might fall under there.

But particularly with the reaffirmation, it's clear that there was a lot of consensus around that one, that we should take a hard look at reaffirming what's currently being done in the ITS program and what priorities should remain given all of the work. And maybe, Scott, you might want to reiterate this or sort of expand on your thoughts on that, what that might include. It might be worthwhile for each of us to go back and take a look at the recommendations and the work that's being done to figure out what we each believe might be one of those critical issues that needs to go forward within the next administration.

Scott, do you have thoughts on that?

MR. BELCHER: I mean, I don't at this point. I think that the best thing we can do is look at what we've done and look at the priority list for, you know, the priority list out of the strategic plan. And then we'll work from there.

CHAIR WILKERSON: Okay. So, if we could create a poll to sort of solicit feedback from everyone, come back with a tool with recommendations for not only topics, how they're prioritized with sub-topics and priorities that might fall under that.

So, I'd be happy to take a stab or work with someone to help do that. Or work with Stephen to maybe formulate that. And then, maybe before we send it out, send out a draft to everyone and see if it has the consensus of everyone before we go out and solicit the poll. Are you guys amenable to that? And then we'd also leave room for other topics. Yes?

MR. KISSINGER: I would suggest one additional step.

CHAIR WILKERSON: Okay.

MR. KISSINGER: Whenever you think it's appropriate. So, why don't you just solicit everybody, let everybody in the room, by email, rank. If you end up with six of these, let them

just vote high, medium and low or something.

CHAIR WILKERSON: That's what we're doing. That's what that would be. That's what the poll will be.

MR. KISSINGER: Oh, okay.

CHAIR WILKERSON: Is that fair?

MR. KISSINGER: Yes.

CHAIR WILKERSON: But also dial down a little bit, because some of the people who aren't here won't understand what relationship means until you connect it. So, I would say I would take a stab at maybe clarifying some of those headings a little bit. And then lead an opportunity for people to expand.

If you feel very strongly about reaffirmation, say what those top three things are you think we should be reaffirming so we don't come back to the meeting trying to guess what those are.

And then leaving it open for other topics. For instance, one of the topics that I would like to revisit and think about is fleets. I've been following some of the fleet issues in ports. Some of the ports are being dredged. You're going to have various capabilities. We're going to have some of the largest ports, facilities that have the largest ships in the world coming now in the ports. They're implementing an ITS-related technology. So, it's a pretty amazing topic. I'd love to think about that.

Also, fleet has come up. It was raised in the initial discussions back in November and I think again in April. And then we ended up taking it out. And I don't really know why. But you've raised it a couple of times. And it's come up a couple of times. So, it might be worth revisiting or adding to the list.

But any other thoughts or comments or topics? But if there's a consensus, I'll be happy to take a stab at that. That way when we come back in July we'll have a pretty good idea of what those priorities are. Possibly even figure out who might want to chair or lead some of the initial drafting of those particular topics. Yes?

MR. WEBB: Just a question. Is it just rural only that you're interested in? Or is it both?

MR. ALBERT: I think our argument was when we looked at the statistics for safety, rural is less safe. And so maybe they needed a leg up. And so it would be rural deployments.

MR. WEBB: A more of a focus -- a narrow focus on that.

MR. ALBERT: It could be. It could be spot, whatever. Spot applications and other than we're more community-based deployment, whatever.

I do have one comment. And I know it's late in the day. How many people have read the Beyond Traffic report? A lot of us? You know, I thought it was -- it's a fantastic job that they did, the folks who were involved in that.

One of the things it pointed out to me I guess when I -- was a little bit of fear of where transportation is now and where it's not going in the future. There was not a lot of discussion of how do we create kind of a systems of systems to move things from the farms to the port or back and forth. And maybe this is supply-chain management. Maybe it's not. But no one really looking at, how are we ever going to achieve that?

I don't know if anyone else walked away after reading the report, which was really good. I mean, the facts in it were fantastic. The message was good. But I kind of walked away saying, it's still a lot about stove-piping and no one really looking at, you know, if you wanted to design the ultimate system, what would it look like? What deficiencies? And then how does automation fit

into that?

I don't know if anyone else had that thought. But it seems like that would have been a really good charge of this Committee to encourage that type of analysis. Not necessarily to do it. But to figure out how do you create a systems of systems transportation.

MR. DENARO: Do you want to leave some room for write in candidates?

CHAIR WILKERSON: For what?

MR. DENARO: Write in candidates.

CHAIR WILKERSON: Oh, I said that. I said it would be empty. So, basically -- and I'm happy to come up with a sample and then share it with everybody, and you can tweak it, so that before the poll goes out, it includes what everybody wants.

But it would be those topics, sub-topics. So, within those topics, things you care about. Or which should be prioritized, like reaffirmation. And then there would be room -- opportunities for you to add.

But if you add, please explain why you're adding, or be willing to take the lead on it. Or, you know, possibly come up with a couple of subtopics.

MR. DENARO: Well, like Steve's comment just then.

CHAIR WILKERSON: That's a great topic.

MR. DENARO: So many of us might go away and say, you know, there's a thought, you know.

CHAIR WILKERSON: Yes. So, that would be a great one, Steve.

So, that's the only recommendation I have. Based on where we are, and in the interest of time, unless others recommendations for a suggested approach.

Okay. Then I'll work with Stephen and -- or send a -- maybe initiate a draft to circulate to folks to embellish. And then we can plan to get something out hopefully before the end of April. How about that? Would that be good?

MR. DENARO: Okay.

CHAIR WILKERSON: Okay. Any other comments? Topics? Steve, I'll remember to -- will you remember that topic you just -- that issue you just raised and be willing to add that? Okay, great.

DISTRACTED DRIVING DISCUSSION

Okay. So, we have TransUnion. Okay, let's see who's speaking.

MR. LEONARD: Does Scott want to introduce?

CHAIR WILKERSON: Make some introductions?

MR. McCORMICK: Yes. Or you guys can introduce yourselves. TransUnion has been a longstanding board member of the Connected Vehicle Trade Association and has been involved in a great deal of work in this industry as one of the insurers in figuring out how to mitigate the problems caused by cell phones in cars and looking at whatever's going on.

They originally had asked me if I could introduce them to some people in D.C. that they could come talk to about this. And I said, well, yes, we can do that. But we happen to have an ITSPAC meeting come up. And I think it might have some universal benefit for this group as well as DOT here to hear it first.

So I asked them to come in and give us a short talk on their purpose of distracted driving. So, why don't you guys go ahead and introduce yourselves?

MR. McELROY: Okay, great. Thank you, Scott. My name is Mark McElroy and I am the executive vice president over all of the insurance divisions for TransUnion, located in Chicago, Illinois.

The two other individuals with me today, Jonathan McDonald, who is over all of our government-focused entities. So, we have a dedicated government vertical with TransUnion, it's located here in the D.C. area. He's been with us for a long time. He served the country in the Marines for quite a while, as well.

And David Coleman, who is filling in diligently for Rob Guba. Rob had a couple of challenges getting here this morning and had some cancellations of flights. So, David is with Cellcontrol, located right here in the Maryland area. So, a couple of locals are with me today.

The presentation, I think is -- you have it, or is it --

(Pause.)

MR. McELROY: All right. We'll try to get through this very quickly to just make sure we have, you know, any time that there might be some questions.

We're going to start out with just a couple of just hardcore facts here. And I think most of you might know about these, obviously. But we have about seven billion people in the world. Interestingly enough there's about 6.8 billion cell phones.

So, we kind of have this initial issue where, you know, we've got people that check their phone, right? Americans, on average, check their phones about once every ten minutes. And then there are peak times. And almost like peak travel times, or you know, peak communication times, that actually comes down to about once every six seconds. Okay? Or roughly 110 times per day.

Okay. So, I know that Bryan from Verizon probably realizes and knows some of these stats. But at the end of the day, 91 percent of people keep their cell phones within three feet of them 24 hours a day, seven days a week, 365 days a year.

I think if we look around the room, we see mobile devices. I've got two in my pockets. One for home and one for work. They're all pretty much there, right? And people are trained to respond, right? We're trained to the vibration in our pocket or the ding or the buzz, or whatever it might be, our special, you know, tone from somebody who means a lot to us.

And there's also this thing of FOMO, right? The "fear of missing out." Especially in and around teenagers. I have, you know, 20 year-old children, and even then, there's this cultural connection that they don't want to miss out on anything that's going on.

And then there's the expectation that we must be continuously connected. Whether it's instantaneously wanting information from Google, or wherever it might be, it's also from work and the things that we do every day in and around our lives.

So, what happens in this connected world? We really have issues, right? Each day we have, you know, 8-plus people that are killed, a little over 1,100 people that are injured due to distracted driving. Now, this doesn't mean that it's only people looking at their mobile devices or texting or playing games. It could be a number of different things. So, it's just generally lumped into that one area.

Auto crashes by far and away are the number one killer of teenagers between 16 and 19 years old in the United States. And I'll also say that it's also not teenagers that are the only people that do this, right, when they're driving down the road.

We know that automobiles are safer. A lot of the work that this group has done and other

affiliations introduced lots of protection devices into the vehicle, right? They're definitely getting safer. We talked a little bit about sensors and cameras and things that are going on. Lots of good things that are causing vehicles to hit each other less.

But while automobiles are safer, people are not. Plain and simple. Fourteen percent surge of traffic deaths from 2014 to 2015. This is the largest year-over-year increase in about 50 years.

We have customers, TransUnion does, from my particular area in the insurance world, that are talking about it pretty regularly. There's Warren Buffett speaking about GEICO results that were diminished quite heavily. You start talking about a decline in gasoline prices and increased mileage, but the jumps in deaths were much higher in their frequency and their severity really increased as well. Allstate had some mention of it in their recent results as well. Along with a number of other groups.

So, we know that in and amongst the industries, and in and amongst the families, this is impacting people. Okay? Laws alone, though, we know they're out there, but we know that they're also proving ineffective. Okay?

Forty-three states have made texting and driving, or some combination of those, illegal. Okay? Yet we have 60 percent of moderate to severe teen crashes are caused by distraction.

A few other stats. A quarter of teens respond to text messages one or more every time they drive. I find this one amazing: 20 percent of teens and 10 percent of parents admit that they have extended multi-message text conversations while driving.

There are a lot of people that are not telling the truth there. I have this routine when I go down from Chicago out to O'Hare, I take the train most of the time, because it's usually a parking

lot out there. But even when it's not, I stand on the train and watch and just kind of take a sample of how many people are texting. I'm going to tell you something that we've been really tuned into look at.

Nineteen percent of drivers admit to searching the web while driving. So it's not just text messages. It's Facebook, things like that, cause real distraction.

And then TransUnion did a survey when we initially rolled out our relationship with Cellcontrol, talking to parents of teen drivers who indicated that their number one concern about their child's safety was using their phone when they were driving.

And then, at the end of the day, the crashes of distracted driving costs the United States about 175 billion dollars per year.

MR. McCORMICK: And how do you come up with that \$175 billion?

MR. McELROY: So that's actually -- I'll give you the references at the end. They're in there. You know, there are some estimates out of the frequency of the claims events. It's an estimate out of that. It's not a hard number. But it is an estimate. I'll give you at the end of where it came from.

Okay, so we definitely know that technology is part of the problem, right? You know, it's part of what's going on. It's not everything that's going on. But we also believe that combining it with education and legislation, that it can also be part of the solution. Okay?

Again, I like to refer to younger people, they have a tendency to listen to their phones before they might listen to one of us that might be their parents. And so that's a unique aspect of this education that we think is critically important as we start to say, what are the things that we can do?

So, what have we learned? I mean, some of the things that Cellcontrol and TransUnion have kind of done in and around this space, we gather a lot of data, obviously, from TransUnion's perspective.

But this is a short-term study that was done. And in an environment where the employees that were driving company vehicles have been reminded, reminded, reminded that they are not to text and drive behind the wheel of their vehicles, okay, of the corporation vehicles.

Before, you know, when we looked at this from a pre-protection mode, average trip time, 18.43 minutes. At the end of the day, there's about 27 percent of driving time that that were for utilizing applications or using their phone while they were driving company vehicles. Okay?

So, a real issue. So, if you think about it, out of, you know, out of an 18 minute drive, they're roughly using it for five minutes of the time while they're driving a vehicle.

Now, when this says phone usage essentially drops to zero, some of the things that we're able to do in leveraging some of the things that Cellcontrol is really noted for, is a pre-protection mode.

So, now we're back to this learning environment where you can actually show people what they're doing wrong behind the wheel. And they just naturally engage the things and put into a protection mode. And essentially the utilization of what we'll call distracted applications or distracted events, can ultimately drop almost to zero.

Now, it's not always zero, because people who may still try go ahead and get on those applications. But it roughly drops to a non-existent level.

So, that was a study that we did over a period of a month or so. And we had a couple hundred vehicles that were involved in that. But it's something that we've seen multiple times.

We also did a two million mile study with another very large retail organization inside the United States. And there was 140,000 events that were blocked during the process, or noted during the process.

MR. McCORMICK: Can I interrupt and ask, did you -- during that, did you -- with the cell phone usage dropping to zero, did you see a complementary drop in traffic incidents from those users?

MR. McELROY: Yeah, so on that particular one --

MR. COLEMAN: So, the period of time was only 30 days. It was a small sample. So, not a long -- not long enough to actually see a drop in severity of crashes. But are other core large customers who have been on the program for several years have absolutely eliminated severity and frequency of crashes.

MR. McELROY: Yeah, we've got a little sample that will show that to you.

So, some of the other statistics that we have kind of in our house. Just over a period of about 18 months, miles protected, about 440 million. Blocked SMS or apps, again, almost 40 million, 38, 39 million. And another 33.1 million phone calls during the process. So, this is collectively, what we would say, protected miles under a program that is available out in the market.

Here's some of the real world examples that we've got. Scott, just to answer your question, probably the longest one that's up here is the Budweiser representation. This is the Budweiser Distribution Company. It's been using the service for about three and a half years. It's helped reduce their accident rates by at least 50 percent and lower their insurance costs by thousands.

We also have another recent study. And it is so new that we really just didn't put it in here. But another thing that we've seen is, over a period of time where individual organizations might have a distribution of blocking capability out in their fleet, where they're seeing their accident rates, about 75 percent of their accident rates are happening outside of that group. And so it becomes a real easy decision for them once they start to think about that.

We've talked about some, you know, with product usage and the things that are going on. And then maybe a little bit more information on an oil field services company that's had a 40 percent reduction in accidents. And that was during the first six months.

So, those are real life events and real life things that are going on. We've also had a significant amount of opportunity to interact with the public. And one of the things that, like we said, when TransUnion did our -- when we did our study, we know that this is first and foremost. This is top of mind for parents. They know that, at the end of the day, they do not want their children using their phones while they're driving a vehicle.

I've highlighted on an event which is from the Today Show. There are a series of different solutions that are out there. They highlighted some of the things that are being done by Cellcontrol and from TransUnion. So, we like to see and hear when consumers see a product they can benefit from and they can deliver it and put it in their vehicle.

So, a couple of other things of what we've learned, right? We can't, as far as what we've seen, it's very clear that you can't just throw something out there and expect to force, you know, to force it on individuals.

At the end of the day, these are a couple of things, from an adoption perspective, that we certainly see are very critical. That is set the expectations based on the user need. So, what

exactly are they doing? And if it's a fleet, how are they operating? How are they conducting themselves?

We have some fleets and businesses that we've seen and done studies with where they're actually utilizing text messages to tell the people where to go to the next service call.

And so it starts to become this issue that's almost, you know, part of their everyday process.

Work across multiple devices and platforms. We probably all have one or two devices in front of us. I think you'd find a real consistent pattern where there's a couple of big behemoths out there, but then also it's got to have multiple devices that it's capable of serving.

It certainly has to be customizable for the safe driving policy audit or protection mode. This goes back to educational aspects of how this works and what goes on. You can tell somebody and show someone very quickly what they're doing, what's causing distractions. Are they doing things that might not be viewed as driving safely? Or driving sanely, quite honestly. You know accelerating rapidly, cornering quickly. Decelerating very quickly. Using their phone while they're behind the wheel of a vehicle.

It's critically important to not just throw it out there and have it one way or you know, kind of take the highway, right. So, if you give them the ability to learn and then engage the opportunity to stop the activities that we're trying to stop.

The educational component with driver feedback, that goes back to, if you think about what people do with their phones, they share things on Facebook. They share things on Twitter. It's just this connected environment. Just like you were just talking about each of the vehicles. That educational component to show them or put them in somewhat of a quasi-competition, I can tell you first-hand it happened to me. And I think sometimes my kids are tired of me saying, hey,

what was your score? But it works. And that's how we're getting feedback.

And let's identify the driver and the passenger. I don't think that any solution that is broadly accepted is going to allow or disallow the utilization of a phone. At the end of the day, identify that driver and his passenger is something for a universal application that could be critically important too.

And then the last but not least, minimal impact from the technology. Battery, performance, how was it utilizing anything that might be going on on the phone. So, we don't want to disrupt or change that experience that the individuals have in the utilization of their mobile device.

So, that's really kind of what we learned. So I kind of wanted to give you an idea of what's out there, right? And how many things are going on at the same time. How many people are using them. Some of the experience that we've seen. And then we wanted to just walk you through real quickly in three slides, how does this really work? Right?

And at the end of the day, any time you're going to be identifying whether the person is in the driver's seat or the passenger seat, it becomes a unique opportunity to have to identify what the vehicle is, where the vehicle is, the orientation of the vehicle.

So, at the end of the day, from a self-control perspective, it's a device is mounted in the car, whether it's up on the windshield, it's an OBD, it's built into the head unit. It can be anywhere in the vehicle.

But what it does is it actively identifies what's going on in the vehicle. And it can actually parse the vehicle to protect the driver or the entire vehicle on its own. Okay?

So, it's really a transparent application. It is connected with the mobile device. And then

it has a recording capability, up to either the owner of the vehicle or the owner of the fleet, the business owner.

And so all of the pieces kind of come together and start to transform into, what does it look like from my own dashboard? And so obviously, again, if you're thinking about parents or a fleet, it would be the opportunity to provide the feedback to what's going on. What happened with the vehicle? Where did it go? How fast was it going? Max speed. Maybe some cornering and mistakes like that.

This is actually Jesse Hoggard's, which is part of self-control. I couldn't put mine up because my numbers aren't that high at this point in time. But, at the end of the day, it gives you lots of input on what's going on there.

And then what does it look like on the device? So, as an individual driver, you can see kind of the driving score or the phone user score. It gives you miles driven, time spent driving, and then some points earned, that whole process of gamification.

Trip activity so you can drill into each particular drive. And then at the end of the day it gives you each of the events that may have happened along the way. And you can even drill further into those and understand what those events were. Whether they were braking events or accelerating events. So, it gives you that active feedback.

And if the person was using the phone along the way, we have a phone indicator as well. So, all these pieces kind of come together.

So, last but not least, and this is critically important, because this is what we believe drives everything here. And that is to prevent distracted driving. That's what the value of this is. Right, to motivate driver performance and improvement. Give people that educational piece.

Blame it on the device. Blame it on mom and dad. Blame it on the fleet owner. But it gives them a nice out. Right? It gives them the opportunity to know that technology is playing a role in making them or having them or having them be safer on the road.

Optional location or parental controls, geofencing and things like that that would send up alarms or send a text message to a parent or to a business owner. And then in some cases, you know, insurance centers. We have customers that are receiving discounts, not only on the device, but the solution itself. But a lot of organizations are beginning to utilize some of the TeleMax data that comes out of this as well.

So, behind this solution is a whole layer of data that allows them to really benefit from an insurance perspective, an insurance rating perspective.

And then in every case, again, the ultimate goal that we stand for is really to utilize this data and this capability to give peace of mind to people. To stop some of these things that are happening. One of the fleet customers that I didn't point out was the Budweiser item. And that it also helps these organizations stay compliant with state rules and state regulations.

And so if there is a mandatory or there is a no texting, they can actually back that policy up by delivering their rights to count the vehicle.

So, I told Scott I would get through this very rapidly. And I tried to get through it as quick as I could. But I think, at the end of the day, what we would ask of the Committee is to really consider undertaking a recommendation for the joint program office or, you know, relevant DOT administration to study the solutions that are available out there to effectively eliminate the use of mobile devices with driving a vehicle.

And then the other piece, furthermore, is measuring such solutions in conjunction with new

driver rules. Like, a lot of states have graduated licenses. Or you can't have, you know, friends in the vehicle during your first year. But how can we impact that positively in the licensing area for those graduation plans when somebody does have repetitive distracted driving?

It's an opportunity, again, to see where we can really make an impact when people are utilizing their phones behind the wheel.

MR. SCHROMSKY: I have a question. Can you work this, so now it engages for instances if you're just using a phone as a navigation device?

MR. McELROY: Yes, sir. It could be -- it's application by application. And it can be done by an app.

MR. McCORMICK: Yeah, it almost offer award significant to eliminate the distracting use of mobile devices. Because exactly the same thing. I use it for navigation. I don't look at the device because it speaks to me.

MR. McELROY: Correct.

MR. McCORMICK: Turn left, turn right.

MR. McELROY: It also allows for any, you know, like listed phone numbers so the parent's phone number or a 911 obviously can always get through.

But, yes, that capability's there.

MR. WEBB: Just a quick one. Obviously it has GPS capabilities. If I'm stopped at a traffic signal for two minutes or whatever, am I able to use the mobile device because I'm not moving? If I pull into the corner parking lot, can I use it?

MR. COLEMAN: It's configured by the fleet or by the parent what that delay is. So you can end a trip. And then you can do a counter.

So, if you're a parent and you don't want traffic lights, things like that, you'd probably set the counter about 30 seconds. But the goal is not to allow the phone come out when you're in traffic or at a stoplight.

MR. McCORMICK: So, do parents mostly buy this for their kids? Or do they put it on their own phones?

MR. McELROY: So, I'd say it's a little bit of both. I think I would say that a lot of the consumer direct activity has been parents buying for their children. And I think then they get pressured into putting it in their own vehicles. That happened in my house. I happen to have the app-only version. So, I get it coming from both directions.

The app-only is more of that educational tool. It's not employing the policy into the car. But then when I get into my other vehicle, it's there. And it does deploy the policy to lock it.

So, I was peer pressured into it. I got it for them. And they said, thanks, you need it too, because you do this while you're driving.

And you know what? They're right. They're right.

MR. SCHROMSKY: And it's no different from being in the insurance industry. There's no -- nothing to say that other insurance firms other than yourselves would opt in and say, hey, we saw from your profile, your policy. Just see that on the risk. When the other day they got an announcement that I'm aware. They gave me a discount on my, you know, health insurance or whatever it may be.

So, in some cases it could be after market. A lot of insurance companies would say, hey, it's a huge loss for us. How do we do it?

MR. McELROY: Yeah. And it just doesn't take much to say, you know, it's actually

very affordable. We see that quite a bit. And, again, TransUnion's position is we should be able to allow the consumer to leverage this to their benefit.

MR. McCORMICK: Aside from the private entities, the commercial fleets, have public entity fleets, the state DOTs, city DOTs, have they put it on their hundreds and thousands of vehicles?

MR. McELROY: We do not have any government deployments at this time. None.

MR. McCORMICK: Okay.

MR. McELROY: And Jonathan and I spent quite a lot of time talking about, you know, what is the right proposal and what is the right opportunity, but we are reaching out to them.

MR. COLEMAN: The early adopters are some of the benchmark kind of best known fleets in America. Like Sears and TiVo and DirecTV. Places like that.

MR. McCORMICK: With regard to the apps, because we individually will consider whether that's something we wish to add to the list that we put together already today. Is there any other questions? How long has this been out?

MR. McELROY: Four years. About that it's been out, yes.

MR. COLEMAN: Well, 2009 is when it first launched. About four years in the consumer space. But most of our customers are commercial fleet with those. We've seen a lot of uptake in other countries actually. In some cases a little bit faster than the U.S.

MR. DENARO: How is Cellcontrol affiliated with TransUnion?

MR. McELROY: So, TransUnion and Cellcontrol entered a long term relationship together about 12 months -- 10 months ago. So, we, you know, it's an organization where we both play in the same space.

The Cellcontrol individuals are technologists. They're engineers and we address issues and challenges with the consumer and day-to-day insurance world. So, that's kind of how we came together.

MR. DENARO: Is that an exclusive relationship?

MR. McELROY: It is from an insurance perspective. And we have a small position with them.

MR. DENARO: Okay.

MR. McELROY: Okay. Thank you very much for your time. We greatly appreciate it. I know it's the end of the day. But thank you for letting us spend some time with you.

(Applause.)

DISCUSSION OF ACTION ITEMS AND NEXT MEETING

CHAIR WILKERSON: Okay. We're back on track. The last item on the agenda was to follow up on the action items from today. And I don't have a whole lot. Hopefully some of you have taken notes.

The one action item I discussed a little earlier was just simply that we would send out a poll seeking recommendations and try to come to a consensus for a meeting in July or early August. And that we will send that out before the end of April. I'd like to do both of those at the same time.

The other poll was in response to our advice memorandum. Which, again, we have quite a bit of time. So there shouldn't be a whole lot of anxiety about it. But the hope will be that we could come up with a list of topics to include in that advice memo that each of us would revisit

what's already been done in light of Scott and other's comments about what issues might come before the next administration.

And then other topics that we'd like to talk about, what we believe our priorities. So, we will prepare a poll for that and seek your input as well as on the existing topics. And then what role you might want to play in any of that when we come back and have subcommittee meetings in July or August.

Those were the two only real action items that I had. Scott, we had solicited your input for the possibility for other people you might want to have speak. Places we might want to go see or places you might want to have meetings in the future.

So, I encourage people to really think about that. Although we understand there are some constraints on time and funding.

MR. McCORMICK: Well, I would like to, you know, you've offered that you would have -- could have a speaker come in and talk to us about the rural issues. And so certainly --

MR. WEBB: Well, it was about traffic safety.

MR. McCORMICK: Oh, it was traffic safety. I was going to ask if there's one on rural issues, that would be valuable too. Because --

MR. WEBB: I can get you one.

(Simultaneous speaking)

CHAIR WILKERSON: So, maybe Scott you could remember to maybe send that the next time we do a solicitation. If you're interested in that. Would you be willing to address some names for potential speakers on that topic for the next meeting?

MR. McCORMICK: Yes.

CHAIR WILKERSON: Okay. All right. So, that's it on my action items. Are there other things you'd -- maybe we should be doing? Things we could do better? Ways we can operate more efficiently?

MR. McCORMICK: I do want to thank you for your service as Chairman of this Committee.

MS. GOODIN: Yes. You did a great job.

CHAIR WILKERSON: Oh, thank you.

(Applause.)

CHAIR WILKERSON: Thank you for that. All right. I don't have any other comments. Why don't we ask Stephen if he has anything, he or his staff has any other parting words?

MR. McCORMICK: Stephen, thank you and your staff. For all you've helped out.

CHAIR WILKERSON: Yes. Especially for all of your time for being here. Okay. Well, thank you. The meeting stands adjourned.

(Whereupon, the above-entitled matter went off the record at 3:52 p.m.)