U.S. DEPARTMENT OF TRANSPORTATION

OFFICE OF THE ASSISTANT SECRETARY
FOR RESEARCH AND TECHNOLOGY

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INTELLIGENT TRANSPORTATION SYSTEMS PROGRAM
ADVISORY COMMITTEE

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MEETING

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WEDNESDAY
AUGUST 13, 2014

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The Committee met in the Key Bridge Marriott Hotel, Capital View Room, 1401 Lee Highway, Arlington, Virginia, at 8:00 a.m.

PRESENT

STEVE ALBERT, Montana State University
SCOTT F. BELCHER, ITS America
ROGER BERG, DENSO International America, Inc.
JOSEPH CALABRESE, Greater Cleveland Regional Transit Authority
JOHN CAPP, General Motors Corporation
GINGER GOODIN, Texas A&M Transportation

Institute
DEBRA JOHNSON, Long Beach Transit
STEVE KENNER, Ford Motor Company
SCOTT MCCORMICK, Connected Vehicle Trade Association
RAJ RAJKUMAR, Carnegie Mellon University
BRYAN W. SCHROMSKY, Verizon Wireless
SUSAN SHAHEEN, University of California, Berkeley
GEORGE T. WEBB, P.E., Palm Beach County, Florida
SHERYL WILKERSON, Michelin North America

ALSO PRESENT

GREG WINFREE, Assistant Secretary for Research & Technology
KEN LEONARD, Director, ITS JPO
WALT FEHR, Program Manager, Systems Engineering, ITS JPO
STEPHEN GLASSCOCK, Program Analyst, ITS JPO; ITSPAC Designated Federal Official
STEVE SILL, Program Manager, Vehicle Safety Technology, ITS Architecture and Standards
BOB RUPERT, Technical Programs Coordinator, Office of Transportation Management, FHWA
NAT BEUSE, NHTSA
BRIAN HOEFT, Rural Transportation Commission of Southern Nevada
SHEILA ANDREWS, Auto Care Association
ALISON RUPERT, American Road and Transportation Builders Association

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Adjourn

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

(8:05 a.m.)

OPENING REMARKS

MR. GLASSCOCK: All right, so welcome everyone to our second meeting. I hope everybody made it in okay. No flooding, not major delays. I'm Stephen Glasscock, the DFO. If you have any questions, please let me know.

And as a reminder, everything is going to be recorded. And so, if you could identify yourself, it would probably help the court reporter.

A little housekeeping. The restrooms are in the far corner, that direction. And at any time throughout the day if I can help with this meeting, then please let me know.

And with that, I am going to turn it over to Greg and Ken.

ASST. SECY. WINFREE: Steve, let me ask you. Do we have any particular evacuation guidelines we should follow? Can we get someone from the hotel to come up?

MR. GLASSCOCK: Sure.

ASST. SECY. WINFREE: Okay, great. Thanks.

Good morning, everyone. I am Greg Winfree, Assistant Secretary for Research and Technology with the DOT, the organization formerly known as RITA. And as many of you may recall, that configuration, up until January of last year with the omnibus bill that was passed by Congress on the back end of that, RITA was elevated into the Office of the Secretary. And the thought process there is that we are more closely aligned with the Secretary and the most senior levels of the Department. But more importantly, it gives us kind of a bully pulpit and flexibility to work more collaboratively with the operating administrations at DOT. So, we see it as a big positive.

Hopefully, there won't be any obvious changes for folks who work with us on a daily basis but that is how the new configuration works internally.

I wanted to again say welcome to everyone and thank you so much for donating your time to this enterprise. This is a very important initiative departmentally. You are, of course, familiar with the V2V side and that is most immediately an issue with NHTSA where we work with federal highways, federal motor carrier, we work with the Maritime Administration, the Federal Motor Carrier Administration. So, there is also Federal Rail and in some aspects Federal Aviation. So, the technology platform at large has great application but also specifically for surface transportation. We are very much encouraged by how this technology has developed. We are encouraged by the NHTSA announcement of an Agency decision to move forward. We have another decision planned by NHTSA at the end of 2014 regarding heavy trucks and guidelines for federal highways for infrastructure, we are anticipating in 2015. So, we are dab smack in the middle of important departmental announcements regarding Intelligent Transportation Systems. So, it is a great time to be involved with this initiative.

And thank you to the folks, the 14 folks who are

returning as members of this FACA. And welcome to the six new members. We are very much encouraged to have you on the team.

For those who are new, probably one of the things to keep in mind is that the Federal Advisory Committee Act, the way that -- and Steve has, of course, given you the guidelines but the way it works most effectively, certainly in my experience, I have had experience working with FACAs in other capacities and what I have found to have been most successful is when the Advisory Committee works collaboratively and speaks with one voice. I have, again, worked with other FACAs that have taken on their own missions and haven't worked collaboratively with the organizations that have supported them.

That hasn't been an issue with this group. We have worked well together but I just want to put that out there as kind of a hopeful package to think about how this organization works. It is a collaborative enterprise with DOT but we very much treasure and value the collective, as well as the individual, expertise in this room. It is helping us sharpen our focus, again, on this important enterprise.

So, I won't belabor it much further, other than to say welcome to Key Bridge Marriott. For those who haven't been here before, it is one of the hidden gems in this region, as you can see by the spectacular view. So, please don't be too bedazzled but I hope you have a great meeting.

I am planning on being here at least through the break and will probably check in back and forth during the time that you are here. But again, thanks so much and I'm looking forward to working with all of you.

Without further ado, Director Ken Leonard.

MR. LEONARD: All right. Thanks, Greg. I appreciate that.

And I am going to keep my welcome short just because you are going to hear a lot from me today. I am on the agenda and that is a little unusual. Normally, this isn't a place for me to talk to you but for you to talk to each other and for us to hear from some other folks. But because this is the start of a new committee, I thought I would later on in the morning open up with some background on the Joint Program Office and how we work, so that you have a better idea of the organization we are going to be advising.

And then in the afternoon, I think just after lunch, I think, I will be talking about the strategic plan, the new strategic plan. So, not only is this the start of the new program advisory committee for a two-year term, this is really the start of a new five-year planning phase. So, we are just wrapping up our current five-year plan. So, I will talk to you about the direction, strategic direction we are headed for the next five years and you will be helping us to plan our path forward.

So, I just want to say thank you, again, as Greg said, for volunteering your time for this activity. I am really looking forward to the discussions to the questions and hearing what you have to say and what you recommend we look at and learn about, as we shape the Intelligent Transportation Systems for the country.

So with that, I am going to turn it back over to Stephen.

MR. GLASSCOCK: Okay. Before we go to the committee, you folks from the public, do you want to introduce yourself, please and identify who you are with?

MR. HOEFT: Sure. My name is Brian Hoeft. I am with the RTC of Southern Nevada. Tina Quigley, our General Manager is part of the Board but she was unable to make it, so she sent me.

MS. ANDREWS: Sheila Andrews with the Auto Care Association. We represent the entire supply chain of the motor vehicle auto care market.

MR. SILL: Steve Sill with the ITS JPO on the Architecture and Standards Program.

MS. RUPERT: I'm Alison Rupert with the American Road and Transportation Builders Association.

MR. RUPERT: Good morning. Bob Rupert with the Federal Highway Administration in the Office of Operations.

MR. WAIDODIA: I'm Steven Waidodia.

MR. LEONARD: And with that, I will turn it over to Steve.

MR. KENNER: All right, great. So that is everyone. I appreciate you guys making the time here for our first discussion. One of the things that is really important is we are all sitting together not because of the companies we work for, the organizations we work for but because of the background and knowledge that we bring to this topic. So, I think it would be helpful if we kind of went around and talked a little bit, especially some of us who worked together the last time but not everyone.

So, I think it would be really helpful if we were able to go around and talk a little bit about what we do today and some of the backgrounds and expanses we have. Clearly, one of the benefits for us is being able to get to know each other and to get more perspectives from a variety of places, versus where we generally go to work. So, it is a great opportunity to get to know each other and to learn a lot from maybe on a topic that we think we know but I have certainly learned a lot about the different perspectives.

So, I think let me -- I will start and then we will go around just to hear a little bit about people's backgrounds.

So, I currently work at Ford Motor Company on safety. So, it has always been an interesting and challenging area. In the last maybe eight months or so, it has become increasingly interesting and challenging, I would say, for the entire industry. And so in that capacity, I work on all aspects of safety, including what our technology plans are for the rollout of safety or driver assist features. I establish the safety policy for the global company. I publish guidelines and requirements that are above and beyond the regulatory requirements.

My forecast, what I think the regulatory requirements, as well as the public domain requirements are, public domain meaning things like the Insurance Institute for Highway Safety or the NCAP program that we have here administered by NHTSA but around the world with little different models in terms of how that is administered.

I work together with the product development teams to make sure that they are doing the right things, relative to the architecture of the vehicles and the content in the vehicles consistent with meeting what our policies and objectives are. And

then I also work on the safety concern issue resolution process, both the internal part where we try and use analytics and other means to try and discern whether we have any potential safety concerns that we need to address and then we work in collaboration with governments around the world when those governments open an investigation and work and cooperate with them in all cases, to make sure we meet our obligations to our customers and then our legal obligations as well.

I have been at Ford about a little over ten years. I had previously worked at Chrysler and before that, I worked at GM. So, I have kind of made the rounds over the years. And I went to school at a school that is now called Kettering University in Flint, Michigan. It used to be called General Motors Institute back in the day when I went there. And then I was, through GM, able to go on what they call the fellowship program and I was able to get my MBA at Stanford Business School, which was a great experience for me and I still love getting back in the Bay area. It is a wonderful part of the country.

And then just on a personal note, I have four daughters. It is kind of good to know because it explains a lot of things as you get to know me. And I live in the northern suburbs, a little bit closer to where the Chrysler Tech Center is, actually, versus Dearborn. So, fortunately, I was able to avoid the really bad weather that hit the area there yesterday.

With that, I'll --

MS. WILKERSON: Okay, great. I am Sheryl Wilkerson. First I would like to say I am really honored to be selected to serve with each of you in this work of this really talented USDOT staff on the Support and Advisory Committee.

I look forward, as Greg said, working collaboratively and deliberatively as we work on this myriad of research and policy issues that are before us in making immeasurable contribution in formulating advice to the Secretary.

By way of background, I am actually from Arlington. I grew up here. I have lived here all my life. I just moved to Greenville, South Carolina just two weeks' ago.

By way of background, I serve currently now as Vice President of Federal Government Affairs for Michelin, for Michelin North America, we like to say, which has led the way in responsible and sustainable mobility and innovation in enhancing an ability of people and goods around the world.

Prior to that, I served as President of Global LLC, a consulting firm based here in Fairfax, where I worked on advising technology, wireless automotive telematics and research institutions on how to eliminate barriers and make confirmative employment of their technologies on next generation, primarily on next generation technologies. My recent work has focused on autonomous vehicles, windshield displays, wireless mobility, connected mobility, and any technology that basically improves the quality of life for people.

I am also an avid motorcyclist. So, I am extremely passionate about two-wheel issues. And Greg and I have some stories --

ASST. SECY. WINFREE: That have nothing to do with her, I promise.

MS. WILKERSON: We are passionate about some of the same issues, particularly what we are doing to make sure that they are also connected. And that is just not motorcycles. It is other two-wheel vehicles.

What I hope to contribute is my knowledge of having worked in the U.S. Congress on both the House and Senate. I have worked at the FCC under three chairmen as an advisor of wireless spectrum enforcement, international policy issues. I have worked in the Federal Judiciary. I understand, having been a regulatory warrior, the competing demands of many of the issues that are before us, particularly as it relates to spectrum, but also having worked for innovative companies, smart antenna technology companies that have invented navigation technology.

I truly understand the competing demands of the private and public sector and what the businesses need to actually help deploy these technologies.

I am extremely optimistic about the long-term possibilities and the potential. One of the areas that I hope we will be able to look at is just not only the barriers but things on the periphery that will enable consumers, all people, able-bodied people, disabled, teens, seniors, and others to truly reap the benefits of this vision that we all have for V2V and V2I, so that they can reap the full benefits of mobility in an environment, a friendly environment of a structure that is safe and more convenient and efficient.

So, that is kind of what I bring to the table.

MR. WEBB: I'm George Webb. I'm the County Engineer for Palm Beach County, Florida. Those of you who are not aware, it is in the southeast of Florida, just above Miami and Fort Lauderdale. We are about 1.4 million people. I was born in Palm Beach County. So, it is a long time ago but we have learned a lot.

We have a fairly sophisticated traffic signal system there. So, we have a traffic management center. We have probably about four or five hundred miles of fiber optic cable on the ground. We have lots of video cameras. So, we are obviously very interested in where we are going on this.

But I have had the pleasure of serving on a bunch of other committees. I am member of the Institute of Transportation Engineers, ITE, and I serve on their task force related to ITS. About nine years ago, I was selected as the local government representative to serve with the state association, AASHTO, as far as ITS. So, I am sitting in with that state group as a local representative on that.

I am a former member of -- a former president of the National Association of County Engineers and I have served for 12 years on the National Association of County Transportation Steering Committee. Lots of committees, lots of things going on as far as that.

Obviously, it varies from the local perspective as far as where this is headed and what impact it may have with the limited resources we have as a local government, as far as expectations in getting this out and what processes and what kind of regulatory requirements are going to be put on local governments.

So, thank you. It's good to be here.

PROF. RAJKUMAR: I'm Raj Rajkumar, one of the returning members of the committee, along with John Sheer.

I am a professor at Carnegie Mellon University in the Departments of Electrical and Computer Engineering and Robotics. I am Director of the DOT sponsored National University Transportation Center on Safety. I also co-direct two labs on campus sponsored by General Motors, one on Vehicular Information Systems, and one on Autonomous Driving.

I also ran a large project on cyber-physical systems sponsored by the National Science Foundation. I helped the National Science Foundation launch this initiative on cyber-physical systems where cyber-physical systems, IT cyber components of computing and communications which are used to control, monitor, visualize things happening at physical rate and interact with the assistance with the prototype applications of cyber-physical systems.

So, my primary case researcher are made up of collective applications. So, collective data is being studied a lot of effort on. And then I think the extrapolations have improved very nicely.

So, it is good to be back.

MR. McCORMICK: I think most of you know me. I am Scott McCormick. I am the President of Connected Vehicle Trade Association. I spent most of my career in aerospace. I am a General Electric's Factory with a Future Program Manager for a long time.

In 2000, the automakers wanted to create a nonprofit research consortium to develop how devices inside the vehicle would communicate. And so they formed the Automotive Multimedia Interface Collaboration in all 12 automakers and I was brought in as Executive Director of that organization. Over about a four-year period, we created about 3800 pages of specifications that dealt with everything from message sets to in-vehicle architecture.

In 2004, we began moving all of those specs into the standard programs into ISO, into MU2SEE. Eventually a message set that was created by that group. In-vehicle network architecture that was used by the VII Consortium was created by that group.

In 2004, we talked to the automakers and said that now you have consensed on how to communicate inside the vehicle, you need to work on consensing on how to communicate outside the vehicle. And so I incorporated a new entity called the VII Consortium, wrote a $54 million cooperative agreement with the federal government USDOT and that new consortium. After about a year, the automakers realized that they primarily understood the tier relationships, not so much the other elements in the ecosystem and wanted to bring them in. So, they asked in 2005 if I would create the Connected Vehicle Trade Association. And when I incorporated the first Board, it had representatives not just from your typical Delphis, and Motorolas, and Navteqs but also CommuniTels, and Ciscos, and Sprints, and Motorolas.

And so since that time, I have a number of other roles aside from this committee. I am a trusted advisor to the Chinese government. I helped them create their first trade association; the Korea government, I helped them create CVTA. The Chinese Asian-Pacific Economic Community is an event that I support and participate in.

I am also a trusted advisor to EMU and to the UK governments in this space because I am, essentially agnostic to technology to company and to region.

Our interest at CVTA now represents 17 different industries from insurance to communications. Our goal is to try to help enable growth in this space in whatever direction is important, across all three verticals, across the safety vertical, mobility verticals, and the commercial servicing verticals.

So, I am looking forward to participating again. I think we accomplished a good deal on the last one and I want to thank all those participants for the work they did and welcome the new ones.

MS. GOODIN: Good morning. I'm Ginger Goodin. I am a new member of the committee. I am very honored to be part of this group and I am looking forward to this.

I am the Director of the Center for Transportation Policy and Research at Texas A&M Transportation Institute. It is an initiative that we started just a year ago with support from the Texas State legislature. So, we provide research support directly to the state legislature on a range of topics, including funding, freight, congestion, public engagement and technology.

And so in the technology area, we are doing some work in automated and connected vehicles, transportation system management, road pricing technologies, a number of different areas in direct support to policymakers at the state and to some degree at the local level.

Prior to that, I have been at TTI for 18 years and worked in the area of managed lanes, congestion management and road pricing. And before that I was a transportation engineer with the City of Austin. So, I bring some municipal traffic engineering background as a practitioner as well.

I think that pretty much sums it up. Again, I am really excited to be here. Thanks for including me.

MR. CALABRESE: I'm Joe Calabrese from Cleveland, Ohio, home of the Greater Cleveland Regional Transit Authority. This is my third two-year stint on the committee and I do want to thank the administrator for our support.

Thirty-nine years ago I did a job out of graduate school. I went into public transportation work with the systems in New York, Chicago, San Francisco, Philadelphia and Boston, and in Cleveland in 2000. I have been there 14 and a half years.

Safety is number one in public transit, as everywhere. My goal being here, there is a couple. Number one, to try to make public transit safer. And I really believe that the best way we can do that is reduce the number of cars on the road and more people into public transport. So, again, that needs to be, I think, part of our mix.

I was really thrilled when I looked at the new roster to find out I wasn't the only sole public transport advocate anymore. I am grateful for my fellow transit on the board and for my great colleague of mine from Las Vegas.

I think public transit is very misunderstood in many ways, really. I say whatever Rodney Dangerfield a lot of times would just look out and we are just below the radar screen. We are just getting to know the conditions but the tremendous increase in

population we see in the station, if we don't put more people on public transit and not on single occupancy vehicles, we are all in trouble. So, certainly one of my goals is to help educate that process.

Personally, I have been very involved in safety areas. My first job in public transit was safety training coordinator. We want to certainly have public transit be safer. We have been developing a lot of innovative programs to try to do that in terms of electronics and high tech and hope to continue that in the future.

I'm glad to be here.

MR. BELCHER: Hi, I'm Scott Belcher. I am the President of ITS America and I guess with the knowledge that the persons closest is always the latest. I literally live five miles away.

So, ITS America is one of the largest organization that is focused on bringing transportation solutions or technology solutions to transportation. We work on all modes, I guess with the exception of aviation. This is my third time as well. And I guess would include my three terms as a barrier, since I have not yet gotten chosen to joint ITS America. But this term, I am sure will succeed.

So, we have got, ITS America has got 467 members and those are organizational members. Half of them are public agencies, operating agencies, transit operators, full authorities, state, city DOTs, NPOs and University Transportation Centers. And most of the organizations here are members of ITS America.

On the private side, we really cross the spectrum of folks who are engaged from a technology standpoint, everybody from automobile manufacturers and their suppliers to the TELCOs and where we have seen a great amount of growth in the last couple of years, has been both on the start-up side, trying to bring new and innovative companies into the space and share these mobility states and from a connected vehicle states and the autonomous vehicle state. And then also trying to bring capital into the market. And so that is an area that we felt strongly about because that will continue to grow the industry and enable innovation.

So, I am thrilled to be here. I think we are also fortunate to be on this committee at this time. I really do think that we are at a unique place in transportation history right now. And we really are at a precipice, really unlike any time in the last 50 years. If you think about what is happening with connected, if you think about what is happening with automated, if you think about what is happening with shift the full shared use and ability environment to conduct technical data, these things are all just starting. We really are just at the beginning and are taking advantage them in the transportation space. And an organization like this, a committee like this really helps give guidance to DOT.

And the last thing I have to say, having done this for a couple of years now, my view is that our role is really to give guidance to DOT but not try to recreate what they are doing. You know they are going to do what they are going to do. And so if you disagree with using DSRC, say it but then let's move on because we are committed to DSRC. So, no matter how smart you are and how great you think that you have got an alternative solution that will be better than that, that is not really where we are going to add value.

Where we are going to add value is helping the DOT think about where they are going forward and give them reactions and feedback. And that has been one of the things that in each of these in general context we always have a few people who are smarter than DOT and want to tell them how to run their program and I'm not sure that that is our role. And so if we can make sure that we give good guidance and good feedback but remember what our goal is, then we really add value.

MR. SCHROMSKY: Bryan Schromsky, Director of Data for Verizon Wireless. This my second year. So, we have got some work to do, obviously, in transportation.

So, it is an honor. This is my second stint on this committee. And because I have the honor to be on this again, one of the things I took away from the first time was there are a lot of different competing organizations. We have regulatory, government, state, local, and federal. We have traditional technology companies. We have the automotive industry and everything is mashed in together, if you will. And I think to Scott's point, goals haven't been written yet. We have a lot of different players from nontraditional, obviously from automotive and transportation, and new things like we talk about DSRC and we try to develop a standard but there is already technology being deployed today. Right, anything from if you are an insurance company in user based insurance and tracking the vehicle, gathering all that data to certain states I think it is Oregon that is actually doing mileage in terms of taxation. And I think it brings up where you have all the technology but where it actually comes from. I think DOT is trying to grapple. You know are we trying to go to the vehicle and transportation or are we trying to go to something else? I think that is what this committee really brings to the table and kind of get all the different points of view and say yes, if you focus on this, you are actually missing all this over here and trying to work on that.

So, I look forward to a great day and I am grateful to be among you. Thank you.

MR. ALBERT: My name is Steve Albert. I am the Director at the Western Transportation Institute in Montana. I think I probably flew farther than anyone else, maybe, last night.

This is my third term. I think my role generally in this group is to constantly remind people that the area that represents 70 percent of road miles and 60 percent of fatalities is rural America and we need to keep rural America in mind and not just having metropolitan solutions.

My background or accolades, I serve as the national rural ITS chair, the Director also of the Lily Tree at FHWA Center of Excellence for Rural Traffic Safety. I am past President of the Council on University Transportation Centers and also the Director of the Paul S. Sarbanes Transit in Parks Program.

I wear a lot of hats. My background is not entirely rural. I used to live in D.C. three times. The last time to help start a company called BB Farradyne. And then before that, I was hired by the General Manager of Metro and the Mayor of Houston to oversee the mobility projects in HOV lanes and starting a traffic management center, et cetera in Houston, Texas.

So, my background isn't just rural. I know the issues

in urban and I think it is important that when we are talking about applications, or deployment, or rollout, or needs, that we really think in terms of the entire system of the United States, not just where the middle of the Swiss cheese is, which is, quite frankly, in metropolitan areas.

So, I will be a dull one that keeps saying what about rural but I think it is important that when we do something, we do it on a national basis, not just in spot locations.

MR. BERG: Good morning. My name is Roger Berg. I am with DENSO Corporation. DENSO is a global automotive supplier. We give parts to people like John and Steve.

Actually, we are probably not too well known in the U.S. We are based in Japan but we do have a strong presence and growing presence here in the U.S. and ITS is one of those areas for substantial growth planning from our organization.

So, I run the North American Research and Development Team. Since I talked to you guys last, we have expanded. you know I talked about an expansion but we have expanded into an office in Silicon Valley in San Jose, much like our customers and competitors. And I have also now started an organization out of our Detroit, Michigan Southfield Office that deals more with I would say not just connectivity but connective automation.

So, that is kind of a big theme in DENSO's research and development activity in the coming years and I hope being a member of this committee and contributing as well as gathering in a lot of your very diverse knowledge and experience, I think will help the industry as a whole. Thank you.

MR. GLASSCOCK: They are going to brief you on evacuation.

(Whereupon, the above-entitled matter went off the record at 8:39 a.m. and resumed at 8:40 a.m.)

MR. CAPP: I'm John Capp with General Motors. This is the second time on this committee for me. I have been with General Motors my entire career, most of my life, actually. I actually also went to the same school that Steve did that was called General Motors Institute, a great school for automotive engineering.

I have been mainly involved in safety. In my career at General Motors, I have worked in a lot of aspects of safety, body structure, computer-aided engineering, airbags, restraints, on our airbag for some years. In the last seven or eight years, I have been mainly involved in these types of technologies. So, I have led most of our advanced technology work in V2V, connected vehicle safety, our automated vehicle research. A lot of the technologies that we have executed level out of that, in-depth cruise control systems, sight line zone systems, active safety-type crash avoidance systems. We have gotten very involved in that and just really loved that space and all the potential that that space has to help with safety and connect with these other aspects of society to be successful overall. So that is kind of what is fun about these types of groups is it gets us out of our just product focus and thinking broadly. So, that is why I do appreciate being a part of things like this.

And then recently you may have heard there is a little -- a lot of stuff going on with our company and the industry and things like ignition switches and other things. We are not directly

involved with that but actually as part of that, I have actually been moved to be part of our new broader, more visible, more stronger safety organization. So, I am actually director of our safety strategy and product safety team. So, the teams that are actually working on our vehicles doing product safety are part of my team and I am responsible for setting our product safety strategy going forward working with other parts of the company and policy folks and things like that as well.

Thank you.

MS. JOHNSON: Good morning, everyone. I am Debra Johnson. I, too, want to say what a pleasure it is to have the opportunity to be amongst all of you and participate on this advisory committee. I am a new member. I am one that enjoys public transportation. I join Joe for being from the service delivery side on the public sector and I really enjoy it because I believe we bring a service of bringing the haves and have nots together.

And my interest in all of this, especially looking at intelligent transportation systems is creating a forum and a creating a vehicle, no pun intended, that will encourage others that don't have any other means to actually come and be able to get a ram in using and increasing people's ability to actually take discretionary travel who have the means to be in a car.

I am located in Southern California. I enjoy Long Beach Transit, which is in the southernmost part of Los Angeles. It is a very, very interesting area. They have one of the largest ports in the country and working collaboratively with the Port of Long Beach, the city, and also working within Los Angeles County that has one of the largest rail programs, there is a lot of opportunity whereby we can talk about the importance of safety because it is first and foremost, especially being in a populous county like Los Angeles where people are so inclined to belong in their cars. They feel they belong in their cars.

And so with that, looking at having dialogue around advanced vehicle technology, signal preemption and other aspects of safety to make the roads safer. I began, my public transportation career almost 25 years ago and have had the opportunity to work here in D.C. with Metro. Coming from the Bay area, where I gained most of my experience working on major highway projects there, in addition to working with the Bay Area Rapid Transit District, San Francisco MTA with the world famous cable cars. Safety was a great priority there. It should be everywhere.

So with that, I look forward to doing a cross-pollination and coming up with some great ideas to advise DOT on. So, thank you.

DR. SHAHEEN: Good morning, everyone. I am a new member and I am honored to also be serving with all of you. And I can't wait to learn from all of you.

I am a student of the Intelligent Transportation Space. I started learning about it in 2002 when I started my job at UC Davis. I have a Ph.D. in ecology with a heavy emphasis on civil and environmental engineering. I am a member of the faculty in civil and environmental engineering at UC Berkeley. I teach classes on sustainability and transportation and I focus on instruction in the transportation space, particularly in areas of behavioral response,

as well as public policy.

I have lived and worked in the Washington, D.C. area focused on EPA research, as well as Department of Energy research. I have a long background in working in the fuel and equipment technologies. I am very interested in linkages to the grid and how ITS can play a role in that.

And right now one of the things that is taking a lot of my attention is the area of shared use mobility that Scott mentioned. I have been studying it for about 17 years, working with OEMs but also with startup companies and this space is highly disruptive right now, if you haven't noticed. And there is, I think, a tremendous move for understanding about what the services essentially point to point mobility built into our transportation infrastructure, as well as the role of connected vehicles technology.

I started studying back in 1996 in conjunction with Daimler-Benz at the time. It just seemed to me to be great literature, given what I knew about climate change and changing the patterns and demographics and what we were going to be facing in the future.

So, I locked on to it, despite the fact that I think a lot of people thought I was crazy. I put the first Intelligent Transportation System program on the ground in 1998 in conjunction with Honda Motor Company. And since then I have been studying bike sharing around the world, car sharing around the world and all forms of ride sharing, including the most disruptive, Uber, Lyft and Sidecar. I have a paper coming out very soon on that.

Thank you.

MR. LEONARD: I'm Ken Leonard and I came to Washington almost 40 years ago to the school here and never left. Most of my career, at least the first half of my career was in the private sector and I worked in urban acquisitions, did consulting work for a variety of clients both in synthetic fuels and energy economics, combat systems, strategic defense, and then found myself doing some work for the Federal Aviation Administration and was fascinated by the field of aviation transportation aviation technology. And they convinced me to give up my private sector career and join the federal government. So, I kind of did it the reverse of the way a lot of people do it, which is they start in government and go out to industry. I started in industry and came to government.

I worked at the FAA, I was the Director of Aviation Weather. I was Director of Technology Developments. And I moved to the Federal Motor Carrier Safety Administration. And I thought of that as joining the Department of Transportation because when you are in the Federal Aviation Administration you don't remember that you are actually a part of the Department of Transportation because it fills two buildings of its own and has its own flag. It has its own fleet of aircraft and has 90 percent of the Department's employees. So, it is the largest part of the Department of Transportation.

But I moved over to Federal Motor Carrier and had my first exposure outside of aviation since I was in Transportation Systems as Director of Analysis Research and Technology over there.

And about two years ago, a year and a half ago, Greg

asked me to be the Director of Intelligent Transportation Systems.

And it was pointed out to me that this is not my first Intelligent Transportation Systems experience because I mentioned I came to Washington in 1975. And in 1976, they invented the Metro System and I worked for the company that sold the fare cards. It is a fare card aid, teaching commuters how to use this new system that used electronics and card readers instead of tokens. So, that was probably my first exposure to Intelligent Transportation Systems almost 40 years ago.

So, I come at this from the background not of an engineer but as an economist and as a technologist and as a program manager. And so I looked at what we are working on as having all these tremendous benefits for safety, mobility, and energy and the environment. And really the purpose here is we are creating wealth in society. We are increasing the productivity of the transportation system. We are making profound changes in the whole economics and the ecology of transportation. And that is going to benefit everybody across the country. And it really is that kind of transformative-driven economic history of the country, including the advent of commercial aviation. I think what we are doing in Intelligent Transportation Systems is just the start of it 20 years' in or so, but it really is that profound transformative change. So, I am really excited to be a part of that.

ASST. SECY. WINFREE: I guess it is my turn. I joined the Administration in March 2010 and joined RITA as chief counsel, background, as a litigator trial lawyer. This is my second time around in D.C. I went to Georgetown Law School and was here back in the mid to late '80s. My first job was at a law firm in town as a litigation associate. And then I went to the Justice Department in the Civil Rights Division. So I was there for the tail end of the Bush administration and the beginning of the Clinton administration. So, it was kind of an interesting time to be here.

Then I became a corporate lawyer. I joined Union Carbide and moved to Danbury, Connecticut in the snow belt. I joined Wyeth Pharmaceuticals as their Director of Litigation outside of Philadelphia and that was in the ice belt.

So, my wife and I had enough. I wanted to be on a panel in Hawaii and I remember getting off the plane and all the trees were painted white. And I said I think I want that job. This is a decent place to be. So, I went searching for the sun and found an opportunity in Phoenix, Arizona with a copper mining company. So, I have been living in Phoenix since 2004. Actually, it is still where my primary home is but the opportunity came up in 2010 to come back to Washington and join the Administration and that was certainly an offer I couldn't refuse.

So, I have been really pleased to be a part of the smartest part of DOT at RITA. We are overpopulated with scientific experts, Ph.D.s and other brilliant, brilliant scientists. And the mission is pretty diverse at what we do. We kind of cover all the sciencing parts of the Department but one of our key initiatives as we have all gathered here is this departmental responsibility for connected vehicle.

It resonates with me. A lot of folks have asked well how does a trial guy wind up in the science organization but I had

always been one of those kids that has been fascinated by science. I remember when I was seven I had a subscription to *Popular Science*. My parents thought I was the weirdest kid. *Popular Science* and *Field and Stream* and I live in New York. They don't get this.

But I have got two patents in my name. So, I have always been a tinkerer and kind of an innovator. I like to think outside the box. So that is what kind of connects me with the folks at RITA and gives me a voice to be their advocate but also can to talk to them kind of from the simpatico perspective.

I wasn't a transportation expert when I came to DOT. You know I guess my experiences were, I said hey, I drive a car. I have been in a plane. I know transportation. But more importantly, I was the road supervisor for Budget Rent-a-Car for two summers when I was in college, which meant driving a bunch of college kids around in new cars, which was just a bad idea.

But you know I have been really pleased to learn about the transportation as a system. And I like viewing it from that perspective because a lot of folks who don't participate in this industry don't have a concept. I remember as a kid there was a toll in Long Island, it was a ten cent toll from the Southern State Parkway. And whenever we would pay that, I would say to my mother, well, why is this toll here? The road is already done. What do we keep paying for? But no concept of snow removal and road repair and all of the things that it take to keep the infrastructure that we take for granted in the state of good repair.

But unfortunately, that is what a lot of people outside of our social circles and our professional circles think. They just don't have a concept of the system and how dependent it is upon state of good repair and innovative technologies and moving to the next generation.

So, I am excited to be a part of it but more importantly, I am excited to be a spokesperson for why all of this is important. So, just pleased to be here with you all.

MR. KENNER: All right. Well, great. So, clearly, we have a lot of different perspectives, diverse backgrounds. And I think it is important, as we talked about it in the very beginning to get to know each other and our perspectives. The key is when you look at what are we trying to do. As Scott said, we are not necessarily trying to change exactly what is happening right now but we want to be able to provide some guidance in terms of how can we provide future societal benefit and how can we do that in, let's say as quick and seamless a way as possible to try to make it a better world. And that, I think, is something we all have in common. Every single one of us talked about trying to improve society in one way or another and including making it safer, providing opportunities to people who don't have opportunities today and so forth.

So, I think there is a lot of common ground, actually, even given our diverse backgrounds and experiences. So, I appreciate everyone going around.

I think -- let's see. Where are we now? Oh, well, that's all right. I think it was for sure worth going through that just to make sure you realize the backgrounds and perspectives and areas of mutual interest.

I think right now, Ken, we are going to turn it over

to you.

I did want to just make sure when we went through today's agenda, it is just to get a lot of background for everyone so we are grounded with sort of where are things right now because even those of us that were on the committee last time, the world keeps changing on us. And so, it is important to just get an update on where things are and kind of have that common base to sort of kick off the journey together.

MR. LEONARD: All right. Well, I don't have any slides for this half hour or so or hour as we have to talk about the program. And I am not going to talk for the whole hour but I will give some background and then we can just, if you have any questions about the program office or how we work, I thought we would leave some time at the end to have some discussion about that.

As I said before, it is great to be here at the start of a new Program Advisory Committee and you will learn over the next two years that it is no secret that I love to talk about this program. I really do. My wife's eyes roll back whenever I do. I meet somebody new and they say what do you do, and she goes off and finds something else to do. She knows I am going to be talking for a while about it.

But as I said before, I am not going to be your usual speaker at these events. We are going to try and bring in a lot of people to share information with you because this is really generally a forum for me to listen, just like it is -- to listen to you and to listen to folks that you are listening to better understand the area of Intelligent Transportation Systems.

So, today I am going to give you some background on the program office. I am going to talk to you about how we work with other modal partners and just a brief recap. For those of you who have been on the committee, you will have heard some of this before. For our new members, I want to give you an idea of what has been in our current portfolio at the Joint Program Office. And as I said, later on this afternoon after lunch I will talk about not what we have completed here with our current five-year plan but the next five-year plan that we are moving forward to.

So, a couple of people said it, Scott and Greg, this is a program that has brought us to the cusp of some very monumental changes in the nation's transportation system. And we are nearing deployment of, I think, an incredibly exciting technology in connected vehicles. I am sure at some point in the next two years Roger is going to talk to us about automated and autonomous vehicles and some of the work that he is doing at Carnegie Mellon and others are doing around the country.

And these technologies just have a tremendous ability to save lives, to increase mobility for everyone, and to change the environmental footprint and the energy footprint of the transportation system, change not always for the good. And that is one of the challenges that we will have to face. There are some genuine concerns about it as we move towards self-driving vehicles, that vehicles miles traveled and fuel consumption and pollution may go up considerably as people adapt their lifestyles to new technology. So, those are some of the things we may have to talk about over the next few years.

But it is important work. It is far-reaching, both domestically and around the globe. And we haven't really talked about all of the international aspects of this. But the U.S. is not alone in its work in intelligent transportation systems. And I think there are parts of this area, this body of work, where we are leading the world and other parts of the world where we are neck and neck with competitors in Asia and Europe and the work that they are doing. I think it is important to the health of the U.S. economy that we stay at the forefront of this important technology because it really is about how many people, how many packages, and it affects the well-being of both people and society.

So, I think those are some powerful claims to make about what in the U.S. government is a relatively small program and a pretty small program office. We currently are short a few positions. We have 15 people onboard in the Joint Program Office. It is a very small but a very senior staff of people who work across the modes. And we have about a $100 million budget and it has been about a $100 million budget for the last 20 years. And so we are not -- we are a part of highways which sends $40 billion a year out to the states when are working on a study. So, if you think that that $40 billion was added to this program, in some ways it is because it helps support the deployment of ITS because it goes out to the states. But then the states have those choices about how to deploy things.

In some of the programs I have worked with, the program offices are the deployers. They do the research, they develop the technology. They prove it. They take it out and then they build the systems. We work a little bit different from that. This is more a role of coordination and collaboration across a vast array of people both inside and outside the Department. And so there is a lot of influencing without authority that we do inside the ITS Joint Program Office, rather than running a program from beginning to end.

So, if you have worked in other government entities or worked with other government agencies where they out building a system, that is not quite how we work in the ITS Joint Program Office. But I can assure you that even though we are a research organization, our goal is for those changes, for these systems to be implemented. Not everything we work on will be implemented. I am sure there will be some things that just work but our goal is to make sure that the things we do develop get out into society and get out into society as quickly and as effectively as possible because that is where they do the most good.

So, ITS is an incredibly broad area. We are going to hear a lot about connected vehicles we already have but it is not the only thing we do in Intelligent Transportation Systems.

You probably, some of you have experienced ITS in your commute here today. Some folks took the HOT lanes or parallel lanes to the HOT lanes, so they benefited from that as an ITS technology. Or you came in 66, where VTTI in the State of Virginia doing some demonstrations in connected vehicle technology. You probably didn't notice that but that is one of the most congested corridors in the country and certainly in Virginia. And so state and university systems are doing important work in that area. They are trying to improve congestion.

I saw the value which came out of 395. And I am just a few miles from here but 395 was the quickest way to get over here.

So, whatever you, however you came here, somewhere in your commute you probably experienced an intelligent transportation in that commute and were probably completely oblivious to it because we just do -- things get deployed and we kind of just assume that they are there. They are part of the background.

But I shudder to think how the system would be working today if we hadn't had 20 years of deployment of that technology into the transportation system. And just one example of that is if you think about the fatality rate that we have, which has continued to decline, we still have 30,000 deaths in this country on the nation's highways. But if we had the fatality rate that we had before the creation of NHTSA and the consciousness around safer vehicles, we would be losing over 100,000 people a year at that break, given the vehicle miles traveled.

So, the impact of what we can achieve here is profound. I think that is an important thing to remember.

So, some of the systems that you experienced today came from industry. Some of them came from the government. Some of them came out of public-private partnerships, like the HOT lanes. Whatever their origin, their benefits are exceeding their costs. And you will hear that kind of language from my economic background because that is what we are looking for. We are looking is it really going to be beneficial to society.

If you have been watching the news lately, you have seen how some of our key priorities are capturing the public imagination. And I am talking about connected vehicles and other roadside infrastructure, even personal mobile devices, the companies that are working on getting connected vehicle technology into cell phones. I am sure you have all heard of connected vehicles and their incredible benefits. And I don't want to steal Scott's thunder. He is going to talk to you a little bit later this afternoon.

If you come to Detroit in September to the World Congress, you can experience up to about three dozen demonstrations of connected vehicle and other ITS technologies there. And I encourage you to heed his advice and go to Detroit if you can find a way to get there and experience that, see if for yourself.

That is exactly what President Obama did just a few weeks' ago when he went out to the highways facility in Turner-Fairbank. He got to experience Intelligent Transportation Systems, the vehicle-to-vehicle and vehicle-to-infrastructure. I don't know if many of you, if you saw the sound bites on TV, I saw just a very limited portion of it. The White House did stream out the whole of his remarks. Of course, we watched that avidly because it is not very often that you get the leader of the free world talking about your program to people.

ASST. SECY. WINFREE: And he had never been to Turner-Fairbank.

MR. LEONARD: Yes, it was a very proud moment for auto folks.

ASST. SECY. WINFREE: If any president --

MR. LEONARD: Yes. And James Pol, who some of you

know who worked on our strategic plan has our organization to go work at Turner-Fairbank. So, he has got some selfies with the President. Everybody there was very happy. It was a very proud moment, not just for ITS, not just for highways, but for the entire Department. I mean, it is a big deal and we are really excited about that.

I don't know. I don't know how we top that but we have got to figure out something.

But the President's visit really talked about the successes of this program and of advanced technologies and of connected vehicles. And he also used it as an opportunity to talk about some of the issues that Greg mentioned of the importance of funding the transportation system. It doesn't just sustain itself. It is a conscious act to keep the system moving and moving forward but it is a critical part of the infrastructure and ITS is woven into the fabric of that infrastructure.

So, the Joint Program Office is the culmination of these efforts in the Joint Program Office is kind of the bringing to a head of many years of research. We have spent about, well, a little over a half a billion dollars in bringing connected vehicles. Of the $2 billion that has been spent by this program office over the last 20 years, about a quarter of it has been spent on connected vehicles. And much of that has been building up over the last just few years to get us to the point where we are. We are the principle research agency for the Department of Transportation in Intelligent Transportation Systems but we work across all modes.

And you are going to hear later from Nat Beuse from the National Highway Traffic Safety Administration and you are going to hear from Bob Rupert this morning from Federal Highways. He is going to talk to you about deployment incentives but over the next couple of years we will be talking a lot about vehicle infrastructure.

I mentioned the size of the ITS Joint Program Office. The way we accomplish what we accomplish is through working with our partners. The Joint Program Office and the Office of the Secretary do not have the authority to require equipment in vehicles. NHTSA does.

Federal Highways puts out guidance to states as they spend their $40 billion in preliminary costs. Highways puts out guidance that helps the states know how they can use those grants and the constraints on those.

So, it really is a partnership where the research activities that we conduct in the Joint Program Office reach their deployment through our modal partners. We work with the Federal Motor Carrier Safety Administration on some smart trucking and smart parking applications for trucks. And I think everybody is pretty aware of all the different modes and the roles and responsibilities but we have NHTSA does vehicle safety. Highways does the infrastructures. Motor Carriers regulates common carriers and truckers. The Transit Authority, FTA, regulates the transit community. Motor Carriers has motor coaches. That is a little bit of a split on bus regulation. Rail, obviously, FRA does the rail.

Greg mentioned MARAD and the Saint Lawrence Seaway. Those are two entities that we have not done as much work with but clearly, MARAD and Saint Lawrence Seaway have over 30 ports in their

domain and ports are a key part of moving goods in a global supply chain. And so we have two people in our office who are looking at that global supply chain and trying to find opportunities to bring out little bits of inefficiencies that exist in the supply chain where it is transitioning from ship to port or port to rail or port to truck, and find out opportunities where ITS can make a difference in every day people's lives by reducing the cost of the goods that Jeff Bezos is going to drop on your front door with a drone.

So, we are all working together across all these modes. We even work with our colleagues in the Federal Aviation Administration because whether you are flying an automated vehicle or you are driving on the surface with an automated vehicle, some of the fundamental issues about data, about cyber security, about control mechanisms are similar. And so we are reaching out to the colleagues in aviation to make sure that we are developing solutions that work across the Department. And one of the activities we are actually engaged in right now is reaching out to other Departments. We have had some briefings to the Department of Energy on the energy implications of ITS. We have worked with NASA to talk to them about some of the work with National Science Foundation. We are working to have some further discussions with the military. FARDEC, we have worked with on some of their concepts for self-driving vehicles. But DARPA is a phenomenal research facility. And some of the great things that are happening in ITS start out as military systems and then their applications get civilianized. We can capitalize on research investments that others have already made.

So, I talked about the other modes. I think what I would like to do is just focus a little bit more on ITS Joint Program Office. You realize, I can't remember who, somebody referred to Greg as the administration, he is no longer the administrator but he is the Assistant Secretary. So, we are happy for that elevation because, among other things, it has changed our relationship with the modes a little bit. Sometimes there is tension between the modes. There is always tension between the modes and the Secretary. So, we now have more uniformity in our relationship with the modes but it is actually a very positive change in that it has given greater visibility to ITS and to the whole area of science and technology. And I think it has taken actually some concern out of the relationship between the intermodal relationship because all the modes realize they are a part of the Department. And so, we actually joke about it but it has been a very positive development.

ASST. SECY. WINFREE: To tie with it, I do have collectors' item in chief counsel, deputy, acting administrator and administrator cards, if anyone is interested.

MR. LEONARD: So, as I mentioned, our program office is small by design. It is done so that we can't achieve success on our own. We have to work with our modal partners. And that is part of what we are doing here. And so as you think about the advice that you are giving us, be mindful of how if you say well just go out and write and regulation, we can't just go out and write a regulation. We know the people who can and so we can work with them. So, we can store technology innovation, reduce the risks of moving technology from the laboratory out into the real world and that is what is

critical about what we are doing.

So, I think we have got this tremendous vision for the system and where we can go. You are going to hear a lot of discussion about DSRC. It is a hot button issue for Intelligent Transportation Systems in part because of the current FCC proposal to look at sharing of that spectrum. It would have a profound impact on what we are doing with connected vehicles if that sharing in any way caused interference with the safety signal of the connected vehicle. And so we are working with FCC. We are working with NTIA, which is the National Telecommunications Information Administration. And there are liaisons in Federal Communications Commission but that is going to be an important issue that we are going to talk about.

But DSRC is also not the only form of connectivity that we are looking at. And sometimes when we talk about connected vehicles and intelligent transportation systems, we are really talking about the whole of the connectivity of the enterprise. One of the things we are working on in the ITS Joint Program Office is to make sure that the whole system is interoperable and not just the DSRC, the DSRC communications but to make sure that we have thought about the appropriate infrastructure that is going to be necessary to make sure that connected vehicles work. But there are certification systems that there is an industrial base that can support a new industry by connected vehicles. So, we have to think of the whole system as a complicated ecology. As Steve said, we are not just looking for something that works in the metropolitan areas. We are not just looking for something that works in the rural areas. We are looking for a national system, even a global system.

I tell people I will be happy if connected vehicles work from the Article Circle to Tierra del Fuego because that is pretty much every place you could drive starting out in North America. But because of the global supply chain, we want to make sure that vehicles that are anywhere in the world work in the U.S. or can work in the U.S. if they are important here.

There is a lot of work that we are doing to make sure that that ecology works.

So, I am not going to talk about the whole of the 20-year history of the ITS Joint Program Office. I don't know it all. But I do want to talk, I want to go back just a few years and talk about some of the key things that we have worked on. And those include our connected vehicle pilots and the vehicle-to-vehicle and vehicle-to-infrastructure work, some of the environmental work we are doing in our AERiS program, weather research work that has some real operational implications for work that people are doing. And our affiliated test bed program, which I think many of you may not have heard of. So, I think we just signed our 52nd participant in the affiliated test bed program, which I think is pretty good for a program that has existed less than a year. So, people are signing on at more than one a week to participate and help build a national industrial base for connected vehicles.

So, as many of you know, last year we completed a pretty fair field test of connected vehicles with our safety pilot deployment in Ann Arbor, where we had almost 3,000 connected vehicles operating. And we still have vehicles operating in that area and we are examining how we are going to use that facility in the future,

that capability. That really is the world's largest connected vehicle aspect that has ever been in existence and it has helped get us to the point where we are today. It demonstrated that can use DSRC technology so that we can use these systems to avoid crashes. And it has enabled NHTSA to make the announcement that they made in February of this year saying that they are going to move forward with a regulatory decision on connected vehicles.

And so, it was very important research and I know the culmination is they have said a half billion dollars' worth of work, it demonstrated that the safety applications can warn drivers of vehicles breaking ahead or someone cutting through the intersection, red light violation, a blind spot, and all the safety applications.

And it is important that all of these things work in the real world and that you can blend cars, and trucks, and buses, and safety pilot. We had motor cycles and even a bicycle that was driven by a Swedish exchange professor that even in the Ann Arbor winters. So, that, too, will be able to get out there. We didn't have pedestrian-equipped cell phones for that experiment but that is one that we are working on that as well.

I am not going to talk too much about the NHTSA decision because Nat is going to be here later on this afternoon. And feel free to ask him any questions you have. If you ask a question he can't answer, he will let you know. But NHTSA has been pretty forthcoming. And now is the time to ask questions because once they truly get into regulatory mode, they won't be as free to answer questions because it is more structured process.

So, I encourage you to ask questions about where NHTSA is headed. And if you ask something that is just too sensitive, we will likely dodge the questions. They are all very experienced at that. This is not their first regulation and certainly not the last.

But we anticipate that by the end of 2016, there will be a connected vehicle regulation. There will be an NPRM that is setting a path forward and making connected vehicles a reality.

We also expect, and this is an area that we have been talking about. NHTSA will make a decision on heavy trucks, I think 2014 is the plan. And whether that heavy truck decision won't include all trucks, whether that will include motor coaches and buses, I think NHTSA is still working out some of those details. But those would be questions that could be asked of Nat if you were so inclined.

You are going to hear about deployment incentives from Bob Rupert later. But you will also, over the next few years, hear about what we are doing with the connected vehicle guidance for infrastructure. Federal Highways is committed to putting out the vehicle-to-infrastructure guidance in 2015. We are about to or we are running through the approval chain. Some IPS-funded work through AASHTO. It is called a footprint analysis and that is being prepared for release. And that little bit of research has helped the highways to understand what they are going to put into their guidance. So, it is an important bit of work that will help every jurisdiction think about how they want to deploy infrastructures or vehicle-to-infrastructure for connected vehicles.

I think one of the other things that I want to talk about is an activity that our office has already made public. We

talked about the safety pilot. We are going to have, we are planning on having another round of connected vehicle pilots. We have a safety pilot in Ann Arbor focused on safety applications. It didn't really pay -- we didn't really focus on the mobility and energy environmental implications of connected vehicles. We do plan at the start of next year, 2015, to put out a solicitation. We already put an RFI out. We have had an industry day. We are trying to put out a solicitation in 2015 leading to pilots in the 2016 and 2017 time frame that will further demonstrate some of the research that has been done in our office that also give opportunities to create more pockets of connected vehicles in the real world, in real world applications, providing benefits at the local, state, and regional level around the country because we want to do things to encourage connected vehicles to become a reality. That is important to what we are doing here.

So, at some future date, we can brief you on that work with Kate Hartman in my office who has been very active. And she is out -- we are trying to get the word out to people that that solicitation is coming and we are looking for ideas, whether they are transit or any area where somebody sees connected vehicles as having a positive impact.

Some of you may be familiar with what we call the DMA program, Dynamic Mobility Applications. But we had over a dozen key research areas in freight and transit.

We also have a program called AERiS, which is our Applications for the Environment Real-time Information System. And this is an environmental sustainability program that looks at over three dozen different ways of using vehicle infrastructure communications to promote green driving, whether it between vehicles or phasing your reliable stop light to burn the least amount of fuel, if you are going by fuel emissions. And each of these applications can save anywhere from three to five percent and you can't aggregate all three thousand. But you can aggregate a few of them and probably save 20 percent or maybe 25 percent in real world applications.

So, we think this is a very promising area and we are hoping to see some applications in that area as well as we go to the next round of pilots.

We have had a very active weather program and there are activities in three or four states right now where state DOTs which spend a small fortune on ice and snow removal are now using intelligent transportation systems and whether information to better understand where to put sand and salt in what proportions to put it down and communicate that information in ways that save both on the labor costs and on material costs and increase the safety of the roadways.

So, there is a lot going on in the ITS Joint Program Office. We are working in areas outside of DSRC. We are in this next round of applications where we are hoping to see some concepts that involve cellular and other points of communication because we think that -- we want to make sure that there is enough DSRC capacities for the safety applications but we recognize is that if they are here through the next round of applications, the mobility applications, energy, environment, what we call commercial or cheeseburger applications, that we will offer a lot of convenience

to travelers. And so some of those we want to make sure have connected means that may not impinge on the safety portion of the channel in DSRC.

So, again, I don't want to spend too much time. I want to leave some time for questions but I want to close by talking a little about the work that we are doing with the test beds. I mentioned that we have signed the 52nd test bed application here and we have got companies from all around the United States and actually several international companies from the Middle East, China, from Asia and from Australia and from Europe. They are all interested in the DSRC space. And these are companies who have ideas. They are device manufacturers, some of the work in social media distribution, so it is across the whole spectrum of connected vehicle companies who can come and join our PlugFest. We had one at Turner-Fairbank. We had one in Detroit. We will continue to have these, so people can understand what it means to work in a DSRC environment. Everybody remember when the first IBM-compatible computers came out and then the IBM-compatible third-party boards came out. And you would go and buy that third-party board and plug it into your computer and three days' later, you couldn't get it to work. You would go back to the store. You would get a different IBM-compatible board. That is what we want to try and avoid. We want to make sure that when people get into the DSRC environment, they have worked out some of those kinks in advance. So, we are giving the industrial base that wants to work in this space the opportunity to work with their peers and to work out kinks and help us understand the standards in all of the work because we spend a lot our activity in supporting global standards in this area.

So, it is important work. It is kind of in the nitty gritty of the space and it supports things like certification because at some point, we are going to have to make sure that these systems are certifiable. So, that is just another example of the depth that we are trying to make sure that if we do research, it is not just on the big shiny things that heads the imagination but that when we move goods and information, the system will work the way we want it to work. So, it takes a lot of thinking about how everything is connected.

So, I think with that, I am going to stop and see if anybody has any questions about the program. There are a lot of other things we could talk about, integrated corridor management, which is an exciting program. There are a lot of other areas in ITS.

MR. McCORMICK: Any more have more clarity on when the safety pilot report might come out?

MR. LEONARD: That's a great question.

Yes, you know, I think it was in February we were saying in the coming weeks. Those weeks are still coming. And I know that no one is more eager than NHTSA to release that report. The report is done. It is working its way through the process. Some of the delay, I know, has been frustrating for people. In a lot of respects, I think it is a popular thing because I think what we are going to see is a more complete release from NHTSA in the future. So, I do think it is relatively soon but Nat will have the latest on that.

MR. McCORMICK: You are going to force me to keep

reading the *Federal Register*. MR. LEONARD: Well, I don't know if you get the tweets we send out but I am sure that when that report is released, we will tweet that or it will be on our website. We may send up some flares.

MR. McCORMICK: Thank you.

MR. BELCHER: So one of the things that your office always has kind of struggled with and just the Committee has always been very interested in and that is the balance between with your work. You are all things to all people with a budget about this big.

So, you spent a lot of time talking about connected vehicles, which is really kind of has been a very important part of the program and a big area of investment. But I also know you do a lot of work in the other modes trying to promote a deployment of technology that is here today or that is coming today. And I know you are not an employment agency. You are a research agency. But there is kind of that space that is not long-term research but not deployment.

Can you talk a little bit about some of the other work you are doing to try to get the kinds of technology that would help our commute, that would help people in the cities, or that help people and you figure out that last mile part because that is really critical. And we see that we are not going to see connected vehicles. We may see it in southeast Michigan very quickly but we are probably not going to see it in the rest of the country for another couple of years. And hopefully, it is in the next couple of years.

But other stuff we see in whatever we can do to really change our transportation experience is really, really valuable.

So, can you talk a little bit about that for us? Because I don't feel like we got enough about that.

MR. LEONARD: Okay. And there is a lot to talk about about ITS. And so I didn't talk about integrated corridor management. We have two demonstrations in San Diego and Dallas. And we are about to have a solicitation. We are putting out some additional deployment planning grants. So, that is in the public. We are working in a way towards the release those grants. We are going to the final stages of approving the release of those grants so that additional locations would be able to start the process of developing an integrated corridors.

MR. BELCHER: What do you mean by that?

MR. LEONARD: If you are not familiar with what an integrated corridor is, it is a system -- we tend to operate systems in independents. The transit line, the bus lines, the rail lines, the interstate, the arterials, and they all operate independently.

In integrated corridor management, you take a defined corridor, whether it is for freight or commuting or both, and you manage the whole of the transportation assets as a system.

And from the dynamic message centers to the ramp meters to telling people if you get off at this exit, there are 400 parking spaces and a train coming in six minutes and you will be in city center in 20 minutes. Stay on this highway and you will be in the city center in 45 minutes. And so now you have information that you can change something about your commute time that day. If you need your car in the city center, you are going to stay on the road and take that 45 minutes to get in it. But it gives you the ability as a

commuter to make informed choices.

If you are a truck driver who is running a little short on our service, you might pull over, pick a new place to pull over and decide okay, you are going to start your rest break now.

So, it is all about giving people information. And if you look at the enabling legislation from the ITS Joint Program Office, it covers the water from national defense to incident response. There really is not an area that we can't go into. Really, the limitation on what we can do is financial and staff. There is just a limit to how much we can take on.

And it is also a very broad range from research to technology assistance. Now, we will put things out like the model deployment. We will put out an operational research program like the integrated corridor between San Diego and Dallas but eventually we turn those over to other people to turn into operations. But we want to make sure that we can demonstrate the real technology for it. So, we need to get fairly close to that deployment line but we can't do national deployments. But even there, with MCOM, we put out and our office funded, and we will get to the highways to administer MCOM grants, which is a -- the MCOM trips me up sometime -- multi-corridor operations management. It is a corridor-type management that helps states with their corridor management activities. And so we fund that technological assistance and the near-deployment activities through the ITS Joint Program Office.

We participated in something called NextGen 911, which is about digitizing 911 calls. Again, depending on what parts of the news you watch, this is a popular topic of being able to text to a 911. The office has been very active in this space because 911 has been being revamped for about 20 years. And so the Department of Transportation, I don't know if everyone realizes this, but the whole EMS response system really sprang out of the realization of the Department 40 some odd years ago that we had this interstate highway system, we had people who were being injured on the interstate highway system and we had no way to get them to the treatment that they needed and that they could get them to treatment in a short order, that collisions and injuries were survivable. And so, the whole system that we know of paramedics and emergency ambulances really sprung out of a need which was created by the collateral damage done in the interstate highway system.

And so the ITS Joint Program Offices were working -- we work with Federal Motor Carrier, we work to develop new technologies and new approaches to managing work zones for construction, for incident management for EMS, that there is, in fact, a proper way, if there is a collision on the highway, if there are injuries, there is a proper way for the EMS, police, fire, ambulance to respond and stage an incident so that one would keep further damage from happening to keep the first responders safe. But you also have the minimum impact on the people who are trying to use that corridor. An so we do research in areas like that.

There is an incredibly broad range of topics that the office works. We have a program I am incredibly proud of called Mobility Services for All Americans. There were six prototypes done around the country that helped people with special needs, whether they are trying to get back into the workforce, disabled veterans,

just any special needs community, seniors trying to get to doctors. A lot of communities spend a lot of money to meet those special needs. And we worked with six communities around the country to get their social service agencies to all work together to provide the same service at lower cost. And what we found out was the communities were saving money but people they were serving, while there was no real change in the service they were getting, they liked it better because they were actually being brought together with people and so you have two people on the MetroAccess van for the hour trip in to the doctor, rather than sending two separate MetroAccess vans.

So, it really didn't delay anyone's trip because you could be more efficient in having to arrange these things but it would improve the experience for people. So, it was a win-win for everybody, for the communities that were saving money and for the people who were having a more positive experience when they are using it.

So, that is a program where we work with transit and it has kind of given rise to part of the whole concept of mobility on demand or mobility as a service, which you mentioned earlier. It is a growing area that is being looked at around the world. And so, it is one of the things we are working with Transit on.

We just have this incredibly broad pallet of activities and you can probably think of a dozen things I haven't mentioned yet.

MR. CAPP: I was going to ask whether DSRC is really the right technology. That is what I thought you were going to ask.

MR. McCORMICK: One of the things I would like to offer, not as a question but as a compliment to your department. I have worked with two of -- both of your predecessors and have had several conversations with them about the lack of communication, the inability of people to understand what was going on in these programs. And over the last year and a half, there has been an exceptional change in terms of what information is not only communicated through your own websites, your own publications to the affiliated test bed but information that goes to ITS America to get broadcast out in the mailings that I have received is that that has actually helped a tremendous amount. And participation in the conferences as well, just recently coming to one and coming to these meetings and doing these projects has made a significant change in people's understanding of the space.

The media finally is starting -- the mass media is starting to get things right. I mean for years nobody talked to Wire because you always had to go home and you had to run the agenda but now it is starting to come out that people have a place to go to get the right information. And I am seeing a much better sense of -- how can I characterize this -- they understand better what the DOT's purpose and function is and where they are trying to go than I think they ever have in this area. And I want to thank you for that. You have both done an excellent job making that happen.

MR. LEONARD: I appreciate that. Thank you.

You know it is important to get the word out because we can take 50 years to do this or we can take 15 years to do this. And the sooner we get it out, the more we all realize the benefits and a big part of that is communication.

Now, I have to tell you what the little dust up we have had over the uncertainty over the Highway Trust Fund. We did significantly cut back our outreach activities in July and August simply because I was concerned one of the notions was to cut the budget in half from where it is. And I didn't want to spend money on travel in July and August that I was going to regret having spent if Congress acted in that direction. So, we have been really looking very carefully at that. But I do think outreach is an incredible part of this and now that we have got a resolution that is going to keep us level-funded for the next year, we are trying to get back to increasing our traveling to conferences and getting the word out to people about things like specifics about safety highlights and about Walter is doing.

Walter is doing some incredible things that people don't often think about like the certification work, the test bed work that really -- you know you know something is going on inside the box but you don't know what it is. Walt knows what is going on inside the box and is making sure other people know what is going on inside the box and appreciate it.

ASST. SECY. WINFREE: Further to Ken's point on that, I mean that is why we are supportive, of course, of the Rural America Act. It is a close to four-year funding bill if we institute a billion.

But more importantly, the focus from our perspective at least guarantees two things: longer term funding but stable funding. You know there is language out there right now in a Senate bill that threatens to cut funding across DOT by 50 percent. Funding that is coming under the Highway Trust Fund for research by 50 percent. And that is an enormously critical issue for this program but also disturbingly, there is language that suggest that highway trust fund research programs get returned back to highways.

So, for my organization, that means UTC. That means JPO and that means BTS. That means 90 percent of the funding that we have for OSTR. So, I am not saying it from the Empire Building perspective but what I am putting a light on is that there is a risk that if this returns back to highways, it becomes uni-modal. The benefit that we bring as OSTR is that we are across the Department that everybody has an equal say.

So, not to say that Highway's motives would be otherwise, but if it returns to Highways, by nature, it is going to start to become less of a departmental initiative. So, that is a huge concern for us, certainly with respect to the UTC program and BTS as well.

So you know, I just need everyone here to be aware of that and be plugged in because it is a huge concern. You know RITA, as you have recognized, has had an interesting and choppy start. If it was an airplane, it is bump the ground a few times but I think we have got some steady flight path now and we are about to potentially hit some turbulence.

So, for us, we have created an asset of value, as we have put it. And that asset of value has been recognized as something that is important to the Department, at the departmental level at OST. So to have these kinds of new initiatives come out, I understand that we are in extraordinarily difficult fiscal times

but we can't lose sense of mission. We can't lose sense of the importance of cross-modal focus on transportation. As I talked about in the beginning, let's not look at it as roads and waterways. I mean, it is a collective enterprise. It is a way of throughput for freight and for people that needs to be recognized and I think that is what OSTR brings to the table.

MR. LEONARD: Yes, I absolutely agree. I think the fact that we are the Department's TIS Joint Program Office and that we work across all modes equally is what makes this such a successful program.

MR. KENNER: Well, with that, why don't we -- because I think -- oh, is there another question?

MR. SCHROMSKY: I'll just ask this real quick. Have you talked to -- you mentioned reaching out to other agencies, Department of Energy, for example, from a cyber security standpoint, are you also reaching out to Department of Justice and some other folks? Because that is one of the big issues, obviously, we are looking for the next competitor and it just happens to be cyber.

So, as we connect more things, you know as we try to compete with other countries, those are a grave threat. So, I am just curious. Did you look at that aspect as well?

MR. LEONARD: Very concerned about cyber, have not reached out to the masses but we have had some discussions with DHS on cyber security and, of course, we are doing some work with both the cyber security.

People ask me what keeps me up at night about this program. It is cyber security. It is the problem that will never go away. Fifty years from now, you know, 25 advisory committees from now, we will still be talking about the cyber security threat for the system. And the system will be a lot more connected and complicated in another 50 years or so. It is not going to go away.

So, I didn't -- maybe you can talk to me offline about it.

MR. SCHROMSKY: Maybe that is just for the FBI.

MR. LEONARD: And I do understand some of the -- you know the FBI has taken some interesting positions with regard to automated vehicles and some concerns that they have made public. I have talked to some law enforcement about connected vehicle issues but I haven't talked specifically to the FBI about cyber. I know they do have a big cybercrimes unit but I haven't talked to them about cyber security.

MR. McCORMICK: Well, I would like to reiterate that that is a global concern at the ministerial meeting that I gave a keynote address on the internet of vehicles in a specific economic community. They specifically asked that that be one of the topics that the UN has asked be one of the topics at our Brussels meeting. And I think we are going to continue the subcommittee for security and it would have the form or technology, because of that reason. Because it is a never-ending issue.

ASST. SECY. WINFREE: And I wouldn't want to put too tight a bow around it but DHS has critical infrastructure responsibilities. So, we are dealing with them because it is at the front end. Heaven forbid we need to get to the FBI where we have had an issue and now we are dealing with it from a prosecutorial or

law enforcement perspective.

So, they are part of a continuum but we need to engage with the critical infrastructure part, as directed by PPD-21. So, we are kind moving forward in that fashion.

PROF. RAJKUMAR: Since this committee is submitting a recommendation, could you comment on the nature of recommendations that are helpful to the program?

MR. LEONARD: I think we actually have a -- Steve, were you doing a presentation on that later? Do you want to take that one, since you are working on it?

MR. GLASSCOCK: Sorry, what was the question?

PROF. RAJKUMAR: So, the question was, I guess, when this committee makes recommendations, what is nature of recommendations that is helpful to the program?

MR. GLASSCOCK: It is up to the committee. Once you decide what you want to focus on and where you believe we could use your guidance and your recommendation.

You know, if it is multi-modal, we certainly consult the other departments, when you do give us recommendations. In our reports, we try to confer and let you where we confer and how we might do it.

So, I think your recommendations, it is all, it is really up to you, where you feel you can provide the best help to us.

MR. LEONARD: And I think you have a presentation one on the advice memorandum. So, that is going to be a player.

MR. KENNER: So, why don't we explore that? Because I think that is a great question. As the receiver of, we are asking for your perspective. Right? We understand that the committee has the ability to go in whatever direction we think is appropriate. But, it is an interesting question as the people that get it, that get the recommendation.

MR. LEONARD: So, I would like to defer some of the discussion until the presentation.

MR. KENNER: Well, we can do that then. That would be helpful.

So, if we can start taking the break now, that would be great. And then maybe we will convene at like five after.

MR. McCORMICK: I have one request.

MR. KENNER: Yes?

MR. McCORMICK: I am not able to get onto the iPod because there is too many users on. So, if you are not using it for a while, could you log off?

MR. GLASSCOCK: We should have unlimited but I will check it.

MR. KENNER: We thought it was unlimited. We checked that earlier this morning. Yes, if we can address that, that would be great.

(Whereupon, the above-entitled matter went off the record at 9:53 a.m. and resumed at 10:14 a.m.)

MR. KENNER: All right, Bob.

MR. RUPERT: All right. Good morning, everybody. It is great to be here with all of you all. I see a couple of familiar faces and a couple new faces.

I am going to talk about the deployment incentive report, this is ITS deployment incentives, which is not necessarily connected vehicles.

Talking about the background, I will give you a little more background on me. I listened to everybody talk this morning and I hearkened back that 20 plus years' ago, I was a program manager for a very small test down in Florida called TravTech. I remember that, there was a really good partnership between General Motors, AAA, Ford, DOT, the City of Orlando, and ourselves. They deployed 100 rental vehicles, collected program information, sent it back to a central location, used it with other types of traffic information. They sort of back the cars, and the cars used it in their vehicle navigation system to provide real-time routing and re-routing to the users in Florida. So, like 3,000 people who would test drive the future of this thing.

So, it is kind of nice after 20 years seeing that sort of come to fruition. But it really does help to make this whole connected vehicle thing a little more exciting, certainly from my perspective, seeing the history back then when we were a little challenged by the technology. We were doing all of this with between six computers and a bunch of cars and GPS antennas aside and professional trucks. So, things have changed a little over the years.

It is important but I don't think the technology necessarily is the big challenges now with vehicles. As you all know, it is going to be a lot more of the other challenges to come along.

So, a little history there. It is kind of nice seeing the whole progression move along.

Talking about the report and sort of the background in where it came from and why we did it. It was mandated at MAP-21 for looking at how to encourage the broad range of deploying ITS, what could be done. What sort of incentives are out there, the charge of the Secretary for the other plan for figuring out how to look at the surface transportation modes and helping to really, is there a way to accelerate and incentivize, ensure that ITS is deployed.

So, it goes back to I think some of what Scott was talking about, what were the broader aspects of just kind of connected vehicles but I guess it has been around for a while. And we mentioned a couple of different opportunities: the legislative itself, demonstration programs, grant funding, incentive and development activities and other tools.

So, the JPO took a lead in bringing together all those modes, all service transportation modes and starting to put together a plan. And I will get to it a little bit later on the sort of the process of the use and go through that. But really, and I think it was brought up earlier today, the charge that the report is going to have is more towards a service transportation mode because we are the ones that really have to embrace deployment for our stakeholders to make sure that those folks are the ones that are deploying ITS.

So, building from the research and everything else that the Joint Program Office helps coordinate, and fund, and sponsor, and all those things, it doesn't really come down to us to

make sure that it gets optimum, the mainstream, if you will. So, that is where we are looking at some of the incentives.

As in developing the report, sort of going around finding out what were some of the programs or some of the examples we giving the Department and outside the Department in other federal agencies, also, what were possibly incentives, example incentives around there and trying to fit them into the categories that were in the legislation itself.

You can see that there was some demonstration programs with that sort Ken talked about. I will get into more about the Integrated Corridor Management Program that was out there that was a demonstration program. And the other partnership agreement, the Congestion Reduction Demonstration Program are an interesting example because that actually brought together from the Secretary level actually brought together all the modes and actually commingled funds in order to put together that demonstration program.

There are some examples there. Grant funding, going back to the early days, the ITS program we had the CVISN program, Commercial Vehicle Information Systems and Network program dealing more with the Motor Carrier Safety programs, primarily within the states but actually funding grants for that. They had to organize themselves around the technology solutions that are out there.

I know we talked about planning grants. Ken mentioned this morning about the planning reps coming around. There are some other examples, too, about mobility services for all American upper planning grants.

One of the programs I was more involved with was the 511 travel information telephone number and we actually offered a number of planning grants to the states back in the early 2000s that really helped them get organized, get stakeholders to figure out what it would take to deploy some of those technologies. So, that is some of the examples of the planning grants we are working on.

Some of the incentives, if you would, the eligible activities, the big one is either increasing the funding eligibility and making sure that the eligibility is out there for the various federal funding programs that are out there for ITS deployment activities and that has to include the operations and the ongoing management of those systems.

Greg mentioned before about the highway is built you don't have to do anything else with it, that sort of applies to everything else we do also on the other systems. You can't just put them in. You have got to operate and maintain them and make sure they are sustained somehow.

So, that is an opportunity for additional incentives. Particularly trying to overcome some of the burdens, reducing the overhead, reducing some of that administrative burden and some of the report of progress that are out there. It is never going to go away. It sort of has to be transparency. We have to make sure that everyone knows what is going on. Is there a way to at least make it not quite so cumbersome and again, find ways to reduce it. So, that is if you want to deploy ITS and using federal funds so that it doesn't become a real hurdle. Is there a way to make it easier for them?

And certainly, any technical assistance and guidance, anything to help like rule, policies, whatever case, to really make it easier for people to deploy ITS, we want to try to do that.

One of the other examples is rulemaking, regulations, and mandates. This is probably more so within the Department, within NHTSA, Federal Railway, to a degree Motor Carrier Administrations, you have a lot for the regulatory and using those as the incentives. The mandates make those happen.

Federal Transit and Federal Highways don't typically do a lot of regulations but they are certainly there and they are an opportunity. We mentioned a couple things this year. Section 1201, actually referred back to SAFETEA-LU, as I said earlier, authorization and service transportation. That looked at real-time systematic and information programs and required us to set up a program to establish those among the states and in the meantime, the Highway is actually be your regulation in place of that that will start getting in here in the next year or so.

So, that is an opportunity to help incentives people and sort of get people's attention, the state agencies, the public agencies anyway. And that is going on also in performance management programs for the transportation planning side. You know transportation planning activities are going to have to start defining performance targets and performance measures and design their programs. So, that is another way to get people to start looking at ITS as potential solutions to those problems.

For example, I will talk about deployment. Competitions haven't been used a whole lot within the Department of Transportation so much as certainly it was among the DARPA challenges and some of the other types of challenges that you have seen out there. That really becomes competition for people. Put a competition out there, let people strive and try to win an award directly related to that.

The Department has a few of those through the ITS program and we would like to see some more that there would be some policy there. That is about as much incentive as we like to investigate.

Then you need all the tools and strategies and various technical assistance that can be offered. And this is a big thing that we do around here, as far as operating technical assistance, lessons learned, trying to gather a lot of information to help people identify solutions, they can use ITS, use technologies, identify the solutions for their problems. And that is one of the big things we want to try to do here, identify what are the benefits, where to obtain your help, identify what technology can help, identify your problem, seeing some examples. I am sure you have technology sort of in search of a problem to solve. Here is the answer, now go find the question kind of thing. And what we are trying to do here is actually make people more informed about the options that are out there, the benefits that are possible from ITS and things like that.

A lot of good information comes out of this. A lot of the sponsors of the Joint Program Office.

Finding decision-making tools, certainly having an analysis tools, decision support systems. Again, taking in the ever-increasing amount of information we have, the transportation

systems that are out there, trying to refine useful tools to help make better decisions, hopefully better investment decisions related to using technology and ITS for their solutions.

Then we have some technical solutions are rather closely linked to the encouraging the use of standards and interoperability this morning.

A lot of standards have been developed under the ITS program. A lot of other industry standards really helped reduce the risk to people as they start deploying ITS. And that is one of the big things we found through this. The incentives will maybe help those that don't necessarily want to be on the leading edge. If you want to start deploying, standards can help overcome some of the hurdles.

So, taking all those and putting them in a little different format and categorizing them a little bit differently and given a notion of the types of incentives we are thinking about in this comprehensive plan that we are going to put together, report to the Secretary, and share with the local administrations, all of that is to further use these options that are up here, identify potential new ones but certainly stand the other options that we have got.

One of the things we have found out in going through these reports is that within the surface modes that help contribute to deployment, it is certainly not a homogeneous fix about how the incentives are deployed, various types of incentive programs. And actually we have different mandates, different missions and the like. But I think there is a lot of opportunity for us to do some internal sharing of internal lessons learned, what has been successful and what works best in the various stages. Particularly, you can look at the rewards in the panel leads that are here, sort of where everything fits.

MR. SCHROMSKY: I have a question.

MR. RUPERT: Yes.

MR. SCHROMSKY: I'm assuming grants are the most popular.

MR. RUPERT: They are. That is my point of view.

MR. SCHROMSKY: Yes. I mean the competition, we have academia in here. So, I mean I see that, my personal view, is the competition, plus you reaching out to academia and universities, are competitors by nature. Right? That is because of the SEC. But do you see that as -- as they look at these, maybe the most let's say bang for the buck.

MR. RUPERT: Yes, I will get to this. Also, a whole mix of things. I think, and certainly I will look to our academia partners here, certainly I think through the university transportation center and things like that have almost a built-in competitive nature. So, as much as the academic programs can identify specific issues, specific programs, specific challenges that they want to offer, that would alter the competition there.

But that is a good point. I think we further engaged the academics of deployment. So, I think that is an opportunity.

I don't know if anyone else wants to comment on that.

MR. ALBERT: I think with the competition, everything has become so intermingled between universities and consultants and

others, there is no just one common uniform isolated where just universities are in competitions. It has become much more a cross-pollinated, which your other university representatives would probably agree with that.

Yes, some things aren't just university allowed but it seems like more and more is a commingling of consultants to the university, depending on your perspective, it is good or bad.

MS. RUPERT: Yes, I think that one of the things I would mention, I think one of the opportunities we have already identified from the various motor groups is where are those that are more targeted towards academia, where are those programs, and can better infuse ITS into those challenges. Have those programs start thinking more about ITS as an opportunity to offer to universities.

I think the program, by its nature, certainly is more cross-pollinated across agencies and everything else. We are really looking at teaming across everything. So, where are these opportunities to increase the incentives? I think that is what we want to try to identify. So, that was a great question.

MR. McCORMICK: If I can, you know the impact through the major programs, VII activities, CAMP activities for the cooperative essential collision avoidance. And if you look then at IBBSS, which had industry participation, had academic participation, had some consultant, Fred Myer, but that produced a great deal of knowledge about this space. And whereas I appreciate all the academia work that goes on, it can be very focused. It can be things like, what they want to do with regards to their test bed. Right? It can be what some universities wants to do with commercial vehicles or New Hampshire, University of New Hampshire with the police vehicles, but without commingling that with where industry wants to go, it becomes an academic exercise, which is okay, in some cases. But when you are looking at reward and incentivizing and going forward, industry doesn't make a business model out of these grants or pilots for the most part, unless you are headquartered and not here.

So, I think that ought to be thought about as well. If you don't have the capability to allow them more like you allow other federal programs and say here is my source and it is going to be managed by this university activity and allow them to incorporate that. And I know Susan did one with federal highways a couple of years ago. That produced breaking work, groundbreaking work. But I think as a lot of the academia work gets published, I get all the publications from a lot of these places and they are very focused and they are very defined and they are very useful but only to a very small segment of the population.

MR. RUPERT: Yes and I think we agree completely. Depending on where you are on that line, there certainly is the element of the initial fundamental research that frequently takes place in academia. But then it starts filling in. Again, if we are looking at deploying ITS, how do you really see the various incentives fitting in? And so very certainly the role there for research, pilot testing. The challenges here that we have seen within the DOT is where did that hand-off occur between for instance what the ITS Joint Program Office does with fundamental research, to the various service modes because they will become responsible

for deployment. And it is certainly not just a black and white line. It is very gray, and work very cooperatively as Ken mentioned earlier, cooperatively, we move forward. But he mentioned there is $100 million in research. There is a lot more federal aid out there and then there is a lot more funding, a lot more resources out there in general through the community itself. So, it is how do we all work together to get the best deployments out there where we can and I truly incentivize those ideas, those IT solutions moving forward.

And it starts becoming more challenging if we start with connected vehicle, that really start broadening them market and we start looking at it, as you guys represent. So, it becomes a great opportunity for us as we move forward but there are certainly some inherent challenges.

Again, I will just mention this real quick, this is again, sort of a time line of where we saw the incentives fitting. The time across the bottom is the various types of incentives, the various stages of product development on the left-hand side.

And this works out pretty well, actually. You know pilot testing, more research, getting things out there in the real world, give some more real examples, give some more demonstrations, Ken mentioned the integrated corridor management that are going on now in San Diego and Dallas. And then we start to offer maybe some planning grants of things that we have got some success stories. We can build off of those. Again, a lot of this is trying to raise awareness within the community and raise awareness within the deployers, those that are be charged with applying ITS. And then really start working at the incentives.

You know as people start looking at the resources they have, how do we incentivize them to use more of those resources to deploy ITS?

What we have seen in the Federal Highway is a lot of the eligibility within the federal aid program, as Ken mentioned before, the $40 billion that is out there. Most of that, by and large, is eligible to be used for deploying ITS infrastructure and eligible for operations management. As anyone here in the public agency knows, just because it is eligible doesn't mean it is going to used that way but it can be put on the table. How do you get rates without benefits and make successful arguments that would be useful.

We are talking to some of our other sisterhoods, sister agencies. That has been a little bit more of a challenge, for instance, the Federal Transit Administration, getting transit properties perhaps to embrace a lot of the ITS that are perhaps a little more challenged to be able to use their federal funds to deploy ITS as well. That there is certainly not -- I made that sound like a blank statement. It certainly varies across the country but our FTA representatives know there are some challenges with that. That is low level, a low level learning curve to get folks up there start identifying ITS where they can actually see the benefits, see cost savings. So, just a little example of what we have learned as we developed the report in-house and we moved on.

So, finally, get some of the findings from this report to begin to feed into the plan or to be shared within the Department and with others. Again, we mentioned before this really is not a one solution for all. Really, it is a full range of incentives that

is out there. They have to look at the life cycle, what is going on, what should be deployed, and what incentive may work best for that. So being able to share some of the successful practices is one of the things we want to be able to get to, identifying the best incentives for the best opportunities for that.

I guess some day if you look through these findings and everything else, you know we didn't see any great epiphanies as we went forward, which may be able to bring a prize. What we discovered that there is already a lot of ITS deployment going on. We already have some incentives to go out there, other ways to incorporate standards, incentives, further those incentives, like I mentioned maybe identify some of the programs, where things like this could be applicable.

I mentioned that their funding was so very important. But there when you start thinking about funding, regardless of how much federal money they give, so there is a lot more resources that have to go into it, we estimate, guestimate is probably a better way to put it, that funding close to a billion dollars a year goes into deploying ITS in the surface transportation side. And that is across the board, just not federal and everything else. But again, a billion versus the $40 billion we put out is a relatively small percentage, but then you looked at the $100 million ITSs there or whatever discretionary funds when they come in. And like you said, the grant funding and things like that.

That funding can go a ways to get successful practices, I guess we see deployments out there, get some lessons learned. If you really look at deploying, you are able to look at in a learned sense. So, that is where we are looking at increasing the eligibility, making sure people are aware of that increased eligibility and if there are some hurdles out there helping people overcome some of those challenges. It is one of the big ones and there are a lot of resources out there but all of us have the burden to bear on this and we want to try to make that as easy as possible. Everybody is seems to be stuck on the money but we do want to help them there.

I mentioned about the federal grant programs, the field trials and things like that. Again, it really helped the early adopters and, therefore, we are trying to get it out there for people that want to do these things, have the technical expertise, have the infrastructure, or something in place. Competitive grants and field trials really help those people sort of get over that last hurdle and become the early deployers in some early test beds, if you will, success stories. Let them really help -- next slide please -- things like peer-to-peer exchanges, arguably is perhaps one of the greatest incentives for getting ITS deployed. A lot of people don't want to be necessarily on that first leading edge of things but if they know that somebody else has done it and there is some other experience sort of the same type of circumstances we have got for the metros, statewide, rural, whatever it may be might talk to someone who is sort of in the same boat I am and they have gone through this. That really helps. We found it would be helpful in programs getting things deployed.

Getting success stories, getting lessons learned, asking those peers we have to work with a little different rate. And

people, it reduces their risk down. So we have found that the peer-to-peer exchanges what they call it, establishing coalitions with folks is also being useful to another way to get the peers together across not just the public agency but between the private partners, and academia, things like that. So, it is really good for me to get similar to what those advisors can do in sharing your experiences. That didn't work, so you look at other programs. If that pilot experience is part of the deployment coalition, getting all those parties together really helped overcome a number of challenges we had and that more over time. Help those individually and then you end up with public agencies but to give that whole exchange of information, is very useful. So, that is really helpful.

Having things like that there can also help people identify the sustainable funding sources. But that again, we have some history with that going back in the early days of traffic signal system on every corner. Traffic signals they had down there back in the early days of computerized traffic signal systems, they actually had 100 percent federal funding for installing traffic signal systems. And then the funding kind of went away for operating and installing them and so we had a really good traffic control system sitting in a closet somewhere not being updated because people couldn't find sustainable funding.

So, that really helped us identify that operation and management was the key to keep in tune with technologies moving forward. That certainly becomes critical, I think to the ITS as we start to point them out.

So, that really is important for finding the sustainable funding solutions as we move forward.

And if you are planning to have to get help, again, get people to identify the stakeholders, identify the possible solutions to address their challenges they may have, whatever situation they may be in. It hasn't been very successful, so we think that is --

Okay, I guess I am done.

MR. WEBB: Bob, while you are taking a break, that last part is so true about every one of my peers out there trying to get that ongoing money. We have a great management center. I can't staff it. I am at half-staff. I cannot get positions approved to gain more hours and so forth like that. My guys are begging for maintenance money but there is the equipment that has been put out that we are having to repair and so forth is just a giant issue at the local level.

MR. RUPERT: Yes, there is a local example here from a number of years ago in Maryland. It is a really good traffic control system run by a really old computer and their memory board went bad. The memory board was just like this table. It went out of memory all of a sudden. So, they had I forget how many days to eventually dig up a replacement part and it goes on eBay. But that is exactly the type of challenge. That finally got their potential, if you will, the leadership, what you really need to operate this thing.

Oftentimes we have seen that sort of within the operations room, when it actually becomes the break before people

understand exactly what the value is that has been provided by that system, at least it used to be there. Hopefully, that doesn't happen again.

But those are sort of the lessons learned, I think, moving forward. It doesn't really have to be so convincing but its life cycle operations management.

DR. SHAHEEN: I just have a question on number four. This is very exciting, this idea of providing incentives for consumer adoption. I was wondering if you could speak to what you guys have in mind there, rebate programs, that type of thing.

MR. RUPERT: The notion is this is where we are looking at other examples from around, perhaps. But if you start looking in this connected vehicle and then connecting the commercial and solar vehicle and solar equipment, some of these apps you have got here, maybe some of the best examples are like Cash for Clunkers. That came out as a way to incentivize people to start adopting newer technology. So, that is certainly an example that is out there. There are the tax breaks for buying electric cars and things like that.

So, that is where we, in DOT, will have to go out to some of the other folks we mentioned would be up here but certainly we will talk to IRS to really start identifying other opportunities here or what makes sense or doesn't make sense.

But as this thing comes to fruition, is it where we can actually now start getting the devices, carrying devices or whatever into people's hands. So, we are going to start getting connected vehicles out there any quicker. So, those are some of the thoughts we have.

Clearly, this plan is going to be a living document, as most things are moving forward. But more importantly, you want to be able to take it after that. That was a little more part of the mission as we go forward.

DR. SHAHEEN: It is very creative, though.

MR. RUPERT: Yes, occasionally we are creative.

MR. McCORMICK: Would that only be for devices or would pneumatic or carry on --

MR. RUPERT: -- to apply your connected car. So, it could be the whole military.

MR. McCORMICK: Well, the reason I am asking is GM has got prices for some of their cars, et cetera, et cetera. And you get a quicker adoption if you can -- you know there are 66 million cars made every year worldwide. We are going to replace 6.7 percent of them every year. So, you are talking about seven and a half years before half of the fleet would be deployed anyway so that you can do it, incentivize incrementally either nomadic devices or after-market devices.

MR. RUPERT: But I think again, from our findings perspective, that is all on the table.

MR. BELCHER: Bob, this is great. So, I think what you said was really accurate. I guess the question I have got is so we have got some early adopters out there. We kind of know who they are and these things help them do the things that they are going to do anyways. And then through the peer exchanges, through leadership, through recognition, you bring along that next kind of

cadre of deployers out there that don't want to be the early adopters but eventually can learn and be convinced.

Then there is the third category that can't or won't spell ITS. What are thinking -- I mean how do we get them to move into the modern world and can you? I mean is it a --

MR. RUPERT: Yes, we do get programs, sort of do a little triage. Where are the leaders? Then you have got people who, like you said, can't spell ITS if you give them an I-T.

And I don't think there is a clean answer for that. Certainly, an option for that does go back into the regulatory process. And that becomes a challenge. As I mentioned, it is important that we have a cross-analysis, a cross-notice type of thing.

What helps with the rulemaking, we found, is if you do a rule that is already 85 percent of the people already do, that makes it a lot easier.

You have got 15 percent of the people who we are not going to like it. But there is a lot more energy out there, among them now, if you will, to really make a clear case for it. So, that becomes an option to start bringing some of the people in.

I don't know. I mean, I think that actually you guys might be able to help with that. That last ten percent, there is always another ten.

MS. WILKERSON: Great. Thanks so much or this insight. You mentioned that this would be a living document. So, is there any, in light of what Raj said earlier, will there be any additional follow-up or are there areas that you believe might require further study that might be important for us to be thinking about as we come up with our ideas?

And then secondly, in light of the barriers that you talked about, technological or dated technology barriers, were there any other barriers that stood out from the participants that you evaluated?

MR. RUPERT: I will try to answer those questions in the proper order. Where we are now, we are just in the process of finalizing the report now, we can sort of see the steps left to get to that point. And once this report goes up to the secretary, the other key point there is the development of a plan. So, I think once that initial plan is developed and that gets shared broadly, in terms of you guys, then there may be opportunities there. The program sort of identifies what you and all the other stakeholders do, as we slowly start to identify ways to expand incentive programs. Yes, I think there is an opportunity there.

As far as how to overcome some of the hurdles, frankly, it is a really good example of some of the challenges we have got is, as agencies, public agencies are allowed to use federal funds, there are certain strings that come along with it, necessarily. What we don't want to get to is the point where those strings become so heavy that people then say well, forget it, I won't do it, then.

So, we want to try to overcome, as I mentioned before, some of those administration requirements that are there, other ways that will streamline that and, again, make this a little more simpler for everybody, as we go forward.

As far as specific examples, I really can't think of

one right off the top of my head but there are some things, but there are some things. One of the areas that we talked about, maybe you have already heard about it, the ITS architectures that are out there, ITS architecture. How are you going to develop the regional architecture and eventually into regulation in order to use federal funds for ITS projects, those funds have to be reflected in international architecture. To add an additional twist to that is that only applies to highway trust funds. Well, there are lots of other federal funds out there that can be used for deployment like Security funds, DHS funds. There are lots of things that don't come from the highway trust fund, so they hope that regulation doesn't kick in.

So, then you start having the argument architecture of this next project, should be, isn't. So, it is not necessarily -- I don't know if it is necessarily a hurdle or a challenge but it is certainly a challenge. How do you try and make sure that people were identifying all the appropriate linkages than they should, as they start to deploy ITS. And again, I think that will become more important for connected vehicles.

ASST. SECY. WINFREE: Again, from the other perspective, it is not -- the challenges are there. A far as any time we get federal funds, the Administration is called. I can build and I have got an example, I have got some pretty pictures where we had one county build a model to start building a roadway. You know the documentation associated with that side of the table is about this big. They have got federal money and built a five or four-lane roadway and the documentation was this big. And it is just very eye-opening as far as that. We have been talking about federal highways. We have been trying to get legislation to change to at least try and get some of the smaller dollar amounts to try and be applicable to some of the federal criteria.

But my staff is, at least I have talked to my Board members, we won't touch anything under $300,000 or $400,000. It is just not worth it from the administrative perspective to address that. I have heard that from other groups. You know they get pressure from -- I was asking somebody for a sidewalk. You don't have to do anything. It's hard to do that.

So, I appreciate you guys there are getting that out there. It is a problem and it is an issue out there for deployment.

MR. RUPERT: Yes, and clearly, it certainly is my view, a challenge across the board.

So, yes, I have actually heard that from other states, too that they have a $200,000 level, they will pretty much say it is only $100,000. It has gotten to a break-even point at that point.

MR. CALABRESE: Bob, you mentioned about some public transit challenges. It is interesting if you could elaborate on that. I mean from my perspective, the challenges in public transit should be the easiest. If you implement this prior to transit properties deploying this, going back, 70 percent of the public transit you are talking seven million trips a year. So, it seems like with a few sales, they is tremendous return on that investment.

What were some of the issues that --

(Simultaneous speaking.)

MR. CALABRESE: Well, I think and I speak a little bit

for our friends in public transit. I think that their challenge was trying to give you those five successful sales when it comes to using ITS for --

They are not necessarily in the sales business. The research on federal transit is fairly small. So, the folks that are dealing with ITS in the Federal Transit Administration, is at times they feel like they are pushing a bit because there is so much pressure on public transit. So they are not thinking about the technology necessarily. MR. RUPERT: But how technology will help and I deployed some pretty base-level technology. I was able to double the customers I served for 50 percent of the cost. I mean there is really cost benefit. But we run assembly lines. If we can move our trains and buses faster, it is a tremendous benefit, it attracts more people, reduces our cost, provides better service.

So, I really, I am here because I think this technology, if we could get that assembly line moving a little faster, it will be a tremendous benefit to both in the company, the service, and in efficiency.

MR. CALABRESE: And I think those were the types of benefits we want to try to capture. But again, talking about the peer-to-peer exchange, you know. It shows it as a real cost savings.

MR. RUPERT: We have done some modeling and some simulation, and things like that. You can eliminate an entire bus or a couple of buses, depending upon your thinking, at least one with computers and things like that.

So, the information is there. You are right, we are trying to meet them. I know we can do a better job in sales. And that does go back to the whole knowledge of technology transfer, capture it, get it out to the appropriate audiences.

MR. McCORMICK: Bob, and I think your third bullet on this page is really key. It is articulating an excellent thing that the industry has failed at for so many years was because it is primarily business to business companies. And right now for the first time, you are really trying to articulate that to the consumer going through the automatic and the safety. And in dealing with it in our dealings with public and the EMS, part of which are members of CTA, that is really the whole issue for them, that they don't particularly care, they just want that benefit. Those didn't quantify it in terms of dollars and in terms of the other must have aspects of it. It helps themselves. It gives them the ability to prioritize it within wherever their funding and spending is going, whether it is a world economy or a state economy.

MR. RUPERT: And that really is a fundamental ideal in the role of ITS and we certainly have driven home with the connected vehicle part. How can we identify those benefits and keep on moving forward?

Finally, you get back to the end and you start asking questions of Ken what are they doing to help look at other incentives. A lot of the help from the Joint Program Office is sort of a fund with benefit studies for the use for funding ITS also. That is exactly the question we get. Someone who really wants to deploy this stuff, how can I make that successful argument? And it really comes back to benefit costs. Sometimes it is a sign of a cost. A lot of times it is real cost. So, when you are beginning to operate, it

comes down to cost.

Well, again, that is the same area in which I have concerns.

MR. SCHROMSKY: Back to Joe's point, when we do the right thing, we cut costs between an ROI and an investment. Is that a glowing criteria or you get double gold stars to somebody who doesn't -- you know, might build it but then it takes three times the amount of the grant to maintain it. Right?

So, I think to Scott's point, a lot of it is not transparency to the end user. I don't know if we are saving money or not on those buses. But a lot of times when we see in other agencies and departments, law enforcement, it is a stop gap funding. Right?

So, at the same time, changing behavior to really reward people, you are actually taking them and making a change but also lowering cost and that you can maintain it for ten years and have it come to you again. I would suspect you will probably see the same people come in with the same thing. I am just curious to see how do we reward those people and kind of foster?

I think that would help because you know what, I did an ROI. I did this. I was able to prove this at real cost savings. And then I elevated at some points.

MR. RUPERT: And in general, right now, no. And that would become one of the things that we want to look at as we start looking at these things. How do you reward those people that are doing good stuff you know, while still trying to bring in people along, as I mentioned before. How do you incentivize people to do it?

So, it all comes down to make people think about showing the government side or thinking about the government side. What we want to try to get at here are what are some of those incentives. So, in rewarding the champions, if you will, the people who are showing positive return on investments, it is a very lenient. So, it is something we need to learn from from others how best to do it. And then how can we deploy the new programs? That there is one of the great opportunities to see that we are not doing that we need to expand to do a better job.

Just real quick paragraph up here to show you the next time line what is going on. Again, the final report is sort of in draft. We are going to get this all done by the end of September, have it out there, and then start deliberating on it and playing around with the various modes and agencies and identify some of the better -- start brainstorming, start thinking about rewarding really successful players, start identifying ITS as one of the programs, perhaps offering some other resources.

For example, in the Federal Highway Department, we have something called Every Day Counts program, where we actually identify some successful technologies that we want to try to push, the administration pushes out there.

To date, ITS hasn't been a really big player in that program. So, that is an opportunity effectively to start identifying some more of those ITS solutions, get a little publicity behind them, almost a sales pitch, get things up there, so that people will start opening businesses.

And I think with that, Bob Sheehan, of our office actually coordinated this among all of us. He listened to everybody but I guess I am the one who is talking to our practice.

MR. KENNER: Any other questions? Well, Bob, thanks so much. That was a great discussion.

MR. RUPERT: Thank you.

MR. KENNER: And if you look in Tab F, there is the charter for this group. And in it, it says we should determine whether ITS technologies are allegedly being deployed by users and if not, determine variants of deployment. So, this is a spot-on presentation that is really important and may actually then feed in to some of the things we want to pursue as a group. So again, thanks, Bob.

MR. GLASSCOCK: Okay. I was just going give you some background and a little information on the process, on what we do with your advice and the timing of it. Well, I will start, I guess with content, first.

Someone posed the question whether you had 20 recommendations in your last report and was that too many. That is for the committee to decide. Some people may look at it as spreading your advice too thinly, others may not have the same idea.

Again, it is your advice memorandum to the Secretary on how we can do a better job or your ideas and thoughts on the ITS program.

So, you are in a unique position this time with this committee because when you were appointed in June, the report is due to Congress February first. So, we get your advice memorandum. We concur. Here are the reasons why we concur or partially concur. And then we send that to the Secretary for him to sign and send it to Congress. It is not a fast process.

So, you have some options. And one possible way to go about with this committee is at the end of '14, you give us a very light advice memo. You can just -- and then you -- done this prior with your first memo. Because you haven't had a time to congeal and come up to any advice, we just talk about what you are thinking about that you have thought of these discussions and leave it at that. And that makes the requirement.

So, you could do that with '14. And then even with the '15, we could add more substance into it, if you are ready and want. And then at the end of your term, in June of '16, where you could give us your full-blown advice memo. And if so, we got it from you in June of '16 and it is due to Congress February 1 of '17, we might make it.

So, just the last memo you gave us was at the end of December. We looked at the modes on our concurrences and thoughts. And we got it to the Secretary's Office in February and he signed it June 24th -- July 24th. I'm sorry, July 24th. So, it is a vote in progress. That is more than I think any of us can take on at this point.

So, that is just some options that you have for your advice. We do take it seriously and I was just looking back kind of in my memory. And several things that were included in your last advice memo were timely. One was talking about just something as simple as nomenclature and how we use terms back and forth. And it

was very prominent in our discussion when we were doing our strategic plan. So, your advice is taken seriously. It is not just a box that we want to check off. We think it is valuable to the program and to the office.

And we want to make it as easy and as beneficial to you as possible. If you would like to have subject matter experts come in and talk to you about some things, we can do that. However you think that what we can do to help you with that end product, we want to do that.

So, again, it is your memo and you can decide where you want to concentrate, what you want to talk about, and we are here to help you with that.

Any questions on that?

MR. LEONARD: If I could just add. We do have to reply to every comment. And so and there are 20. We were strong that we wanted them and that response gets coordinated among all the modes and then it goes to the Secretary. So, that is one of the things that adds to the time it takes to process.

And one of the things we talked about, too, is does that dilute the advice. You have a lot flexibility in how you do this. You could pick a top three or a top three to five and then there are other points we would like to make. Whatever you put in, we will respond to the whole of the memo. But there are different approaches you can take.

And so you have got some time to think about this as a committee and whatever you think would be the most impactful on the Secretary and, hopefully, on the Congress in terms of they look over advice.

But not only do we use the advice memo, if you recall, I had some specific asks of the committee the last time, particularly when Congress asks us for things like deployment incentives report. And so I really do appreciate having a committee to not just generate advice memos, but to help us with some of the activities that we take on and give advice on those topics as well.

MR. KENNER: I was just going to say the good news is that at the end of the meeting, we will talk about how often we want to meet and when we will next meet. But for 2014, our obligation at the end of this year is going to be quite simply met by hey, we met the following times and that kind of thing. So, our obligation there is quite minimum.

And then as we go through 2015, we will be able to decide how we are feeling about the progress we are making and if we have some very specific things that we want to include in the 2015 memo or not. And then the timing of '16 is also really helpful because it is due in the summer. And so, the beauty of that is that if you wait until December, or it was December the year before, we end up in the situation that we were the last time. But if you do it by June and then it allows the machine to go through and process it, it will probably be more consistent with the current time requirements, relative to the February first of '17.

So, I think overall, that makes a lot of sense. We don't need to make any hard and fast decisions but I think it is important for everyone to understand what our obligations are and what we are facing, with the good news that we don't have any hard

decisions to make in this calendar year.

And then it is helpful having a little bit of feedback on -- we are understanding you aren't directing us to do three or five. You know, it is very clear flexibility, but I think the teams naturally carry us about how the receiver of the report kind of views -- you know, if we gave you a hundred recommendations, I think it would make sense that that would be a lot more work than ten, like maybe ten times the work.

MR. McCORMICK: Unless you don't concur with all of them.

MR. GLASSCOCK: Well, and also, let me point out, everything that is FAC, there are a lot of FACA rules. You have heard me talk about them. One of the main points is that these are always public open meetings. Everything that is shared in this meeting must be shared with the public and will be posted on the website.

And, unfortunately, when we started putting the agenda together, we were going to share with you the deployment incentive report and then one of us realized well, wait a minute, it hasn't been signed yet. We can't do that yet. So, we went to the strategic plan that Ken is going to talk about.

Again, we were ready to show you what we have come up with, our end product but until it is signed off, we can't do that of course. But with your advice memorandums and the report to Congress, they are posted on the website for anyone to see, to read, and to comment on if they wish to.

So, we try to put everything on our website. If you need some information and it is not there, please let me know because we try very hard to keep that as complete and up to date as possible.

MR. BELCHER: Hey, Steve, just a strategic matter to think about. So, this one would be a brief memo for 2014. In 2015, will be given to a new Secretary, you know and have a new administration. We don't know what that administration is going to be.

So, one thing from a strategic standpoint is whether in that line we get more information than we might otherwise. We were giving a report to Greg and Ken and Secretary Foxx, who are familiar with the issues that we are talking about. We could be much more focused. And so I am not advocating that. I am just saying it is something that we, as a committee, ought to think about because it will be a new person in that seat.

MR. KENNER: That is a great point. And certainly, that is an important consideration, as we decide how detailed to be after the election.

MR. GLASSCOCK: And I show that as an addendum. If you could get out your advice memo in September, maybe that would be -- we have never gotten advice memos that early. But if we got it in in September and I guess if all major people sign off on it, it is sent out to OMB for their review. I mean so before it leaves the building with the Secretary's signature, a lot of people can give their okay.

And that is enough about that, unless you have other questions.

PROF. RAJKUMAR: I was not aware that the USDOT had started previous advice memos on that site. I will take a look at

the document but could somebody summarize the document?

MR. KENNER: We included it in the book.

MR. McCORMICK: You know one of the things that too, I wanted to offer, you know we did address all of the issues that you brought up at the last one. And certainly if there are issues or questions that Congress has or the administration has that you need to have, would like some information, we would like to do that.

But given when we look at the time frame, that this will be delivered in 2016 to a new secretary, I would also like the committee to consider whether we should do something to talk about topics of discussion that are a little bit more forward-reaching. We have dealt with things of immediate concern or a growing concern, security, we dealt with commercial vehicle deployment. And I think now that we are talking about deployment and now that the automakers are going to be putting things in your cars, I think we, collectively, may have enough intelligence here to posit what are the things that we need to be considering in three to five years? Because by the time we got some of our issues addressed at the last one, it was a done deal. So, that is just my thought.

MR. ALBERT: I'll build on some of what Scott said. You know it seems to me much of what the group has been talking about last meeting, this meeting, is predominately connected vehicle technology as it drives transportation system. And I am wondering, should we really be thinking in reverse? What should the transportation system look like in the future and then how does connected vehicle fit into that or technology fit into that? And I know that is a huge undertaking for a group like this but maybe there are some topics that would say what should the transportation system look like in the future, maybe some sub-elements that we could be writing from and now we have policy people in the room, not to put all the weight on you, Ginger. But you know, we have a different mix of folks, maybe than we had before. Maybe we should be thinking along those lines of what should the system look like in the future to support connected vehicles and other things.

MR. KENNER: Yes, so later this afternoon we are going to talk about potential partitioning of work and what are the topics of interest we would like to pursue. And certainly, absolutely, again, if you go back to the charter and it says are the things we are doing consistent with not just the current practice but a state of the art.

And so to the extent we want to provide some information relative to what we think the future should be and even maybe a different way of viewing that, I think that is absolutely something that worthy of consideration. I think it is a great point.

ASST. SECY. WINFREE: Are we going to have any discussion on the response letter? I mean just among us because our committee said, and now there is a response back. And if there are some things in there that we don't fully get or want to provide more emphasis, that should be an easy thing, I would think, to provide focus for the end of the year this time.

MR. McCORMICK: Well, I think maybe it would be more time effective just to focus on the ones that there was only partial concurrence with.

MR. KENNER: I agree with that, which I believe is --

for sure.

MR. GLASSCOCK: Other questions? MR. KENNER: All right, very good. Well, Scott, again, thanks for your request. I felt missing and not having suggested that the World Congress be part of the agenda for this meeting but thanks for the request and I think it is very important and beneficial to make sure everyone is aware of what is going on, especially if people aren't already plugged in to what is happening there. So, with that, we will take it away.

MR. BELCHER: Well, thank you for accommodating me. I think you heard earlier from just about how enthusiastic I am about where we are in this point in time in our history. And we are so lucky, as transportation experts and technology experts to be involved right now. I mean I think the only comparable time was when we put in place the federal highway system. Really, that is the level that we are at.

So, when we picked Detroit four years' ago for the World Congress, there were a lot of people who thought we were crazy. This was the bottom of the financial crisis. The OEMs were struggling. Detroit was not yet in bankruptcy but a falling down city. And I remember going to my board every board meeting as they tried to have us change our mind and relocate. We couldn't have picked a better place. I wouldn't assume any responsibility for it but we couldn't have picked a better place, again before this point in time. With all the things that are happening, there is really no place better to be than Detroit for the World Congress. And I think the thing for me that is so exciting about this is this is not just a meeting. It is not another trade show. This is our opportunity to continue to move the needle. And I really see it that way and it will be what we will have to do at ITS America at USDOT within your own organization is to leverage the platform that we have in Detroit.

And when I talk about the platform that we have in Detroit, I already have 150 media outlets, not individuals but media outlets signed up to be in Detroit. And the conversation isn't about ITS America. It isn't about the USDOT. It isn't about connected vehicles. It is about all of it. It is about elevating your organizations, elevating the discussion and, quite frankly, getting to the public because we all talk to each other. Maybe if we can talk about it, you know we will just chatter away. But it doesn't matter, what matters is getting to the public. We get in there to expect the technologies that we can provide and demand them.

And so I think that is the opportunity we have at the World Congress. It is an amazing meeting, quite frankly. And let me just kind of run through a couple of things for you just to help set the stage. It actually starts on Saturday with Code-a-thon down in one of the incubators in Detroit. And this is part of one of the things that we are doing with students. We have actually partnered with an organization that focuses on students and there are roughly a thousand students, a thousand both high school and college students to participate over the course of the days. They are doing the Code-a-thon. We have a competition for connected and autonomous vehicles. We will be showing those vehicles on the floor. We will be doing resume opportunities. So, there is going to be a lot of

stuff going on with the students. And those thousand don't count all the students that your respective organizations are sending. And there is a fair number of those as well.

So, then the meeting really starts in earnest on Sunday with I think two really important opportunities. The first is we have got more than 30 state DOT CEOs meeting with 20 transportation executives, transportation secretaries from around the world in a meeting about how to employ technology, what is working, what is not working. And it is not talking heads. It is actually a conversation, which makes all of our international partners very uncomfortable. So, that is okay.

Then we have the opening ceremony in which General Motors is sponsoring and hosting. And Mary Barra will be speaking about something other than ignition switches. And so I think in some respects, it is probably the first time she has had an opportunity to give a public speech about something in a positive light. And so we are thrilled about that.

We are waiting to hear when the Secretary will be there. It could be Sunday, Monday, Tuesday, Wednesday, Thursday. When the Secretary is there we will, obviously accommodate him.

So that is Sunday. Monday, a couple of highlights is we have got Ford Motor Company is our sponsor for the Monday preliminary. We have got Bill Ford. And Bill, if you have never heard him speak about his vision of the future of transportation in his vision report, he is among the best speakers I have ever seen. And so, we are really -- it is a great opportunity to have him have a conversation about where he sees things going.

We also have on Sunday -- Monday, I'm sorry -- two chief technology officer sections. We have got chief technology officer sections through the course of the four days. This turned out to be something that was surprisingly popular. And so we have got chief technology officers for GM, for Ford, and Verizon, but also from startup companies, also sometimes from transit organizations also comes from the universities. So, that will be really that is an exciting addition to the meeting.

Tuesday, our partner Verizon shows up and they are the host. And they will have their CEO, Lowell McAdam, which I think is a really, really great combination to build on the OEM participation because at least in my view what is driving the transportation revolution that we are experiencing right now is connectivity. And so we can get Lowell to talk about kind of where he sees things going and his partnerships. That is what it is all about. So, we are excited about that.

And then Tuesday there are two other things that are happening that are worth mentioning. We will have an entire day focused on emergency responders because we feel that that is really, really important because we are all focused on safety. And that will end with a major training session on Belle Isle where we will tip an 18-wheeler. We are going to have fake smoke and helicopters and the whole bit. So, it would be a really exciting opportunity. That will then lead into this Michigan Festival that we are having on Belle Island, with local Michigan companies showcasing their beer and their wine. I know their beer is good. It is hard to imagine that their wine compares to California but we will see.

Wednesday is kind of our DOT day. We have got our DOT that will Greg will participate in. Most of the modal administrators will be there. And we also, I think it is Wednesday morning we have a first NHTSA breakfast. So, with the leadership NHTSA without an agenda really there to talk to folks who want to ask hard questions and interesting questions. And I applaud them for being willing to do it because they are walking into the lion's den but it is great.

And then we have got our dinner. And then Thursday kind of a lot of important things going on that kind of wraps up.

A couple of other things let me just that I think -- again, let me just -- a couple of other important highlights. We have 30 demonstrators that will be demonstrating technology, you know 22:29:55/11:21:20 Visteon, Verizon, AT&T, you name it. And so we have got autonomous vehicle demonstrations. We have got commercial vehicle demonstrations. We have got transit demonstrations. We have got connected vehicle demonstrations. We have got vehicle-to-grid. And so, there is something for everybody but it really is showing the face of where technology is going. And the great thing is the visuals are awesome. I mean we are going to get members of Congress, we are going to get leaders, we are going to get the press in these vehicles and to see this.

And so that is huge. There has never been a demonstration we have had on this scale before.

And on Monday morning at 5:00 we have a whole kind of pre-pre-previewing with the media out there on Belle Island.

One other thing that is very cool about the demonstrations. So, Michigan DOT and Windsor DOT and Detroit DOT are actually going to be operating their Transportation Management Center during that week from the exhibit floor and not just mirroring it but actually operating it there. And we are going to be pulling data from the demos into the TMC to show what we can do with all of this interesting technology.

Then the final thing that I will mention is our exhibit floor and a couple of things that are happening there. One of the things that is critically important to Governor Snyder and to this state, and to the city, it is bringing jobs to Michigan and bringing innovation to Michigan. And so we have really focused on trying to do that and trying to help with that.

And there are a couple of things that are going to happen. One, there will be, we will have a job fair that will be going on. Two, we have a whole series of activities for entrepreneurial companies and investors. We have got three companies: Raymond James; Fontinalis, which is Bill Ford's venture capital firm; and Econolite that has sponsored an investor with us. And so they are going to meet either reviewing applications and they are going to meet with about ten companies looking for money. And the last time we did it, about a third of them got funding of some sort. So, that was pretty huge.

Then we also have Quicken Loans is sponsoring an entrepreneurial village on the floor. And that will have more than 20 startups companies. Their participation is subsidized and it will be a hub, really an energy hub, where there will be meet and greets. There will be places to hang out. There will be all these

new interesting companies that are there, some of which won't be here in two years and some of which we will all be working for, we hope. So, that is something that is really new and really, I think, very exciting about what we are doing.

We have a mobility corridor as well, where we have a new shared use, new startups, new companies that are focusing on alternative modes of transportation. So, it is hard to be in Detroit and not focus on vehicles. Let me just put it out there. It is really hard and we are trying to make sure we have got enough transit. We are trying to make sure we have got enough shared use mobility. We are trying to make sure we have got enough commercial vehicles but we are in the heart of the motor city. And so if we don't take advantage of it, we are stupid.

But so that is exciting as well. So, I think we have got tremendous partners. And what I would say is part of the reason that this meeting is so successful is because of how insecure Michigan is. They have got the biggest chip on their shoulder of any group I have ever seen. They want to show that Michigan is there. They want to show that Detroit has turned around. They want to show that we are still the heart and soul of the automotive industry. And as a result, the companies around the table have come out in force in ways they have never done before. And they are using this not as an ITS meeting but I was talking to General Motors and to Ford and both of them are investing in this like it is an auto show, which is a level of investment we have never seen before.

And what is wonderful is they are going to send hundreds of people to the meeting and that is great. And we will have Michigan DOT itself is sending probably 200 people to the meeting. That is the kind of support that we have gotten.

And then some nontraditional partnerships. I mean most of our transportation is going to be provided by Uber, which is pretty cool. They are doing it as a discount. And when I told -- historically at these things, you have got VIPs and you have got to give them cars and stuff like that. I told them that they weren't going to get cars, they were going to get Uber cars. But we don't know how to use Uber. I said well, that is the point. Let's figure out how to use it. We will have some 25-year-old who will stand there and program your phone for you. So, we are trying to change the way we all look at this.

As you can tell, I am pretty fired up. All of the indicators are great that we will have the bodies that we need. We will have the people there. We have certainly got the support, the investment. And again, I am just really excited about it and I hope you will all be there. And if you are not, you will miss, I do really think, kind of a transformational event. And it won't be back in the United States for six years, either. So, that is another reason to be there.

MR. McCORMICK: Six?

MR. BELCHER: Yes, because in three years it will be in Montreal.

MR. McCORMICK: Oh, okay.

MR. BELCHER: So, with that, I will stop because I could just keep going.

MR. McCORMICK: Well, I wanted to add to that.

Because our membership typically isn't heavily involved in ITS, I talked to Scott. I talked to Chris Bruno and we are locating our Fifth Summit on the future of connected vehicle at Cobo Hall on the last day, which is the least technical day that there is because this becomes a bridging point to start getting other industries that haven't been in the mainstream of ITS to understand that space. Because as we go closer towards deployment, now you have to get out of your old tech component mindset or app development mindset into understanding the bigger picture and where it can go. And so I think the choice of Detroit, while initially wasn't exciting to me since I lived there, I think have been, in terms of both timing and the contribution that you have seen put into this, it is going to be probably one of the best ITS World Congresses there ever was, certainly for all of the demonstrations as well.

MR. KENNER: All right, other comments or questions?

All right. Well, great. Well, thanks for sharing. I think it is really important, especially because if you want to get involved in understanding ITS at a deeper level, it is a concentrated way to do it. You go there and four days' later, you will get a really good sense of what is going on from a whole bunch of different perspectives. So, good job, Scott.

All right. Well now, it looks like, wow, right on time. That is crazy. Wow.

MR. LEONARD: Good job, Steve!

MR. KENNER: So, why don't we break for lunch and we will ramp back up again at 12:30.

(Whereupon, the above-entitled matter went off the record at 11:30 a.m. and resumed at 12:34 p.m.)

MR. KENNER: Okay. So why don't we go ahead and get started again. I want to make sure we get through this so that we're prepared for when Nat comes to join us. So, all right.

(Simultaneous speaking)

MR. KENNER: Yes, yes, I agree with that. We could have fun with it, but it's probably more appropriate for him to be pushing the buttons. Okay.

MR. LEONARD: All right. So, we're ready?

MR. KENNER: I think we're ready.

MR. LEONARD: All right. Well, we're going to talk to you about the strategic plan now. I regret that we can't give you a copy of the strategic plan yet. As we said we're working through the whole public release process, but I feel comfortable in showing this cover.

MR. KENNER: Yes.

MALE PARTICIPANT 1: But the speech is ready to go, Ken?

MR. KENNER: Outstanding.

(Simultaneous speaking.)

MR. LEONARD: All right. Now, are there any questions?

MR. KENNER: Yes.

MR. LEONARD: So let's talk about it. And I'm going to talk a lot about the process and then we can talk, you know, a little bit about the content of the plan. For those of you who remember the last report we put out, the strategic outlook, that was

a somewhat detailed and guided to some technical discussion helmed by OEM.

For this next round, plan, we stepped back from that approach a little bit. This is going to be a higher level. It truly is a strategic plan and not so much an operational execution. So I want to talk about the process, I want to talk about the different components we have in the framework we've set up, and then I want to get us down to the discussion of the six program categories that we focused on. And I think when we get to them, they'll make a lot of sense to you, and then talk about how we're going to work moving forward, to make sure that executing at a detailed level, the elements that this strategic plan identifies.

MR. KENNER: So, Ken, just for clarification, the pages you're showing us now, are they a part of the plan or --

MR. LEONARD: No, these are not, well, actually some of the graphics may actually be some of the graphics that we used in it --

MR. KENNER: Yes.

MR. LEONARD: -- right. These are not pages out of the strategic plan. This is a brief analysis of the strategic plan.

MR. KENNER: Right, okay. And then how many pages, roughly, is the strategic plan? Is it like 5, 50, 500? That's all right. You don't have to answer it now.

MR. LEONARD: Yes, because there's --

MR. KENNER: I was just curious.

MR. LEONARD: -- there's some appendixes. And actually, I have a copy in my briefcase, but it's --

MR. KENNER: Yes.

MR. LEONARD: -- I think with the appendixes it's probably 50 pages --

MS. WILKERSON: Yes.

MR. LEONARD: -- or so.

MR. KENNER: Yes, because one of the things I'd like to do, we talked about the deployment incentives, as well as this, as being things that weren't completely approved and in the public domain. When they are, though, I think I would like to overtly send it to the committee members so --

MR. LEONARD: Oh, right.

MR. KENNER: -- that they can review it, right? And so that's why I was kind of asking about, you know, am I talking about a, you know, a gigabyte a file, or how big?

MR. LEONARD: It's big.

MR. KENNER: It's sounds like it's a --

MR. LEONARD: Very big.

MR. KENNER: Yes, so it sounds like, you know, providing a link to it would be the appropriate way to make everyone aware of it. But that's something we should, you know, say that we're going to do as a follow-up though, is for both of those reports --

MR. LEONARD: Definitely.

MR. KENNER: -- to send the links out to all the committee members so they can review them.

MR. LEONARD: Okay.

MR. KENNER: Okay.

MR. LEONARD: This will be big and will be posted our website. We're doing a limited print run, but it will be posted to the website --

MR. KENNER: Yes.

MR. LEONARD: -- because most people these days look for information off of the website. We have a very popular website now.

MR. KENNER: Yes, okay.

MR. LEONARD: So people will be able to download it and print it.

MR. KENNER: Okay. Thank you.

MR. LEONARD: And James Cole, who really led this process, and I mentioned has moved out to Turner-Fairbank, was going to do this presentation. Unfortunately, he couldn't be here today. So he could speak far more eloquently than I could about the year-long process that he went through. But there's just a couple key things I'd like to talk about here.

We really reach out to a lot of the ITS community. And we went to hundreds and hundreds of stakeholders to solicit input. And as you recall we went to the committee last year to ask for input on a strategic plan. We got some really good feedback from a number of the stakeholders. For example, one of the bites here was that, in the survey we conducted, nearly 100 percent of the stakeholders were satisfied with the emphasis that we were putting on connected vehicle research, both in the current plan and in the strategic plan that we're moving forward with.

And so not too big a reveal here, but we're not done with connected vehicles, if you haven't gathered that yet, so it is a cornerstone of the next strategic plan. I just wanted to say, maybe, to refer to that element before I continue. And so that part of it, people agreed with. Over 75 percent of the stakeholders, though, were keen on one of the other areas that we put on in emerging capabilities.

I think as a program area, it's important that we continue to look further out, not just on the things we're currently more confident in, in terms of the research.

But that we look for those next concepts and ideas that I think are going to be important, just as three or four years ago not many people were talking about automated vehicles. Certainly there was important research going on, has been for over a decade with the DARPA Challenge and work at institutions around the country.

But it was not in the popular lexicon the way it is today. And so a few years ago I would have classified this as an emerging capability. It still is. I think it'll be an emerging capability for the next ten or 20 years, but people recognize it now. And I think there are other emerging capabilities that we haven't really talked about yet that we're going to want to make sure we incorporate it into our plan. So part of our strategy is to make sure we address these.

MR. MCCORMICK: Ken, are all these stakeholders public entities? It's a state locality, so.

MR. LEONARD: So --

MR. MCCORMICK: Well, it's about 700 stakeholders representing, was it all the stakeholders are all public entities?

MR. LEONARD: Well, you know, we have members of companies and --

MR. MCCORMICK: Oh, okay.

MR. LEONARD: -- trade organizations and things like that who are --

MR. MCCORMICK: Okay.

MR. LEONARD: -- stakeholders. But we do have a lot of our stakeholder outreach work conducted through public venues.

MR. MCCORMICK: Okay.

MR. LEONARD: So we would tag onto a conference where there were a lot of --

MR. MCCORMICK: Okay.

MR. LEONARD: -- these. But we got a lot of feedback from stakeholders across the board, including a lot of public entities.

So in terms of the strategic programs, we'll kind of work from the top level of a strategic plan and then an operational plan.

We've stayed away, as I've said, from the last approach of getting into a little bit more of the operational details, and kept this strategic plan at a high level, focusing on the future. We're articulating the vision of the mission and some of our strategic means of the programs, down into the program categories.

We also, in the strategic plan, identified some very specific research questions that we think need to be answered in the program categories, but haven't really organized them into the detailed level of inquiry that we typically manage the programs.

What the Joint Program Office has done for a long time, as we work with our motor partners, we actually create the program charts that is essentially an agreement between us and NHTSA, or us and not just the entity, but the research team at NHTSA and Highways and whoever's a part of that area of inquiry, where we all identify the resources that we're putting into the effort.

And in case of the Joint Program Office is our management activities and our financial resources. In the case of the motor partners, specifically the resources, the staff and other resources, facilities or things like that, that they might bring into the program.

So, for example, we have a program chart of a program called ATRI, which is, basically, accessible transport issues. And it not only includes both highways and FTA, but includes the Department of Education, which is contributing to that mission because they have a group that's specifically focused on accessible transportation. And so they're a part of the chart.

These charters then turn into very specific executable funded activities with milestones and details. That level of detail will not be visible in the strategic plan, because one, at this point we need some flexibility in how we plan those. And it takes a considerable amount of effort at the start of a new strategic activity to make sure that we've identified what we want and all the outcomes we expect to achieve. But that is the level to which we plan to manage the program with specific outcomes in mind.

So again, just a framework here. We're very focused on making sure that we have performance management. We have an evaluation group. We currently have a vacancy in that group, but

we've delegated that task to one of our staff members, Marcia Pincus. And this is an area where we're doing vaunted work.

We do have a technology tracking activity and we're going to continue to do that. We do an asset deployment survey. We're going to continue to do that activity.

We identified two specific strategic program priorities. The first one, I've already mentioned, connected vehicles.

We feel in the next five years it's critical that we complete the work that was started. We take connected vehicles through to the point where NHTSA's able to issue a regulation and that we actually see connected vehicles merging into the transportation system, that they become a production item, essentially, rolling off of the assembly line, so car manufacturer's will align.

And that really is the end-state goal here. We want connected vehicles to be a reality. We're committed to making the investments necessary of between 20 and 30 percent of our budget to make sure over the next five years that that activity happens. And we support all the activities that are necessary.

Another top program priority for us is advancing automation, not necessarily autonomous vehicles, but the automation aspects of connected, automated vehicles, which have a lot in common with autonomous vehicles, but the Department's vision is that truly autonomous vehicles won't have, in the long run, as large a role in the transportation system as connected, automated vehicles.

Both could be driverless, but we see where we're starting out with connectivity as being essential to moving forward with getting capabilities to the point where they are safe and useable in the system -- that there will be some truly autonomous applications, but that they will tend to be slower applications. They will tend to be failsafe applications of connected automation, where we would hope to see vehicles operating at highway speeds in a connected automation environment.

We're not sure how quickly the industry can get to full automation at a highway speed. I think that's a more distant goal. So, certainly, an admirable goal, but not one we see happening in the next five years of the strategic plan. So those are our two key program priorities.

DR. SHAHEEN: Can you just make a quick --

MR. LEONARD: Sure.

DR. SHAHEEN: -- clarification? What kind of use cases do you see for that?

MR. LEONARD: For automated vehicles?

DR. SHAHEEN: Yes, in that five year vision.

MR. LEONARD: So there are a number of different use cases, and I don't have in the slide deck a specific briefing on automated vehicles. By any chance were you at the TRB/AUVSI symposium in San Francisco? Okay. So then you may have seen a chart that was used there that was a survey of about two, well, like a whole membership, the whole attendance was surveyed. There were about 500 or 600 people there.

Two hundred participants responded to this survey about what functionalities, going down the scale of automation, from relatively low levels of automation, then level two, level three,

level four, and then five levels of automation, and then add a timetable and the best guesses as to how the technology matured in time to allow certain use cases.

And so, you know, one use case would be sending a child to school unaccompanied in a self-driving vehicle. And that was one area where, for whatever reason, the respondents said they saw that as less likely even out as far as 2040. Maybe about, you know, so --

DR. SHAHEEN: I have little kids. I'm not --

MR. LEONARD: Yes. Okay.

DR. SHAHEEN: I'm not --

MR. LEONARD: Yes, I guess sending a seven-year-old off to soccer practice or to kindergarten in a car by themselves may have nothing to do with the technology.

DR. SHAHEEN: Let's all after that.

MR. LEONARD: That might have nothing to do with the technology.

DR. SHAHEEN: It might be a school bus.

MR. LEONARD: But then there are whole ranges of use cases. You know, well, how about adults, how about seniors getting into them.

DR. SHAHEEN: Yes. Yes.

MR. LEONARD: And then, you know, different levels of automation. So I think the number of use cases that you can imagine, the Johnny Cab kind of taxi driver.

DR. SHAHEEN: Yes.

MR. LEONARD: It was another level of automation. Just things like collaborative adaptive cruise control --

DR. SHAHEEN: Sure.

MR. LEONARD: -- you can argue is a level of automation that requires the driver to engage, so it's a little more. We're going to have to look at the whole spectrum of different use cases, because as ultimately this isn't, we haven't really articulated this, but just as NHTSA's moving forward on a connected vehicle regulation, at some point there will be a NHTSA FMVSS on automated vehicles --

DR. SHAHEEN: Yes.

MR. LEONARD: -- and driverless cars and --

DR. SHAHEEN: Yes.

MR. LEONARD: -- not only will NHTSA have to weigh in on those issues, because there will be important vehicle characteristics that have to be described, state legislatures and a whole host of state laws may have to be changed and adapted to reflect ability and technologies.

DR. SHAHEEN: Okay.

MR. CAPP: Ken, put a question in. And I don't disagree with your prediction of the future and all these things that will happen at different times, and we all guess and whatever, evolve around, but specifically the role of this program, do you see it developing use cases, or developing technologies, or you mentioned, you know, leaning to supporting a regulatory framework, kind of like with a lot of the connected vehicle stuff.

Do you see the program trying to define what should be regulated, either to limit automation, to make sure it's safe,

or to encourage it to get better benefits come out of that?

MR. LEONARD: I think the answer is yes. What I don't see is this office -- we're not going to build an automated vehicle. I think we had a different role with regard to connected vehicles.

MR. CAPP: Yes, that's kind of what it is, because it's quite different. And the connected one, as difficult as it's been, was actually fairly specific.

MR. LEONARD: And I think it was really necessary because it was essentially, it's about time to deploy a national movement.

So rather than allowing state by state to say well, we're going to design our electrical sockets the way we want to here in our state, we basically said no, there has to be a common communications mechanism, there has to be certain commonalities. If we're going to make this work as a system, we have to create an environment where connected vehicles can operate and to where the marketplace can exploit the infrastructure.

Because I think what we will start with in connected vehicles, even five years from now, will be just the start. And what we're going to see in terms of after that and manufacture differentiation among the finalists is going to incredibly exciting.

But we're not going to say each car must have this. I think when it comes to automated vehicles, we'll be even less involved in the technology, per se. We're not going to build a self-driving car, we've got you for that. We've got Raj for that. We've got Google for that. There are enough people interested in building that self-driving car. We want to make sure we build it in a way that's safe.

It's one thing to have a dozen Google cars driving around the country, it's another thing to have 12 million self-driving cars driving around the country. So what we need to focus on is creating an environment where we can go from a few dozen cars to tens of thousands of cars, to tens of millions of cars, safely.

And so I think that will involve both encouraging and discouraging. It's too early to say what the regular, you know, how that'll be done, whether it'll be done with regulation, whether it'll be done through sponsoring certain issues and certain technologies. Certainly, there'll be a lot of technology assessment, what do we think is working, what do we think is the potential problems are?

In the emerging capabilities area, there may be one of the problems I think about in terms of automation is well, what if we lose the DSRC connection? And as I've said, if connectivity is essential to self-driving, you don't really believe you truly found this and everybody goes from 65 to 25 miles an hour, that's a long commute home.

So what kind of redundancy would we recommend so the cars don't have to go from 65? So that they fail gradually without having a catastrophic failure. So here's a wild and crazy idea, but there's been a lot of research done on a ground penetrating radar. The DOT has ground penetrating devices which we use for bridge inspection.

It's a lot more sophisticated than the drag a chain across the concrete and listen for what sound like a pop. This is

how they test bridges, so think about that the next time you drive over one. You know, that is the old school technique. It's a documented technique and you have to learn. It's like the guy that knows where to bang on the pipe, right?

And so now they're using ground penetrating radar to identify sub-structural failures in bridge structure. And they developed these technologies so that they can work at highway speeds. Well, you can bring down the GPS network in theory. You can bring down the communications network. And it can be something like a solar flare that was sort of missed a month or so ago because of the angle. But nobody quite knows what those kind of events could do to the whole infrastructure.

So take that as a naturally occurring event that could have dramatic implications of GPS limitations. What would be alternative navigation, so is ground penetrating radar and mapping in the current horizon? That's not something that we necessarily expect would be first on your list to research as a backup. You want to make sure you've got the power to drive someplace. You're not quite thinking about what does it look like. You'd love to have 100 million cars out on the road.

MR. CAPP: No, that's a good example of something that would be helpful and it's probably work that's not being done elsewhere. And so that's a good answer that I think id constructive.

MR. LEONARD: And it's also work I'd like to see done elsewhere, because I don't want to hire ground penetrating radar experts in my office. I've got 17 people. But there are a lot of places --

MR. KENNER: And all of them higher than us.

MR. CAPP: -- MIT and so many. But there are a lot of people who are doing it and kind of were --

MR. LEONARD: Yes.

MR. CAPP: -- and who could adapt it for civilian things.

MR. LEONARD: Again, like cell phone technology, phased radar technology could get from being a $100,000 device to being a $1,000 device. And now, you're interested, because now it may be an affordable backup, you know, $40,000 a car. So that's an example. We're not going to build the cars.

MR. CAPP: Yes. No, but it wouldn't need to be underneath the strategic theme, something, specific aspects because yes, this whole space, you can just wander off.

You know if I could just build on anything you said, we could all wander off for hours and work on all kinds of stuff and then, you may not have something specific to say the program accomplished, right. So blame it on something like you mentioned with your example.

MR. LEONARD: Okay.

MR. CAPP: So, if that makes sense.

MR. LEONARD: And again, what we're counting on is, you know, inside the building we've probably got 40 or 50 people who are part of the automation work across the motors. And they're meeting up regularly. We know the are 100 times that, or more, people working in the industry and academically on the same topic. And so it's a challenge for us just to keep on top of everything out

there --

MR. CAPP: And where is it in --

MR. LEONARD: -- and know where we can do something that somebody else isn't doing, and that will add value. And that we'll focus on something that is more in our role, which is creating a conducive environment where the technology could be deployed. The technology is going to be deployed. The question is is it going to happen in 50 years or is it going to happen in 15?

Where we can help it to happen in 15, in positive ways. And again, I'll go back to the example, we would never have designed a transportation system back in the 1900s that killed 30,000 people a year. If someone said this is the choice, they'd have thrown Henry Ford in jail. They'd say you can't do that, it's criminal.

For years and years and years the streets were where children played, and so we would not have consciously designed the system that way. But it evolved that way. And what we want to make sure is that we create an environment where we think about some of these potential negative externalities in advance so that we don't see a negative change in the fatality rate and the collision rate as a result of new technology being introduced.

I think that's where the Federal Government could play a role. But we can't do it by ourselves. This really is everybody, as the world comes, because industry will have to work to those same standards. And they'll have to understand why the Government is saying no, you really need to meet this standard. Here's why you have so many nods on that in the Department.

So the real simple vision when we talked about it in the ITS Joint Program Office was we see intelligent transportation systems as transforming the way society moves.
And by that, we mean everything about society, goods, people. And we're not wedded to anything that is in the current status quo. It doesn't have to be car transportation, it doesn't have to be bus transportation.

The system will evolve, and so what is important to us as living organisms is transportation. We, as individuals, need to move places and we depend, as a complicated society, on goods and services moving to us. And so our goal is to transform it and bring as much efficiency into that process in transportation.

And we've even, you know, maybe stretched the notion of transportation a little bit when we talk about goods and services to talk about data. Because a lot of value comes from the transport of data. And certainly, data plays an important role in the transportation system, and its effectiveness, in terms of connected vehicles, automated vehicles and how the whole system works to help people move.

And again, I'll refer back to the example of integrated corridor management, where a commuter could make a different decision based on the information they have from the data that's aggregated, analyzed and put back out to them through messaging signs, or through travel or 511 systems, or other means, or from the apps that they're getting on their cell phones or their iPads, so that data plays a key part.

So there's where you see the six elements that we see as part of what we're calling a connected society that includes

connected vehicles. A lot of focus I've already talked about on interoperability. I just talked a little bit about automation and enterprise data. We do want to make sure that we continue activities to accelerate the point. And we've talked a little bit about deployment incentives. Bob gave us a good presentation on that.

But again, while, as an R&D entity, it's not our job to deploy, it is our intent to make sure that the research we do quickly crosses that value you get on, oh, what a neat idea and it works, to here is a segment of transportation that could use that idea, employ it and drive that. And I'll, you know, talk just about a couple of points that we worked to accelerate the plan.

And again, Bob reiterated one. We're doing a lot of cost-benefit work. And that preexisted before, when Congress was running the program, because it is critical the state and local entities are making the decisions that make the investments.

Everybody has to say, well, is this a good investment. I know if I put down ten miles of roadway what I will get. Cars could travel down that road. If I spend a fraction of that amount of money on an equivalent ITS system, there's no ribbon cutting, it doesn't have the same visibility, but I might be able to solve the transportation problem that I'm trying to solve by laying asphalt or concrete.

And so we need to make sure that the decision makers who are trying to make those decisions have hard facts in front of them to know whether is it truly cost effective, more cost effective to put down concrete, or put in an intelligent transportation system, so that they can make the right choices for their communities.

And we can't expect every small locality in every state to go do that analysis on their own, so we do a lot of work because we think that that helps to accelerate the plan and helps people make better use of the resources and the technologies that are available.

And again, I've already talked a little bit about emerging capabilities, and using ground penetrating radar is just one example of the kind of technology we have looked at. A few years ago that would have been automated vehicles as an emerging capability.

MR. SCHROMSKY: So Ken, you've seen a language in your office is already, you know, like a common framework or platform, right? So I wanted you to look, when there's one and two, right? Six and seven industry with the terms, right, as long as you get the fundamentals. The audience of this strategic plan, who is it? Is it Joe Citizen or is it industry, DOT, states, governments? I'm just curious.

MR. LEONARD: The strategic plan is a document requested by Congress and is sent to Congress. But in a lot respects, it's really for the community to understand what we're focused on, where we see the big issues.

And so I think connection, automation, interoperability, data, continue on working on emerging technology sort of things, we focused on trying to keeping it to a handful of items.

But the ones that we feel where we can make good use of the resources we have, we can make progress and we can make a difference in those areas. So it's in part to meet an external requirement, or request by Congress or the ones who provide us a

strategic plan. If Congress didn't ask us to do this, we would do this exercise anyway.

I believe it's important in research to have an idea of where you're going and, frankly, I think, the department is working on a 30-year vision not just for ITS, but for transportation. Having sometimes five years is a little bit too short for us to be thinking. But that's the right timeframe for planning out resources because in that period of time you could predict with some accuracy how you would spend your resources over that period of time.

I couldn't tell you how I would spend $100 million 15 years from now. Too much would have changed. I can tell you with a fair degree of confidence in the last two or three years and a fair degree of accuracy how $300 million could be spent and I could probably get about 75 percent right on the last two years of that.

So I think this is a good strategic time frame in order to make sure that we're executing our resources in a way that will help in strategic ways.

MR. SCHROMSKY: I would add to that I think it's not a bad time to do that, obviously. Because what we talked about before your connected corridor, whatever may be, you've got sensors to that.

You do this one, you know, either infrared or environment or something, you connect with the kind of faces there and you're making it smarter. But the technology is there.

You're just building intelligence into a sensor, right? And then gathering that data and then forwarding it on to a sign or sending text message.

I think once you, we receive the same thing here, like cell phone technology was here, but then you need a smartphone that just went like this, right? But I think you're on the same path that when you have connected vehicles there's so much more data and data's fed back into the system actively instead of passively if that makes sense, right?

And I think that will take it to a whole other level. Because right now, what you're doing to some extent, you're already connected, right. Look at my vehicle, I've got five different connections already. So what are you going to do different?

I've got E-ZPass, I have GPS, GM already put a cell phone in there, I have another cell phone, so I think that's when you build that standard of you're going switch from passive to active and you're really going to start pushing a lot of this.

I think the standards are right, you know, put that platform and being able to allow the technology to come essentially, they'll all come.

MR. LEONARD: Yes, and particularly in our data program, in the past five years our focus has been largely on capturing our research data. And that's important and I think it's been valuable.

We've captured the research data here, you know. CAMP came in and we captured a lot of research data so that we could make decisions.

And we're sharing research data so that others can, you know, look at our data and use it. And also to help create some operational data environments.

I think in the next five years we're going to be focused more on how does the world use data and not just the data that's coming out of research, but all of the research and all of the resources that are out there because there's data that available on all sorts of timeframes.

We've talked about a world weather program, weather service central and the data. BTS has a lot of data that could be incorporated into some modeling forecasts and traffic forecasts.

And so I think it's a data rich environment that a little work on enterprise data analysis and how it relates to transportation could really pay off for both us and I think it would be exploited into the private sector in ways that add a tremendous value to consumers.

MR. WEBB: Okay. Well, maybe we can get the car guys to jump in too. From the safety aspect, the former Secretary was big on distracted driving.

Who's doing the research, who's doing the evaluation on how consumers are going to process this stuff? They've got to be proactive.

The example you gave earlier about driving down the highway and I got to process that if I make this next choice in a mile to get off and catch a train or whatever, that's got to be fed to me in some fashion.

I assume there's been lots of research and ongoing research. Is that within your area or your knowledge or --

MR. MCCORMICK: If I can add to that a little bit --

MR. WEBB: Okay.

MR. MCCORMICK: -- if you don't mind. One of the main thrusts of the integrated vehicle-based safety system activity was to determine how much cognitive load is affected.

And it was I don't remember how many millions, 15 million with another five, I think, added on to that for both commercial drivers and other drivers, how much information they could actually process.

And they discovered over the course of this, and the final report was never made public, but that they discovered over the course of this is that with the amount of information they bombarded, and it was all visual clues, they actually had something like 30 times the number of incidents that the average driver did.

And then there was a whole body of work done by a number of companies along with SAE. And the automakers participated in it through SAE and then through their own research where they looked at, well, what's the difference between how much audio cues versus visual cues can I have.

They actually filed back and said it's kind of that analogy that, you know, half the people turn off the voice on their navigation system because it's, you know, it either interrupts their thing or they don't need it, right.

And then there's a number of university studies. Doctor, at UMTRI, Doctor, somebody help me here.

MALE PARTICIPANT: Jim Sayer?

MR. MCCORMICK: Jim Sayer, yes. Yes, Sayer. Jim has done most of his work before he was doing the program management on the projects that he does now, was in cognitive load research and

is one of the foremost experts in the area.

So there's a lot of it going on, but part of the big problem is that, I just got a new GMC vehicle a little while ago and my other car I had for ten years and although it has some functional queues, GM to GM, it's whole new system with whole new things that I have to learn how to retrieve them and understand and use.

And the problem is exacerbated when I go rent a car because I go rent-a-car and I get into a Ford or another vehicle. I'm not familiar with any of that. So now I've got an additional cognitive load activity going on. Go ahead.

MR. CAPP: What are you doing switching companies when you go and rent a car? Oh, there's a Ford, yes.

MR. MCCORMICK: I was in Vegas and all they had was a Camaro and I don't fit in a Camaro.

MR. LEONARD: Well, let me answer the question before I think I have one more. Yes, distraction, cognitive load and visual distraction and auditory distraction are all important areas.

And in fact, we have been funding Chris Monk at NHTSA. And I see some head nods, so people know who Chris is. In fact, he would be a good subject matter expert to get in to brief the committee at some point if this is an area.

He recently briefed a distraction subcommittee of the Safety Council at DOT on some of the work that we're funding that he's doing on behalf of NHTSA.

It not only informs NHTSA's other regulatory activities, but it's certainly helping to inform doing specific work for connected vehicles. But he's also looking at similar work in the area of automation and the transition between the vehicle and the operator and so there's really interesting evidence there.

So we are funding research in human factors. And this another area where we talk about the need to cooperate among the modes.

You know, the FAA has had a very active human factors program for a number of years and has already looked at issues associated with automation because of a lot of planes.

Most of the time planes are flying on autopilot and so, you know, there's been some work done in that area. I think we need to capitalize on that and look around modes to make sure that we're not funding work that's already been done and we're taking advantage of things we want.

But again, this is another area that we are going to have to continue to do work. And we're currently funding work in it and we're continuing to fund work in it.

It doesn't do us any good if we eliminate one type of collision only to create a new type of collision as the same consequences. If I could make all the collisions less damaging, I will consider that a victory. But we don't want to substitute one for the other. Raj, you had a question.

PROF. RAJKUMAR: I have a question and a comment. The question I think was to steal at the end of the day. I like the vision of a connected society and that appears to be USDOTS had and whether they were excluding any factors.

I'm personally concerned about the fact that there's a proposal out there to share bandwidth that's indicated via smart

seat belt focuses which I think has, maybe, adverse safety implications. But what's interesting with that, is that a topic that we could try to visit sooner rather than later, like maybe in 2014 question of the sort.

MR. KENNER: The short answer is certainly we can if there's broad consensus. We had done that in the last committee where we actually sent some information as a program advisory committee. And if we feel strongly about that and, you know, we certainly can do it. And --

MS. WILKERSON: Did you follow comments?

MR. KENNER: Yes, absolutely. And --

MR. MCCORMICK: You testified to the Congress and Senate. And then I --

MR. KENNER: Right.

MR. MCCORMICK: -- was there for the Congressman Shuster's depo. You know, we got the FCC, came back and said that, you know, the head said that we're not going to do anything to cause a problem. The reality is that there may be forces in play that --

MR. KENNER: Yes.

MS. WILKERSON: That type of a solution.

MR. MCCORMICK: -- if we get a solution, you know, my comment to him was that allowing unlicensed devices, you know, those aren't your toaster talking to your refrigerator. Those are people sitting in the backs of your passenger seats that would likely have those devices --

MR. KENNER: Yes.

MR. MCCORMICK: -- and attaching to it and at least recognizing your license by releasing it is going to be equivalent to a denial of service attack. And we said --

MR. KENNER: Yes.

MR. MCCORMICK: -- they needed to go back to a research approach is that with the same thing Scott had indicated in his testimony. I guess my question would be I'm not sure what more we're going to add to that discussion.

I think we might want to make sure one of them is made aware of the issue as it stands out there, but I'm not sure that this committee can again, you know, reinforce its past recommendation that's useful.

MR. KENNER: Yes. So why don't we do this because we are going to have a chunk on the agenda that talks about areas of focus for and, you know, as we go forward. And certainly we can then have the discussion about, you know, what makes sense there.

Even if we don't necessarily take, you know, specific action in the near term, that still doesn't mean we don't want to have a subcommittee focused on that in particular, right?

And then if that subcommittee comes up with a recommendation that says, hey, because of the external environment changes, we think it would provide value to give this information, then, you know, I think that's absolutely fine and consistent with what this group did the last time.

MS. WILKERSON: Yes.

MR. MCCORMICK: Okay. Go ahead.

MR. LEONARD: Well, on the topic of DSRC, I believe we asked the committee last time to be aware that we were preparing another report for Congress, the DSRC Deployment Study.

And we have drafted that study. The Congressional requirements were that that study go to the National Academy of Sciences for review.

And we put a contract in place and we're completing the final internal circulation in the department of that study before we send it over to the National Academy.

So at some point, we'd like to be able to share that report with the committee and then that provokes further discussion.

MR. KENNER: Yes.

MR. LEONARD: And our intention is to get that report submitted to Congress a year from this September which is when it was required. But because of all the reviews that have to go through the cabinet, it will take a while. But, you know, we appreciate the committee's report or contributions to that last time --

MR. KENNER: Yes.

MR. LEONARD: -- that is on this topic. So this is a topic that's going to be with us for awhile.

MR. KENNER: Yes, you bet.

PROF. RAJKUMAR: So if we could come up with a comment of observation, I agree with you completely Ken that the role to completely self-driving vehicles is a long way off.

That being said, limited operation is really likely to get to the field sooner than later. Features like a highway pilot or a traffic jam assist with the driver in the driver's seat would be welcome.

So that sends a really incremental organic evolution of this technology who works with automation which could be far away.

MR. KENNER: Yes.

PROF. RAJKUMAR: So maybe that would be quick to come.

MR. LEONARD: No, I think if someone said, well, automated vehicles won't be here until 2020, we could all say yes. Instead of well, they won't be here until 2040, we could all say yes. And both answers would be correct, but we would have different visions of what we meant by an automated vehicle.

MR. KENNER: Yes.

MR. LEONARD: Some people would say, well, automated vehicles are here today. The answer is yes.

MR. KENNER: Yes. Yes.

MR. LEONARD: So --

MR. KENNER: Yes, certainly, you know, almost all automakers have a version of adapted cruise control and lane keeping assist that would allow you to, you know, basically go on the highway, you know, without your hands or feet on the wheel at the ready in case you needed to.

But, and you've probably seen some videos from some automakers where they even, you know, show a tuning version of that where people will crawl out of the sun roofs or whatever, not that

I would encourage that nor approve forward advertising for that effect.

But I think it does make some people aware that, hey, some of that stuff is here today that don't really know it, right, because they don't have the newer vehicles.

MR. LEONARD: And, you know, I think it's those capacities that convince me that the connection is such an important part. Because I was in a vehicle that had the cruise control and the lane keeping as it took the curved off-ramp and cruise control was set at 50 and I was behind a truck. And as soon as the truck turned off, the cruise control started to go up, but I'm driving the car.

What I realized was if that truck went through a red light --

MR. KENNER: Yes.

MR. LEONARD: -- I would have followed right behind.

MR. KENNER: Yes, absolutely.

MR. LEONARD: And whereas if there was a connection with the infrastructure --

MR. KENNER: Absolutely.

MR. LEONARD: -- even if the car in front of you is going to go through a red light, you don't necessarily have to follow.

MR. KENNER: Yes. So why don't we do this just as a check of the agenda and out of respect for Nat. Why don't we just cut that off right now?

We can continue this right after Nat's done because then we have a break and then we have, you know, some open time for dialogue on, you know, what do we want to talk about.

And again, this paper gives us a lot of food for thought, relative to what we recommended and areas of focus last time versus maybe how we would want to modify that.

But I want to, just out of respect for Nat, make sure that we get him up here so that we can respect the timeframe that we asked him to be with us. So --

MR. LEONARD: All right.

MR. KENNER: All right.

MR. LEONARD: We'll turn it over to Nat.

MR. BEUSE: Let's swap.

MR. KENNER: All right.

MR. BEUSE: I just want to do my best.

MR. LEONARD: Hey Nat, do you think with this, do want us to put it up?

(Laughter)

MR. BEUSE: I've got it. It's with the cable. It's okay, either change it or --

MR. LEONARD: That happened last time.

MR. BEUSE: Yes, it did.

(Simultaneous speaking)

MR. BEUSE: Well, certainly things aren't boring at NHTSA. Obviously, within a couple of hours I know what's going on. So, first of all, regrets from Dan. He is tied up with other things

right now and so you get me instead.

I thought what I would do is maybe just explain maybe for, I guess, the new folks on the committee just kind of where we've been and kind of where we think we're going with V2V.

So we had the decision in February announced by the Secretary that we're going to pursue a rulemaking for DSRC V2V devices on vehicles. So no applications, just the radio.

So, of course, one of the questions immediately from the folks who deal with NHTSA a lot is how are you guys going to make cost benefit work with such a proposal. And I can tell you we have an idea, and more to come on that later.

So we've been busy since February. I think there was a lot of anticipation that we were going to have this report that we referred to, that the Secretary referred to in his comments, out for comment and indeed that was our intention.

And somewhere in the process, we decided that rather than just issue what's called a request for comments on the report, we decided that we were going to basically start --- enter the rulemaking process.

And so we've now changed the request for comments into something called an Advanced Notice of Proposed Rulemaking, otherwise known as an ANPRM.

Depending on how familiar you are with the rulemaking process, sometimes ANPRMs are viewed as sort of, again, a kind of a fishing expedition, or not really much that the agency has to say and maybe they're trying to meet some congressional mandate. I can tell you with this, that's not the case.

What we're really wanting to do is draw some particular focus to some of the issues that we think we're going to grapple with as we try to meet the Secretary's promise of a proposal by the end of this administration, which if you're not familiar with the calendar, it's around 2016.

So we have been going through the, sort of, review process that is involved when you go from a simple request for comments to something that's basically announcing that the Government's starting rulemaking.

And if you were really paying close attention to this, you would have saw this morning that OMB posted that they have finished review of said ANPRM and have cleared it for publication.

So we are now in the process of going through what that really means in terms of announcements and events or non-events and all that kind of stuff that usually happens around notices getting cleared.

So I can't tell you today what's in the notice, but I can tell you that unlike in February when we were saying that it was in the coming weeks, I can tell you for real it's in the coming weeks and we really mean coming weeks like soon.

So that will obviously come out. We're putting a 60-day time frame on there, which is probably a little bit shorter than we originally wanted. I'm sure we'll get lots of requests for extensions.

But we really need folks, I think to the extent possible, to stay within that 60 days because I think our sites, for a while now, have been looking at the ANPRM process and what we really need to do to make that happen.

There's no shortage of work to be done. So what we've done in the report is identified several research gaps I'll call them.

So it goes through --- it really is a research report that tried to summarize what's happened over the past decade, which wasn't easy.

This thing grew to about 300 and some pages over the course of time that we were working on it. Partly because there was a lot of history to go through, but part of it was us looking at V2V, the research that has been done from a regulatory standpoint, from you're going to issue a mandate.

So things might have worked, let's say great in Ann Arbor at the safety pilot. They might have worked great in some of the work that the manufacturers are doing, worked great in some of the work that DOT is doing.

But when you look at it from a regulatory posture, you're looking at it from the standpoint of kind of what's in the public domain, what are the standards out there needed for interoperability, what do you need to do for misbehavior detection. Oh yes, what about this thing called security management system that's supposed to be sending out credentials.

So we looked at it from all those different aspects, including our legal authority. Lots of folks have asked questions about what's NHTSA's legal authority to even require V2V devices on vehicles, how does the infrastructure roll into that, what about this security management system that some people link it to air traffic control for vehicles?

And, you know, NHTSA doesn't really do those kinds of operational duties. So it goes through all those different issues, and identifies what are the research gaps that we think we have left to finish before the proposal.

And what we've also done is sort of holding ourselves accountable, put in there dates that we think we will have maybe certain projects done. And I can tell you most of those dates are internal deliverables to the agency. But that's really kind of our focus, and is really how to get that information back to us.

So I think the commenters will be spending lots of time, you know, when 60 days come around to, you know, really trying to answer the questions.

I think from our perspective we really want to have, you know, good solid feedback, certainly identify issues that are there, but just not issues for the sake of having issues.

I think if we're going to meet this 2016 promise from the Secretary, we really need issues with possible solutions not just well, here's a problem you guys haven't thought about.

What else can I say? So there's been some back and forth, I think, mostly with CAMP because that's who we've been doing

the work with. And we are going to continue that work.

There's a lot of focus on misbehavior detection that if you were to ask me kind of what is the one thing that worries me or one thing that's really kind of not as far along as I would like, it would be misbehavior detection.

That's sort of the unwieldy animal about what do you do about bad actors and what do you do about, sort of, devices that just end up not working for whatever reason?

And how does that dovetail with NHTSA's authority to be able to find those devices to issue, you know, recalls or manufacturer's being able to find those devices and issue recalls?

And also maybe in the case of something malicious, maybe other Government agencies would be interested in that kind of information.

So we've got to work through all of that for sure, including, you know, if a vehicle is just going to give a simple, you know, idiot light that says hey you have a problem and take itself off the network or how that's all going to work. So there's a lot of work that needs to be done to iron that out.

With respect to the security management system, one thing I always like to remind folks, because sometimes it gets lost in conversation, is that it's not going to be a DOT-run entity. We've said that pretty consistently now for about a year including in the GAO report that was published last fall.

But what it doesn't mean is that DOT is just going to sit back and set this huge system up that's going to have all this potential and just kind of sit from afar and not do anything.

Of course, we're going to be actively engaged in what's going on with that security management system, making sure some reasonable rules are being set up. Well, we're not going to fund it. I think that's really what the difference is.

We're not going to own it. It's not going to be a Federal IT system where many other rules kick in. And we're not really saying or predicting who's going to run it, right?

And so one of the things we're going to do, probably, I suspect maybe 30 to 45 days or so after the ANPRM comes out and the report is actually do something, what's called a request for interest.

And the purpose of that document would be to see who out there in the stratosphere wants to run the SCMS.

They wouldn't necessarily have to put down here's our business plan, here's how many employees we're going to have, you know, all the kinds of stuff that you would normally have like in a proposal, but really just who has thought enough about it to say, yes, we think we're interested, we think we could do a good job, those kind of things.

So that's going to come out after. And the reason why it's coming out after is because the ANPRM and the report have so much information in it that we wanted to make sure people had a chance to kind of digest that before we threw another document out there that then was soliciting interest on the security management system.

So that's sort of our one-two punch on that. One of the questions I get sometimes is, oh my gosh, now that NHTSA has entered the rulemaking process has it made up its mind? No, we haven't.

An ANPRM is exactly what it says. It's an Advanced Notice of Proposed Rulemaking. It is sort of our ideas about where we think things stand, but it's really more about soliciting additional information before we actually develop a proposal.

An ANPRM in itself is not a proposal. Even though it has proposed rulemaking in its title, it's really not a proposal. So we will be formulating our proposal course over the next year.

One of the other questions I get is how is NHTSA or DOT posture going to change over the course of developing this proposal? Is DOT going to go into some sort of lock-down mode and not talk to anybody? No, not the case at all.

You know, you'll see when you see the questions in there, it's really much about engaging people and making sure they're coming in with good ideas either as a community, as individual members or whatever, companies, but not about DOT has made up its mind and we don't want to hear anything from anybody else.

Some things we're doing in the background to accelerate things, one of the things that's key to making this thing go is available standards. Some of you may serve on this committee, some of you may have staff that serve on those committees.

I'm in the process of ghostwriting a letter for Dan's signature that will go to IEEE and SAE prodding them along to say that we need these underlying standards for DSRC done and we need them done by date certain because we can't use stuff that's just in draft.

It can be in draft in the public, then we can use it. But if it's in draft and we know about it because we're on the committee, that's great, but we can't use it. It's got to be a citable document.

I think one of the other potential challenges we may have is those two groups, they're volunteer organizations, right? So how fast they go depends on what their management says and also the number at their meetings and things like that.

So that's the purpose of the letter, is to really put an emphasis that it is important, the DOT does need it and if we don't have it there's going to be big gaps in order to make this thing go.

The other thing that's interesting about volunteer committees is they generally, except for this committee, is they generally make their money, so to speak, off of selling standards.

That's probably going to be an issue down the road if all of the standards aren't basically available for free in some way, shape or form, right? Just NHTSA hasn't generally done that where we required manufacturers to follow standards that aren't kind of free and available out there.

So I think we'll probably be having other conversations in the background with probably some of those committees if that ends up being a big issue.

On occasion, it has been an issue in the past. We've found a way through that. It's all about copyright protection and things like that, but if it ends up becoming an issue then the lawyers will have to get involved and we'll have to find a path forward.

Because again, I think our preferred option is, you know, manufacturer, supplier, whatever, shouldn't have to pay X dollars to find out what the rule of the law is in the United States. I mean, that's really what it comes down to.

Other things we're doing in the background revolve around spectrum. So obviously, there's a lot of focus on 5.9, a lot of pressure to use it or get off of it, so to speak.

So we've been trying to figure out a way to engage in that process and we think we might have a path that could help inform the process and we're going to probably pursue that. And I'm being vague on the details on purpose because things aren't ironed out yet.

But we really want to rely on the IEEE Tiger Team to really do what it's supposed to be doing, which today they've been a bit slow.

So there'll be a lot of activity probably in the next coming weeks here when this report gets out, when the interim gets out there'll be lots of questions.

We'll do our best to field them all and in the process will start. And one of the things we've talked about is just making sure we're sharing as much information as we can as we go down, including stuff in draft. And so to the extent that we're able to do that, we will do that.

There are things that we won't be able to say, right, as we get closer to that end because then we'll actually be really writing our proposal.

And we also don't want to get in a situation where someone could make the argument that we've set up a FACA or a Federal Advisory Committee without going through the proper channels to inform a Federal rulemaking.

So we're going to have to kind of be careful about what we do, but I think our full intention is to be as open as we can. So that's what's going on V2V, sort of the five-minute elevator speech.

So I can take some questions. One thing I did want to address is the distraction issue. Ken did a very nice job answering it. One thing he forgot to mention, or maybe because he's probably not aware of it, but, you know, we also have these phased guidelines that we're working on, right.

So we did Phase 1, which applies to the vehicle manufacturers for things built into the vehicles. So to the extent that as V2V is deployed and including autonomous vehicles that are deployed, the framework to deal with distraction is that space console that the manufacturers control that we have direct regulatory authority over, that we're not trying to write rules.

We think that the guidelines that we've issued go far enough to help make sure those interfaces are designed safely. So that's a big step and we're waiting to see how manufacturers respond

to that because we just issued those final guidelines early this year.

So they haven't even started designing products to those and that's understandable. But that covers a wide range of the concern I think that I heard people talking about.

The other two things that we're working on, one has to do with after-market and portable devices, so, you know, iPads or Garmins and things like that being brought into the vehicle that are being used, from our perspective, as pieces of motor vehicle equipment, including the applications that go with those devices.

And we had said four years ago that we were going to do those guidelines and we wanted to focus first on the Phase 1 which applied to vehicle manufacturers. So we've done that, so now we're focusing on Phase 2 which applies to those devices.

And the intent really much there is to apply what we did for Phase 1 onto these devices and just make the proper adjustments that we need to account for the unique features of those devices.

But the idea is that there is people designing devices and/or applications that want to take advantage of data or the environment or offer new services to consumers, but they don't have the either technical ability and/or the resources to know how to do those things safely.

So we feel like we have a role to play in sort of helping them do that in a way that's safe. Unfortunately, the folks that are in some of these in this community don't see it that way.

And they recently sent a letter to the Secretary sort of saying that they were going to stop work that they were doing on guidelines.

And so we're a little bit discouraged by that turn of events because we think that they're missing the bigger picture. And so we're going to continue to pursue our Phase 2 guidelines despite their reluctance, and push that.

The next thing that we're doing is something called voice guidelines, and this is Phase 3. And this is going to be a much bigger list because unlike Phase 1 and Phase 2 where we have something to go on, Phase 1 was based a lot on what manufacturers were already doing.

They already issued guidelines. With voice there's nothing out there at all. And the challenge is that in vehicle environment it's, you know, it's a noisy cockpit. You can make it work probably great in a room like this and then you get into a vehicle and it falls apart.

So it's going to be a challenge and we're starting the research now. I'm less confident that we're going to get there as fast as we think we are, but, you know, I'll let the time dictate that.

One thing we're not doing that always gets confused is sort of like what's NHTSA doing on cognitive. Right now, we're not doing much on cognitive at all.

My personal opinion is that the amount of resources

and effort it would take to figure out cognitive load is it probably would cost ten times whatever Ken's budget and my budget is put together and then like add on about ten years on top of that. People have been studying it for years already.

There's a very interesting series on Discovery, I think it is, that talks about the brain. And if you watch that, what I just said will make total sense to you.

Figuring out the way the brain operates and synapses and all that kind of stuff and how different people react to different modes is amazing.

Now, granted you could say well, FAA and fighter pilots, they've done a lot of stuff like that and that's true, they have. But how you take that and apply it to the vehicle environment remains to be seen. Where you have professional, you know, people and 16-year-old kids, big difference. Brain --

MR. MCCORMICK: Well --

MR. BEUSE: -- development's different, all sorts of things are different.

MR. MCCORMICK: -- and another thing is that it tends to be that most people evolve with the technology. I think it was 1928 or '29 when General Motors first put the rearview mirror in a car.

MR. BEUSE: Yes.

MR. MCCORMICK: And it was made illegal to have because of the accidents caused by distraction. People would stare in the --

MR. BEUSE: Yes.

MR. MCCORMICK: -- rearview mirror. And it took awhile for people to realize the value of having that in there --

MR. BEUSE: Yes.

MR. MCCORMICK: -- and to put it back in. So you're right, I mean, legislating distraction is a whole lot different than saying, you know, what you shouldn't do --

MR. BEUSE: Right.

MR. MCCORMICK: -- rather than what you should do.

MR. BEUSE: Right. But we're not saying it's not real, so I don't want you to get that impression. It very much is real. I think what we're saying is we're not sure that we can do guidelines or anything else to address it and that what we want to do is, you know, we'll continue to study it, of course, and continue to look at different studies.

You know, there are lots of studies that come out that only look at simulator studies and want to discount the real world studies. And we think that's not appropriate, you've got to look at both to get a fuller picture.

So we'll continue to be engaged in the discussion, but there isn't like anything that's going to be in Phase 1 that we just finished or Phase 2 that's going to say, you know, NHTSA has determined that, you know, two seconds glance time and 12 seconds in total is okay cognitively.

That's not what we're saying at all. The two and 12

is all about, you know, physical manipulation of a device. That's all it's about, plain and simple. That would have a direct correlation to crash risk, a direct correlation to things happen very badly when you're doing those kind of behaviors. The cognitive load is still a question.

So that was, I wanted to just make sure I close the loop on distraction because you guys had a little bit of discussion on that, so. With that, I'll take any questions, rocks, whatever?

MR. KENNER: Well, so then --

MS. WILKERSON: Oh, you did a great job.

MR. KENNER: -- a couple quick --

MR. BEUSE: Sure.

MR. KENNER: -- questions. You went through the OMB, you said --

MR. BEUSE: Yes.

MR. KENNER: -- just recently.

MR. BEUSE: Yes.

MR. KENNER: Did you go through any legal assessment relative to your authority outside of the agency or is that something that's going to occur in response to the issuing of the ANPRM?

MR. BEUSE: So we did both.

MR. KENNER: Okay.

MR. BEUSE: We did look at our authority just within what we have under the Motor Vehicle Safety Act, but then we also looked at DOT's authority as a whole, right.

And that's where you see some of this about, you'll see it in the report, about how we believe and strongly believe that we have the authority to enter into an agreement with an SCMS to perform the functions necessary to deploy a V2V technology --

MR. KENNER: Yes.

MR. BEUSE: -- and in the short way. So that was using both our current authority as well as authority granted under the DOT umbrella.

MR. KENNER: Okay. If for example, relative to brought-in devices --

MR. BEUSE: Yes.

MR. KENNER: -- if you determined that a brought-in device represented an unreasonable risk to motor vehicle safety --

MR. BEUSE: Yes.

MR. KENNER: -- what would be the thoughts about enforcement of that relative to, you know, it would be something brought in to the vehicle, so you wouldn't be able to do anything vehicle specific? And would it be like an equipment-related defect then and you'd follow down that path?

MR. BEUSE: Yes, that's a good question. I think those are some of the questions that people will ask when they --

MR. KENNER: Yes.

MR. BEUSE: -- come in from the comments. I can tell you from my layman's understanding, there is where I don't get to be a lawyer and I enjoy my engineering job very much, it would seem that it would fall into the equipment category.

MR. KENNER: Yes.
MR. BEUSE: It would seem like if a manufacturer made a device and it somehow was proven that that was the cause of the something that resulted in the defect --
MR. KENNER: Yes.
MR. BEUSE: -- or whatever, the defect on a device, then, yes, generally it would be a --
MR. KENNER: Yes.
MR. BEUSE: -- you know, a component level kind of recall. But that said, I think, it's still a little bit grey because as manufacturers work to integrate those devices, those lines aren't as stark as I think some of us would like to draw.
So I think that will be an area of discussion when we start really nailing down in a proposal here is what's going to happen under a, you know, a recall type situation.
MR. KENNER: Okay.
MR. MCCORMICK: Yes, I just wanted to point out for those who may not be familiar with the term, SCMS is the Security Certificate Management --
MR. BEUSE: Yes.
MR. MCCORMICK: -- System.
MR. BEUSE: Thank you. It's a bad habit to throw around acronyms.
MR. BELCHER: Yes, the --
MR. MCCORMICK: So we understand completely.
MR. BELCHER: -- 2014 decision --
MR. BEUSE: Yes, in trucks?
MR. BELCHER: Yes. Is that going to be in the part of 2014 that bleeds into 2015?
MR. BEUSE: I think our --
MR. KENNER: Tactfully done.
MR. BEUSE: -- experience with the last decision and announcement taught us a few things and so, yes, I think that it could be one of those situations. There are so many technical issues to talk about even for heavy vehicles.
But, yes, I think just getting the announcement out seems to have involved a process in-and-of-itself, so, yes, I suspect if I were a betting man, it would probably be sometime in 2015.
MR. BELCHER: And --
MR. KENNER: Great.
MR. BELCHER: -- have you made any decisions about whether you're going to include buses in the decision or not?
MR. BEUSE: Yes, I think there's been some confusion about that. I think when we talked about it internally within NHTSA, not within a connected vehicle program, when we talk about it in NHTSA, when we say a heavy vehicle decision, we mean everything 10,000 pounds and up, singular trucks, the whole gamut.
Understandably, a lot of the work has only been done on truck tractors and a few transit buses in the safety pilot. There's maybe like one or two singular trucks that were here too, but there wasn't school buses in there, there weren't prison buses

in there.

And so from our standpoint those are all those vehicles that would have to be discussed and figure out the technical issues that we need to either resolve that it's a gap, but we can get there or that, man, this is just a bridge too far and there's a lot of unknown.

But yes, our decision is all inclusive of those vehicles. So it's not like oh, it's only going to be truck tractors and motorcoaches and everybody else gets left behind in terms of a decision.

MR. BELCHER: Okay. So that, yes, that is -- thank you. And that's different than what I've heard at different times.

MR. BEUSE: Yes. And even sometimes my own guide will say that oh, it's truck tractor, no, it's I can tell you from the policy guide, from discussions with how with the administrator, it's all the vehicles 10,000 pounds and up.

So this first decision is 10,000 pounds and below. The ANPRM, that's the report. The next one will be 10,000 pounds and up.

And on that, I think what we haven't committed to is generating a report for heavy vehicles. I don't know that we'll have that in us, so we'll have to wait and see as time goes on if we actually end up doing one. Sure.

PROF. RAJKUMAR: Will that be a requirement for online software upgrades of the assistive devices or it's up to the device makers, car makers to figure that out?

MR. BEUSE: That's actually one of the questions that's in the ANPRM right now, is that very issue about how to deal with updates.

To us it's not a technical gap, it is more of a --- just what do people think about that. If you, as a consumer, have to go to the dealership every seven days or something because somebody has a new fix or a new patch or whatever. Yes, that's a lot of limitation question.

MR. MCCORMICK: Yes, I would almost suggest you want to leave the methodology abstract. I mean, you're looking for function, you're looking for a capability that says the system has to be able to be upgradable. Whether we do it by thought-based radio or plug it into the wall should be immaterial to the Government.

MR. BEUSE: Maybe. These guys probably have a lot to say about that.

MR. KENNER: We would, right? Yes. So, and they --

MR. BEUSE: But they may have completely done away with doing it.

MR. KENNER: -- certainly some of your colleagues like Nancy Lewis.

MR. BEUSE: Yes.

MR. KENNER: Because if you did an over the air update to address a vehicle related defect --

MR. BEUSE: That's their problem though.

MR. KENNER: -- got the notification --

MR. BEUSE: Raj has been talking about this update forever, but --

MR. KENNER: Well, but again, with some of those defects might be considered, you know, then falling into the line --

MR. BEUSE: Sure.

MR. KENNER: -- if it's not functioning properly you are disrupting, you know, other vehicles around you.

MR. BEUSE: Right

MR. KENNER: And you're an unintentional bad actor --

MR. BEUSE: Yes, that's true.

MR. KENNER: -- and then is that a defect.

MR. BEUSE: Correct. Sure.

MR. KENNER: I think we would determine it is a defect and so there's that other element of the 12. And it would be a hidden recall if you did that without the appropriate notification.

MR. BEUSE: Right. Right.

MR. KENNER: So, I'm an engineer too, by the way, but I kind of --

(Laughter)

MR. BEUSE: So yes, I suspect there'll be many folks that have a lot to say about that including the suppliers I think will have rather a lot of words.

PROF. RAJKUMAR: But the later portions of our security had some part of the system gets compromised --

MR. BEUSE: Yes.

PROF. RAJKUMAR: -- what happens to the rest of the system?

MR. BEUSE: Yes. Yes. So one of the things that we are doing because we identified it as a real gap is really wanting to exercise the security management system.

Now, whether we get everything that we want to get done by the time we issue a proposal, I don't know that yet, but we definitely do have in our mind before this thing goes final, in a final rule stage that we will exercise this thing like it's never been exercised before.

PROF. RAJKUMAR: Okay.

MS. WILKERSON: There's some other really good case studies out there with other industry sectors --

MR. BEUSE: Yes.

MS. WILKERSON: -- that have gone through the same evolution of --

MR. BEUSE: Yes.

MS. WILKERSON: -- issues versus when the TELCO industry has experienced that with medical devices.

MR. BEUSE: Yes.

MS. WILKERSON: So some of the same issues have been grappled and with the coalitions and others --

MR. BEUSE: Yes.

MS. WILKERSON: -- that address many of those same issues, so --

MR. BEUSE: Right.
MS. WILKERSON: -- I'd encourage you to look at some of those.
MR. BEUSE: Yes, that's right.
MR. KENNER: So another question, you referred to CAMP.
MR. BEUSE: Yes.
MR. KENNER: I think from the perspective of those of us that participate in that, that's been a very effective mechanism for collaboration in the industry pre-competitively.
MR. BEUSE: Yes.
MR. KENNER: And then even consistent, we had a presentation earlier today about deployment incentives and, in fact, it's really like an early on deployment incentive -- to get everyone to collaborate to be able to reduce that as a road block to implementation. In the case of a lot of the vehicle-to-vehicle work that was done, it seems clear that that mechanism is very effective even beyond, let's say, the narrow confines of vehicle-to-vehicle and consistent with the broader scope of intelligent transportation.
MR. BEUSE: Sure.
MR. KENNER: Do you see that as an ongoing initiative and that the broader scope of intelligent transportation that could include, you know, autonomy and other things is something you see continuing in the medium term?
MR. BEUSE: Yes, so for sure. And you and I both found the same mistake about saying what CAMP actually stands for.
MR. KENNER: Crash Avoidance Metrics Partnership. Yes, Crash Avoidance Metrics Partnership, I know, right.
MR. BEUSE: Yes.
MR. LEONARD: And for the new members, could you give --
MR. KENNER: How do you know all about it?
MR. LEONARD: -- a fifteen second description of the CAMP?
MR. KENNER: Yes, so there are, I think it's eight auto makers that are working together and it's pre-competitively, so it's not, you know, into the implementation side of things so that it eliminates anti-trust concerns.
Although there's still some very rigid guidelines surrounding anti-trust to make sure that we don't, you know, fall into any issues there.
And then the automakers worked together on a project that is scoped with the DOT. And we work very closely with Nat's team in particular, in NHTSA, to be able to then have a project description.
We would then, work together to decide which of the companies are interested and participate in it. And those that are then kind of scope the work out, come up with a timeline. And in that process we get, I believe, a recovery of 80 percent of the cost of the labor and materials that are put into doing that research.
MR. BEUSE: Right.

MR. KENNER: So it helps us in terms of, you know, the funding of it, but we have an equity in it. We have a 20 percent stake and then we're able to then develop standards, for example, on how do vehicles talk.

So the development of this basic safety message, you know, that was one of the cores of what information and how you're going to transmit it is something you had to collaborate on and it was, you know, it was a tremendous mechanism.

But that same collaboration makes a lot of sense in the if you said hey, we're now moving towards, you know, let's say the competitive, you know, side of, you know, DSRC implementation and our individual, you know, apps, but would this still work for some of these other broader intelligent transportation topics was really the question.

And so I think it's a great example of Government industry collaboration and the mechanism to do that. And so I was asking that question from my perspective which is it's been very effective and I think --

MR. BEUSE: Yes.

MR. KENNER: -- we should continue to do it.

MR. BEUSE: Yes, so I think I'll answer it two ways. So with respect to V2V and DSRC, for sure I think we see the relationship continuing. I think between Ken and I, the Department is still funding a lot of application development work.

And that's probably one thing that's worth clarifying is just because we're writing a mandate for the radio, doesn't mean like we're saying the hell with all the applications. In fact, we still will be funding work into the coming years on application work because it needs to get done.

And the challenge will be, I think, in terms of doing that is just whether or not there's a point where DOT says, okay, we've kind of pushed this far enough along, now manufacturers need to deploy it. And I'm sure Ken and I will figure out when the right time to do that really is.

Because I think what you=ll hear from us is our expectation is that we put the radios out there.

The SCMS will get built because people have told us they're interested and the applications will get deployed because that's what people have told us. And we're actually going to do some work to really ferret some more of that out.

In terms of long term, yes, continue to do it, but one of the things that I saw with CAMP, with particular with V2V, and maybe because for so long it's been, you know, a research project and people weren't really, you know, clamoring for information from it, is that we're going to have to work both NHTSA, DOT and CAMP on how to get information out sooner.

When you look at what's going on with the whole automated vehicle discussion, we're funding some work with our own dollars, we're also funding some work through Ken's organization.

And people want that information like yesterday because there's some that think that it's going to be here tomorrow,

so we want to be responsive to that.

We want to make sure that people have access to the latest and greatest that we have. And so I think what it means is historically all researchers generally like, you know, giant, 200-page research reports that, you know, if you have insomnia, they'll definitely cure you.

But that takes a long time to get through the process, it takes a long time to write and sometimes I even look at it and it's, wait a minute, that research was actually last test was run 2012 or something and we're just now getting the report out.

That's a long time to kind miss the opportunity. So my focus will be both on V2V and on the work that we've already started funding through CAMP to get it out sooner, on a much quicker cadence.

And I know that's causing some gyrations within both organizations, but I think that that's the right thing to do and I think we have to strive for that. So that will probably be one of the big changes.

MS. WILKERSON: Okay.

(Simultaneous speaking)

ASST. SEC. WINFREE: If I could include, thanks so much for explaining to us. I'll have a chance to work with you and look forward to going forward.

MR. BEUSE: Okay.

MR. KENNER: Thank you, sir.

ASST. SEC. WINFREE: It was good to meet you.

MR. BEUSE: Yes, thanks Greg.

MR. KENNER: Yes, see you, Greg. So if no one's asking another, let me ask you another question then. So --

MR. BEUSE: Well, I'm looking to see. Don't you have a limit somewhere.

MR. KENNER: Yes, yes, there is. So one of the things we were doing is we were looking at the, at least, the ITS strategic plan and --

MR. BEUSE: Yes.

MR. KENNER: -- Ken was sharing that, at least the presentation about it, but it's not yet public so not able to share with us the plan.

In the case of NHTSA, what would be the appropriate timeframe for us to ask you to brief us about the research priorities for you?

MR. BEUSE: Oh sure.

MR. KENNER: And --

MR. BEUSE: Sure, I think we could probably do that just about at any time.

MR. KENNER: Okay.

MR. BEUSE: Yes, no problem. I mean, it's V2V will be up there, automatic emergency braking is a big one for us. We've got a whole host of MAP-21 stuff that we're trying to configure out.

So MAP-21 was, you know, the last reauthorization that came through and NHTSA had a rather significant number of ask and requirements from the Congress both on the rulemaking side and on the research side. Electronics, reliability and start up security is a big one. So yes, anytime we can go through that --

MR. KENNER: Okay.

MR. BEUSE: -- and talk about what the research priorities are.
MR. KENNER: Okay. Since our charter is really looking at the research --
MR. BEUSE: Yes.
MR. KENNER: -- and saying hey, is this, you know, contributing to, you know, developing the state of the art --
MR. BEUSE: Right.
MR. KENNER: -- as well as, you know, what the barriers to --
MR. BEUSE: Sure.
MR. KENNER: -- consumer acceptance and implementation.
MR. BEUSE: Right.
MR. KENNER: So that's part of our focus and so being able to understand your priorities would --
MR. BEUSE: Sure.
MR. KENNER: -- be, I think, a good background for all of us --
MR. BEUSE: Sure.
MR. KENNER: -- to have.
MR. BEUSE: Happy to do it. Happy to do it.
MR. KENNER: Any other questions or comments for Nat?
MS. WILKERSON: No.
MR. BEUSE: I'll sit down.
MS. WILKERSON: Thanks so much for being transparent. It's really --
MR. BEUSE: Oh, you're welcome.
MS. WILKERSON: -- just a really awesome briefing.
MR. BEUSE: You're welcome. Thank you.
MS. WILKERSON: A great one.
MR. KENNER: Excellent. All right. Well, with that it just looks like we're like about one minute ahead of schedule. It's just a little --
MR. LEONARD: You're an awesome chair.
MR. KENNER: Yes, well, it's the first time in my life I've ever been on time for anything. I'm usually so late I think I'm first, you know, so. But anyway, so that's great. Again, appreciate you coming over --
MR. BEUSE: You're welcome.
MR. KENNER: -- and spending time with us.
MR. BEUSE: Sure, my pleasure.
MS. WILKERSON: Thanks a lot.
MR. KENNER: Okay.
MR. LEONARD: Thanks Nat.
MR. KENNER: All right. Great.
MR. BEUSE: All right.
(Whereupon, the above-entitled matter went off the record at 1:58 pm and resumed at 2:26 p.m.)
MR. KENNER: So, this is the important part of what we want to do. So, we want to talk a little bit about what some of our potential areas of focus will be, as a Committee. We want to talk about how we want to go about then following up on those areas of focus. And, then, you know, what do we want to do relative to

meeting together?

And, so, we want to have, you know, those discussions over the time we have left to kind of make sure we develop a way forward, you know, before we all leave.

And, then, the other thing we wanted to do is just make sure that we have some of the follow-up items that we talked about also, you know, appropriately captured, so that we can incorporate it, you know, either into the next time we meet or between now and then like some of the reports and make sure you all, you know, get prompted when some of those reports are done.

So, Sheryl, did you want to go through --

MS. WILKERSON: Well, I think one of the things, I was trying to take notes from some of the conversations that came up in the discussions that we've had. In the past, the Advisory Committee has established the subcommittees. And some of the topics were security, technology, market-driven adoption strategies, outreach, communications and others.

Today, there is a list of about nine other things outside of those and that was sustainability. These are some that you all proposed: safety, efficiency, environment, aggregation and ownership of data, vehicle operator and human factors, the transportation of data used for the transport of goods and services, DSRC at 5.90, licensed devices or unique devices. And, then, worst case scenario such as things where we talked about the solar flare. The other --

MR. CAPP: Seems like we should know how to fix everything, huh?

MS. WILKERSON: I just wanted to put those on the table and say we heard you while you were discussing. So, those issues are already duly noted and, then --

MR. MCCORMICK: I'd like just to kind of back up a little bit and remember what our fundamental charter is. Our fundamental charter is to provide guidance at a somewhat higher level, in terms of what research we think is needed, what things we probably don't need to waste time spending money on and research on.

So, although those are all the kind of topical areas, I think there could be some grouping on here --

MS. WILKERSON: Exactly.

MR. MCCORMICK: -- because we've got limited resources and, as we recognized the last time and Scott and a couple of others the time before that, you know, once we get divided into committees, we can do a fairly good job of focusing on that and then bringing it into the larger group. But those committees have to be responsible to saying let's identify what those areas are.

Remember, from the security one, you know, that took a lot of background activity to reach consensus. And, you know, I think we ought to be careful about how we phrase this. Cyber security is about preventing it, you know, from attacks and I think the larger issue is one of security.

I mean there are just, you know, malicious programming and attacks are one way of looking at it. But, you know, with up to 100 million lines of code going into a vehicle, there could be, there's going to be collisions that occur when one program operates on another.

Especially, since both the parties here have opened up their APIs for third-party programers, there's no way possible to test all those code collisions.

So, I think security has to be not just cyber security. I think it has to be security because, then, you're talking about how not only do I prevent attack or intrusion but how do I protect what I have from someone, you know, capturing that information?

MS. WILKERSON: Code jammers and things of that nature?

MR. MCCORMICK: Right. Or, just, you know, unintentional. The question is, is there research or studies that need to be done in that area? Some are going to I think you've got a $10 million program now for cyber security in the vehicle just for the electronic vehicle safety systems. You know?

MS. WILKERSON: So, unintentional or intentional?

MR. MCCORMICK: I would just call it security. I wouldn't call it cyber security. That's too narrow a definition.

MR. KENNER: But let me ask you this, though, just a clarifying question. Were you suggesting that security would be one team that could handle both those topics or were you suggesting, as a possibility, dividing that into two?

MR. MCCORMICK: I think it's one.

MR. KENNER: Okay.

MR. MCCORMICK: I mean and I'll volunteer to chair the subcommittee on security again.

MR. KENNER: Okay.

MR. ALBERT: Just a comment and maybe it might resonate with some folks. I think what's being produced is an easy plan, especially the layout is wonderful. I think these ideas are very nice but they're all very widget oriented. And the thing that we I think identified over 30 plus years at ITS, is that institutional and policy-related issues should be one of the subject topic areas.

It seems like institutional issues can always be the biggest challenge. It isn't so much about the technology as it is about the agencies and private holdings and things of that nature. Just an idea I thought I'd throw out.

MS. WILKERSON: What would you include on their institutional issues?

MR. ALBERT: What would I include under institutional issues?

MS. WILKERSON: Yes.

MR. ALBERT: I'm not entirely sure, barriers?

MS. WILKERSON: Do you mean like administrative hurdles, barriers or things that George was talking about earlier?

MR. ALBERT: I think that would line up with some of the things that George brought up.

MS. WILKERSON: Okay.

MR. ALBERT: Even to the fact that, fine, we can fund 80 percent of this but we can never come up with a match or we may not have enough staff to do things, you know, whatever it might be. Institutional issues tend to be always a circle.

MS. GOODIN: I'll piggyback on that because I think the big issue there, in policy area, is the funding, you know. And I'm thinking more on the V2I side. If the expectation is that state

and local agencies are going to pick up the biggest part of this, they need a clear value proposition.

I think that's where it gets real important to quantify benefits and to be able to communicate that. I mean, if you look at the funding picture right now, I mean a lot of the attention is focused on the federal funding, the Highway Trust Fund.

But what you're finding is the gap that's being created is being picked up by state and local governments. And I know, in Texas for example, that percentage is now crossing over to more than 50 percent of state and local funding, as opposed to federal funding.

So, the decision makers who are making those decisions about investment, I will say that this is not on their radar. What's on their radar is, I'll just give Texas as an example. There's a $4-billion-a-year funding cap, just to keep conditions as they are now, pavement conditions, congestion.

And all of this is real abstract and esoteric to them. And, so, there's nothing they could touch and feel and understand what are the benefits. Why would I want to invest in this as opposed to what I know works and what I'm behind in investing on?

MR. ALBERT: I think when you talk to people at a local level and rural, specifically, they say, what does this have to do with me?

MR. MCCORMICK: So, is that an institutional issue or is that --

MR. ALBERT: It's awareness and --

MR. MCCORMICK: -- awareness, in terms of helping advance deployment?

MR. ALBERT: The deployment part of the issue is included in outreach and awareness. But, with the funding gap, the level is pot holes versus ITS. Now you're talking potholes versus connected vehicles. That's a whole other realm.

MS. GOODIN: Yes. Right.

MS. WILKERSON: So, George was talking about sort of redundancy or paperwork reduction kinds of issues. Would you like to expand on that a little bit and then we'll go to the other?

MR. WEBB: Well, I mean Congress passed a lot of rules and regulations having to do with how those dollars are to be spent and what checks and balances and so forth. From an institutional standpoint, a lot of it is, you know, federal highway is somewhat aware of it.

The stuff that we delve into has to do with different people interpreting the same law but different ways, whether it be people in the field or auditing, the federal highway people auditing for the general accounting office or whatever. So, from an institutional basis, how do you get some consistency in whatever rules there are that we do have to follow?

I'd like to throw out, though, and add to the institutional just the general governments. And I say that from a security-management standpoint. You know, you learn very strongly a mental picture. You know, it isn’t going to be better. Okay. Well, then, who and how is it?

And, while I thought it was interesting that they were expressing, oh, we're going to put something out, it's like, how do I respond if I'm interested in doing that without knowing what rules

and laws that Congress is going to have to pass or whatever, to put in place something to put my vision in place, because I'm interested in doing this?

I'm looking over there at my Verizon friend and saying, for guys that might be interested in this kind of stuff, all right. So, to me, that's a big institutional issue that has been out there and we've sort of talked around it. But I'm not sure where and how the focus is there and how it's being done.

MR. MCCORMICK: Okay.

MS. JOHNSON: And I actually would like to stand up on that, because I agree wholeheartedly because most individuals don't know what they don't know. So, we have to be highly communicative and share that information. Talk about, you know, the funding shortfalls and so forth. This was brought up earlier in the morning.

We you talk about going after that money, but now a large portion of the funding shortstops are being filled by passing sales tax measures.

And communicating with the public to gain that sort of support to go forward and actually tax themselves, they have to have a bigger understanding how their tax dollars are going to be spent and whether they're going to see a return on the investment because, without that, they're less willing to more or less make that investment because they don't understand, in essence, what benefits they will reap by going to the ballot box saying I support his effort.

So, I think what's important is that we sort of focus on the aspect of how we collectively can advise how we go about being more participatory in the process of understanding what it is that we need to do collectively with the government to ensure that everybody has an awareness.

MR. MCCORMICK: It looks like we already got a four-person committee.

MR. KENNER: Yes. All right. Scott?

MR. BELCHER: So, I've got a couple of ideas just to put out on the table to add to the mix. We've talked about V2V. I think in the V2V space, I think one thing that this Committee could probably opine on or provide some support for is emphasizing the importance of deploying the technology quickly and, then, maybe come back to incentives discussion we had before to determine how we can incentivize that deployment early. So, that would be something I think might be useful.

Also, in the connected vehicle space, an awful lot of work has been done in the V2V side, less work or delayed work on the infrastructure side. There's an awful lot happening or starting to happen now. It might be a good opportunity to bring an expert in to talk about the 2015 guidance, the infrastructure consortium, the --

FEMALE PARTICIPANT: Footprint.

MR. BELCHER: The footprint. And, then, maybe if we had an expert or two talk to us about that, we could determine whether that was a place that we could add value.

A third one that we -- I've got two more and then I'll stop. I think, as I mentioned before, I think this pulled data, how we're using data is critical. We've got some experts here. I mean

Raj is an expert in data, data usage and data management. That's a big issue.

FEMALE PARTICIPANT: Okay.

MR. BELCHER: It's a really big issue for the states and for local governments. And, you know, we talked about NextGen 9-1-1. I think, thinking about if there's something in the data space, data standards, data policy that we could help with, we have a workgroup within ITS America and we decided that this was too big and too amorphous and we tried to kill it. And the states wouldn't let us, because they really wanted some help.

And, then, the final one is thinking about how we push, whether we have a role in helping push any of the shared-use ability, the last mile of solutions in law. We've got an expert in Susan and I'd love to have her talk to us about that because, you know, I know so much of the priority from the Department right now is on connected vehicles. And that's really important.

But I think it's also important what we do for the broader population and whether there's -- and I don't know that there's a role for this Committee but it is something that I'd like to, at least hear and consider.

MR. MCCORMICK: Could you help me understand a little bit more about what they were looking for with data and data use? Is it a policy-level thing or is it a --

MR. BELCHER: Well, the particular situation was the state DOT struggling with their 5.1 system --

MR. MCCORMICK: Okay.

MR. BELCHER: -- which is their traveler information system. They provide data to different people. They provide it in different ways. Sometimes they sell it. Sometimes they buy it. You've got state and private sector companies in the space and they don't have a place or a home in which to determine what's appropriate, what's privileged data --

MR. MCCORMICK: Okay.

MR. BELCHER: -- what the proper format is. And, so, they'd like some help in that area. And, again, I don't know that this is the right committee but data issues are going to continue to become increasingly important. So --

MS. WILKERSON: One of the other issues that came up, I think it was we need to talk about the role issues, did that fall under your broader issues of shared needs or any of the other issues that you were concerned about in the broader community?

MR. ALBERT: I believe that, if you think of the interstates are four times safer than local roadways --

MS. WILKERSON: Okay. Right.

MR. ALBERT: -- it probably makes a lot of sense for safety.

MR. KENNER: I wasn't necessarily going to -- I'm not necessarily opposing this. I just kind of would like to get the knee-jerk reaction from the Committee, in terms of whether or not it's something we can add value to. And that's those three primary policy areas, which appear to be behind, in terms of -- and it could be that I'm just not aware of the progress they've made on it.

But the policy issues with respect to data ownership and acceptable use, a policy position on privacy and we had this

discussion at the last one about why we're never going to have a personal data privacy law. But, again, the recommendation was to use one of the 23 regulations that exist.

But there ought to be some guideline at a higher level that addresses both. You know? And you've done that probably the best in terms of security, in terms of saying that, by policy, by design, the system is anonymous, by design the system, you know, doesn't convey it. But it's not written as a policy.

And I'm wondering if this Committee could form a subcommittee that could provide some useful guidance language on what those policies may or could include or if that's something we shouldn't really get into?

MR. MCCORMICK: Well, at this point, you know, unless people don't want to, I think, you know, certainly, data is something that's been pervasive in our discussion through the day.

And every one of us has to deal with it in a whole host of ways. You guys talked about uses of it, management of it, ownership of it, use of it, you know, privacy of it.

And there's a whole bunch of people that have this vision that, hey, you know, that's going to be my ticket. Right? I'm going to get the data and I'm going to keep it and I'm going to sell it to other people. And that's my business model.

I think the reality of it is many of the things we would suggest that need to be in place would destroy that business model. And say, you know, that's interesting, but that can't be data that you have to purchase, not unlike the use of standards, right?

Not in all cases but, you know, I think, at this point, I think data's a great, you know, topic for sure because everyone's dealing with it. And we've only touched the fringes of it and it's becoming more and more like the thing right now, too. What do you do with it all?

MR. KENNER: And it could be inclusive of the items that Scott talked about as well.

MR. MCCORMICK: Yes. As you were talking, I was adding the things you said to what Scott said under maybe a broad topic of data.

MR. KENNER: The other thing I wanted to recommend is we talked earlier about different ways that the program could go forward and how they would be incentivized, et cetera. And we had a discussion about this with the Board.

And we think it would be useful to bring in maybe some of ITS America's people to talk a little bit about different business models because we tend to view, you know, the government has one way of doing things, right? Tax and spend it, you know?

And the question is that, when you get beyond the veil of public/private partnerships, because most of them really aren't, most of them are, you know, client, you know, contractor relationships. When you get behind that you say that and what we're seeing now is that much of this is moving forward without funding by governments. That's why it drifted from being V2X to almost entirely V2V and kind of lost off on the V2I portion of it.

I think it would be useful to have them come in and kind of talk about different ways of approaching, you know, the environment as they see opportunity from their experience, whether

that's as an insurer or whether that's as a telecom or whether that's as a map provider. Whatever that is, I think we can identify, kind of like we did with the security experts that we brought in or had phoned in.

I think that might be useful to help in that whole deployment discussion is to kind of think outside the box on that.

MR. ALBERT: Scott, I just finished a report that I did on what's the state of the practice with travel information and the business models that are out there. I'd like to circulate that around.

MR. MCCORMICK: That would be great, too. Yes.

MR. KENNER: Yes. Great.

MR. SCHROMSKY: I'm very interested in Number 6, because I think that's the first one we touched on. Oh, I'm sorry. I think we had a good reading from Walt, right, to talk about some of the pitfalls of some of the technology and certificates and, you know, the nuts and bolts, if you will.

I'm curious, from DOT, to get to see the whole position that way. You mentioned that the FAA, as a government body, you know, does the administration work and manage that, right? And then you have NTSB if, God forbid, there's a tragedy, whatever it may be.

When we connect the vehicle, right, who's going to do this? Who's going to do the certification? Who's the governing body that oversees that? Is that a federal? If I get it certified to meet this standards with FCC, then can I go on my own or I'm curious to see how that works. Is that like a DMV thing? Break it down for the common person. How does that --

MR. MCCORMICK: My concern is that our function isn't to answer a question. It's really to pose the direction, correct? And the only problem I have with that bullet is the word "operations." That gets real fuzzy to me. Are we talking about the driver? Are we talking about the auto maker? Are we talking about the road conditions?

But, when you talk about certification and you've got to program something out on that that's being currently bid, my question is are we going to add? What is it that we're going to add looking forward because we can't really talk about the device being certified because you're already doing that or already know how to do it.

We're not talking about the protocols of communication conduit being certified because you already have PTCRB requirements that everybody uses from AT&T for that protocol and the Omni or whatever, Verizon, do the same thing for the DSRC. So, I'm kind of curious what we're really talking about in that last item.

When you certify, you're certifying that you're meeting a requirement. You know, you can't have collision. You can't, you know, leak outside your bandwidths. You can't, you know, use whatever it is. Then the automakers all have their own. You can only use so much power and you can't radiate. It has to have this, you know, environmental stability within this range of temperatures and shock.

So, I'm really kind of curious what the Advisory Committee would do for that last item.

MR. SCHROMSKY: I guess I would assume that they

wouldn't use that language. You've looked at this to some extent, right? I mean, if you're developing a platform, operations or a conceptual how to sort of work an ideal or utopia that's definitely coming across to me. I'm curious, if we're going to go down this rabbit hole, right? That may be some research you've already done, where you can offer suggestions.

I think your point, Scott, you advised that you've already said, you might want to focus here. You might want to put more attention over this one. Here's a potential pitfall. I think that we would do more due diligence work. I think, when I see that, you're getting close. You've already kind of figured out the technology piece.

You're like, okay, we want to roll this out, right? You've got the bandwidth, right, over on the regulations side. Now, what's the framework to work in?

MR. LEONARD: And we want to make sure that, when there's a regulation, that that regulation is a part of the whole transportation system. So, it's like, I think that this issue really gets at does it work in the real world?

I mean we could write a great regulation and still fail in the implementation of this as it relates to transportation equipment if we don't have all of the appropriate infrastructure and, you know, connective tissue to keep the whole system working.

And, so, I think this topic, whether it's the certification piece or how different components of operations would be impacted by that, is kind of what we've been doing. We're doing some research in that area. It's like, when I talk about VOLPE doing a lot of research into the things that other people aren't paying attention to, because they're parts of the problems that are behind the curtain.

But there are a lot of parts behind the curtain. So, that gets into everything that's necessary to really conduct a successful operation, in what we anticipate the system would look like by 10 to 15 years from now.

MR. MCCORMICK: Yes. And I think that's really the track that we ought to be on because, we've got exposure. This group had exposure to what are those things that you're working on for that timeframe? We could do a gap analysis and say, well, we think you ought to be doing this or we think you ought to stop doing that one.

That one is the function of our group and that, then we're not starting with a clean sheet of paper. We're saying, tell us what you're doing and where you're going. Get us up to speed on that and, then, we can sit back and digest it and say, from a rural standpoint or from an institutional standpoint or from a private-entity standpoint or whatever.

We could look at that and say, well, I think you need really more to have this in it. And that's provides reasonable guidance back to the secretary, then.

MR. LEONARD: And I think, in any of these topic areas, there are probably 20 more that we could brainstorm up on the list, there's work going on and there are gaps in that work. And, so, part of the drill here would be to identify areas.

I think it's a mix of those. First, back to the point you made, the whole strategic direction, where are we not thinking

of big pieces that we should be thinking of?

FEMALE PARTICIPANT: Right.

MR. LEONARD: And, then, in those big pieces, are there parts of this that we're blind to that we shouldn't be that are really part of our responsibility? And, in some cases, some of the things where there are gaps, they may not be things that we're going to look at. It may be things we're expecting industry to set up.

Probably the one that we talked about, the one that really catches people's imagination, SCMS. You can picture a model where the government stands that up and does it. You can picture a model where the government doesn't do that. And that's the one we're more envisioning, right?

I think of that as kind of the equivalent in transportation of the credit validation system. You know, we have these three credit card companies, credit bureaus that are a cornerstone of the way our financial system works and the way people get credit in this country. And that's not a government-run entity. Those are three private entities that all run reports on whether we pay our bills.

And you would think something that's essential to the financial health of the nation would have government involvement. What are those? That's some Congressional regulations, unfair credit reporting and things like that to govern how those private entities operate.

MS. WILKERSON: There's also a trend against that today from consumers who say I should be paid for someone else to have access to my information. Right? So, it's happening in the insurance industry where it says, I own the data.

When you want to download the data about how my kids are driving or whether I will drive the speed limit to lower my insurance, you know, that's fine. But, if someone else wants it, they need to pay me and I need to authorize that information.

So, I think there's a, you know, exploring of those issues about how we are empowering consumers. If we are going to empower them to learn how to drive, whether it's through training and new DMV educational programs, so that they can rent a car of their choice.

In the future, they won't own that car. They'll lease it from -- whatever car they want will show up. They'll have a $2,000, a $20,000 for five year agreement with Ford and whatever Ford car they want to drive that week shows up at their house. Right? We want to make sure that they're empowered to drive it, if it's autonomous, if it's an older classic car, what have you.

So, I think, looking at those issues from a broader perspective to make sure that we are enabling adopters and users over the transition of the roll out of connected vehicles will be really important.

I think that privacy and security and ownership issue, you know, because that car -- you know, I came in a rental car today. And, of course, I blue toothed my phone as soon as I got in the car, so I could be hands free.

You know, is there data that's going to be left on that car when it goes back to Alamo or Hertz? I think all those kinds

of issues go back to empowering the consumer or the public to be able to not only control that data but also know what data can be shared or made anonymous or whatever for the better good.

So, I don't know if that ties it together with that. I think it kind of all falls under security but maybe not.

MR. KENNER: I think data and security are related. But I think they're two big categories for sure.

MS. WILKERSON: Sub-subcategories?

MR. KENNER: Now, what about, Susan, Scott kind of threw out there, you know, sort of the incentives, you know, related to, you know, shared vehicle usage or, you know, pushing, you know the shared usage from a mobility standpoint.

DR. SHAHEEN: Yes.

MR. KENNER: You know, what's your perspective of something that you think, after sitting through, you know, a number of hours that is something we should be focused on?

DR. SHAHEEN: I would be delighted if the Committee had an interest in learning more about the space and the disruptions that it's already bringing and it's potentially going to bring over the next five years or even beyond because I think they're very significant.

We could just have a small side conversation just about what is the word of federal government in all of this, because there's a lot going on that requires I think some degree of model guidance that could really help companies sort through these types of things.

So, I think that's a really good topic area and included in that, not just the modes themselves but the smart phone apps I think are really something to pay attention to, because they're coming faster and faster and faster. I mean I have a list like about this long of all of these different applications.

I also wanted to echo in on the data issue. Actually, related to shared-use mobility, one of the challenges that researchers face is that, with some of these modes, we have access to perfect data. With the sharing data we're able to know so much more about that particular mode because of the access to the data. With respect to some of the shared mobility modes, we know nothing.

So, access to broken data, promotion of the APIs, application programming interfaces, are very important data issues that are, I think, different from the connected vehicle issue but I think also warrant being in that bucket with data issues.

I also think the issue of sustainability and resiliency of the system and the role of ITS in that is really critical.

And the final observation I would make is someone who talked about looking into the future, I think looking well beyond five years. I'd love to see the Committee looking at that, because we need to have strategic visions and strategic plans that go well beyond five years because there could be a lot of disruptions overall, not just from shared mobility but from things like natural disasters.

You know, we could be rebuilding systems and we need to think through what we want them to look like as well as what we want society to feel like. So, I think talking about the future is a really important thing to do now, not when we're reacting to a

crisis.

MS. WILKERSON: So, we did add that I believe it was Steve and a couple of others. So, I think we've noted the future as well as sort of the worst-case scenarios and other things that can potentially disrupt the network.

MR. MCCORMICK: You know, something I'd like to toss out and Ken brought it up and it kind of triggered some thinking here. We have really compelling people around this table and ones that haven't, the ones who didn't show, also, may be single threading what we see the future as.

And I think, if we had the time or opportunity, it would be a great group to just do a scenario assessment that says, here's what our assumptions are and here's what we think the result is going to be, whether that's for deployment or adoption for institutional side, from all the different perspectives that we bring.

And, then, question them and say, well, what if this assumption is false? What if this future that we've assumed will be there isn't going to be there? All of those things are going to affect deployment. And what it provides you with is an ability to go back and say, well, okay, now I'm prepared in the contingency that this does or doesn't happen.

I may not be executing on it right now but, if I don't get the adoption that I want or I don't see the uptake from the consumer or the institutional issues become much worse because of funding or if they get miraculously solved, it allows you to come out and say, okay.

Now I've got three scenarios. I've got a forecast of the future. I've got, you know, a worst-case scenario of things that might go wrong and I've got these good things that could happen.

That kind of analysis allows you to have thought about what happens when it doesn't work. I mean the CIA refused to believe that the Soviet Union would ever break up and weren't prepared for it when they did.

You know, Shell Oil wasn't prepared for the price of oil to go down and, you know, they just spent a billion dollars putting in a deep-sea platform for natural gas for Europe.

So, this is a major investment by all companies of all sizes. Smaller company/smaller investment but it's a major debt. You know, it's going to fundamentally affect all of our lives and all of our children's lives. It's going to affect what research you do, where you spend your money and whether or not we've thought about what's out there.

So, at some point, I think it would be very useful to just spend, you know, two or three hours in one of our meetings just talking and brainstorming that kind of a scenario out, just to see if we uncover something that we, ourselves, didn't realize was a possibility.

MS. WILKERSON: Yes, that's for sure.

MR. KENNER: Joe, were you going to say something?

MR. CALABRESE: Just a comment. I'm still sitting here somewhat disappointed with the lack of discussion about how public transit and that all plays into this. I mean the President and the Vice President chose the secretary. We've mentioned it twice now in all these meetings and then it kind of goes away.

And I think the difference is, you know, we have some operators here now, which is great. But we don't have the manufacturers. We don't have the suppliers. We don't have the people that are doing it. So, somehow, we've got to figure out how to factor that in.

If we can put a piece of technology on a train that's hearing 2,000 people, isn't that a great thing versus a car that maybe is hearing 1.2 people on an annual average?

And the discussions that, you know, the FTA feels that public transit isn't concerned or on board, you know, maybe we need to figure out how to solve that. And, you know, what's that business model for them? So, somehow, I'd love the discussion of how do we attract and include the right people and maybe other options. I think here we've got the Ford and the GMs. We don't have anyone on the supplier side.

Even though the consumers may want it, the vehicle manufacturers couldn't care less whether or not their involved in the process. Somehow, we've got to, I think, tie them into our discussions over the next six months.

MS. WILKERSON: So, related to that was another issue about alternative modes of transportation, rail, freight, motorcycles. Are there other areas or --

MR. SCHROMSKY: To echo Joe's point, what I think we need to consider is the demographic shots, right? Millennials in Halul don't value a vehicle as much as we do --

MS. WILKERSON: Exactly.

MR. SCHROMSKY: -- to some extent. And we see the urban shift, for anyone who lives in Illinois, right? Google bought out Motorola and the first thing they did was move headquarters downtown, because that's where the talent was, right?

So, then, some cities don't want vehicles in their cities, right? I mean they're discouraging by different tolls and there's tax policies and other tolls that you have to pay if you do drive there. So, it's discouraging.

So, I think thinking about that demographic and shift and some of that analysis I think would be enlightening to us right now.

MR. CALABRESE: I had nine international scholars visit me a couple weeks ago and the first question they asked is what is your city doing to discourage people from driving?

MS. WILKERSON: Yes.

MR. CALABRESE: You know, it's a whole different mindset. And I've got employers that call me up and say I'm trying to transfer some talent to a remote location and they don't know how to go without public transit access.

So, the whole thing is shifting and these are going to be the people that vote today and are going to be our elected officials and, hopefully, our leaders tomorrow.

MR. MCCORMICK: I think we ought to put multimodal considerations here because you don't just have that. You've got the gateway cities' and government's portability projects for shifts in road traffic, as well as a huge body of work that's been done at airports for getting freight traffic off of there.

And all of those are going to complimentary benefit

from anything that goes out in this area. So, it gets into an umbrella kind of thing and we used to call it multimodal considerations and we have it on the agenda.

MR. KENNER: So, one of the things I was trying to do is to capture what potentially could be some of the subcommittees. And I've listed, I think, eight but between us. So, let's just do a bit of a gut check to see if we=re --- you know, have captured what we're thinking.

So, one of them is the security framework, which is the broader context, Scott, that you mentioned, right? And that includes both the unintentional as well as intentional issues, right, as you brought up, the subsets? The question is, is SCMS governance in that or is that its own separate thing?

MR. MCCORMICK: It's the implementation of it. SCMS is only an implementation for DSRC. It doesn't affect the Wi-Fi. It doesn't affect the cellular. There's actually 15 different frequencies that the car, everywhere from 1 megahertz for an AM radio to 77 for radar, that it operates over.

So, you know, when we talk about worrying about security, now we have to worry about not just the obvious DSRC and the other one, because they've gotten to the full function through the wireless tire pressure monitoring system. So, the question is, at a policy level or at a higher level of traction on here, what is it that we need to recommend to the secretary? So, it would be all those things under it, not just the SCMS.

I think well that=s pretty much fairly well defined. And, until we do the larger test, we don't know that it's not going to work.

MR. KENNER: So, let me ask you, because what I was trying to understand is I think you were making the point that SCMS is a much smaller thing versus a broader security policy issue.

MR. MCCORMICK: Yes.

MR. KENNER: So, my question is, is SCMS governance and implementation a subset of security policy?

MR. MCCORMICK: Yes.

MR. KENNER: Okay. Fair enough, because I didn't want to ignore that part. I wanted to just make sure and capture that.

MR. MCCORMICK: I think protecting the end-vehicle data apps is an upshot of this policy.

MR. KENNER: Okay. All right. Fair enough. Then the second one that I captured was the data. And, so, let's say if you had like security policy, then data policy, right? And, then, we talked about the usage of data, the ownership of data, privacy, incentives, management of data. So, I --

FEMALE PARTICIPANT: Aggregation.

MR. KENNER: Correct. So, do you guys agree that that's another broad category that we might want to develop recommendations for?

MALE PARTICIPANT: Very broad.

MR. KENNER: Who would be the leader of that? I wasn't sure who the --

MR. BELCHER: Steve, can I just make --

MR. KENNER: Sure.

MR. BELCHER: -- this one observation?
MR. KENNER: Yes.
MR. BELCHER: So, eight is a lot.
MR. KENNER: No, no. So, eight is too many, right? So, let's just say I'm starting with a couple that seemed like there was broad consensus and there's others that we might make fall off the table let's say.
MR. CAPP: Steve?
MR. KENNER: Yes.
MR. CAPP: I was going to wait for the right time to try to make the same comment as Scott. We touched this morning a little bit on the last time in this Committee, we spent a lot of a time to do a bunch of work and spit out 20 recommendations, right?
MR. KENNER: Right.
MR. CAPP: And Ken kind of danced around. He talked about the pros and cons of having too few and too many. But he didn't say whether he thought there were too few or too many. I don't know if he's willing to comment on that. But I think we need to think about that before we --
MR. MCCORMICK: Correct. I did not say.
MR. CAPP: You know, maybe we ought to consensus on that before we start to create piles of work, because piles of work will create either a longer list of results or a shorter list of results. Shouldn't we maybe think about do we want to be more surgical --
MR. KENNER: Sure.
MR. CAPP: -- in the things that we try to do or do we want to come, because this list we're talking about encompasses everything, including transportation, psychology. I mean this list is getting big.
MR. KENNER: Right.
MR. CAPP: It's all interesting stuff that we all love. But I just think we only meet a few times.
MR. KENNER: Right.
MR. CAPP: We've got to be able to really give Ken some useful advice.
MR. KENNER: And the way I interpreted his comments, I didn't hear him talk about the negatives of too few. So, I mean, you know, he did talk about, you know, that 100 is probably ten times as much work as ten.
MR. CAPP: I inferred a little bit from his comment. You can tell me I'm wrong but that was erring on the long side.
MR. KENNER: Yes.
MR. CAPP: That was my inference from what Ken said.
MR. KENNER: Yes.
MR. CAPP: But he was just being careful to point out the pros and cons. But if I check these eight major topics here and all the topics we've talked about, we could end up with 50.
MR. MCCORMICK: I have a suggestion. Why don't we have a list?
FEMALE PARTICIPANT: Yes.
MR. MCCORMICK: We find out who signs on for which ones.
MR. KENNER: Right.

MR. MCCORMICK: And we look for where the -- if we end up with four that we've got everyone engaged in at some point --

MR. KENNER: Right.

MR. MCCORMICK: -- it's better than what we had last time, where we had some one-man committees.

MR. KENNER: Right. Right.

MR. MCCORMICK: You know?

MR. KENNER: So, anyway, so, based on what you guys just said, how do we proceed?

MS. JOHNSON: Well, how about choice voting and where you get some commonalities and so forth there may an interest.

MR. KENNER: Yes. So, let me -- go ahead.

MR. BERG: I think we've got to understand. Answer the question of what is the federal government's role in all this? And, with the last committee, there was all these points raised and I spent a lot of time just saying, hey, this is already researched. This is already researched. Here's the results. This is already researched. Here's the result. Here's the report, blah, blah, blah, blah, blah.

So, I think we've got -- Scott or somebody said let's take a framework and identify the holes in what it is or is there more research being done? Should there be more research being done here or there's not enough research being done here? That, I think, will help them out, because we give a broad range of perspectives from the rural to the supplier to the car maker to the academia.

And that broad spectrum of experience and understanding is what provides them. And I don't want to speak for you, Ken. But I think that's what this Committee brings that provides the benefit. We talked about return on investment, in ITS investment. Well, what's the return on investment in this Committee?

MR. KENNER: So, how do you propose proceeding to make that choice then? How do we do that?

MR. BERG: Always ask the question. When you have the topic, what is our role in advising the government on their forward-looking research plan?

MR. MCCORMICK: And the one boundary condition is on that is that we're looking at a June 2016 date. So, our target should be saying what they're going to need in the 2018-2020 timeframe. That's one of the reasons I suggest you might want to do a scenario-mapping activity first, because we can get our heads around what those gaps might be.

You know what the gaps might be or what's going to be accomplished. You know on your side. Brian knows on his side. You know, you guys can tell on your side. We're not talking about giving a recommendation that this is what you ought to be doing in 2015, if they're not going to get the report for a year. We need to be forward thinking for that.

FEMALE PARTICIPANT: Yes.

MR. ALBERT: So, with your future-casting scenario, are you saying use that and then we also identify the gaps?

MR. MCCORMICK: I think that's one way to identify them. I think his list has them. Okay? But, again, it's narrowing it down to the point where you cover the gaps.

MR. ALBERT: The gaps are is what is the federal government's role. I think, in some of these data things that you mentioned, Scott, or other people have mentioned, the industry is going to figure it out.

MR. MCCORMICK: Right.

MR. ALBERT: They're going ahead with ways of operating with their colleagues and cohorts. And, to the extent that the government might say you need to have this, you know, compliance with this, I don't want to say regulation but this is the minimum level of oversight you need or something like that. But to go into all the details of how the industry's going to solve it I don't think is really the position that we should be thinking about.

MR. MCCORMICK: No, I absolutely agree. There's no -- the United States will never have a personal-data privacy law because of a lot of that is a performance of economics. We only have 24 regulations.

They're all industry specific, like for financial transactions. They're all non-binding and they all recommend industry oversight. So, the government is never going to have a role in managing that data.

MR. BERG: They might, if it shuts down the financial system.

MR. MCCORMICK: Well, again --

MR. BERG: Fortunately, it hasn't happened to this day but it might.

MR. CAPP: Whether the government does or not, I guess we need to ask a more discrete question of does Ken's program have them in it? I don't know. I don't know the answer but I mean that's the question. It's not the world hunger question. It's does Ken's program have a role that we want to advise on? Does it or should it?

MR. SCHROMSKY: Or does Ken want just DOT in general?

MR. CAPP: I mean, to their charter, the answer would be no is what the answer would be.

MR. SCHROMSKY: DOT, in general, but I think this is mainly about this ITS JPO program, right?

MR. CAPP: Right.

MS. WILKERSON: Which is the same question, I guess. Our focus is here.

MR. CAPP: It does have some scope.

MS. WILKERSON: Yes.

MR. CAPP: Define scope.

MS. WILKERSON: It's pretty clear.

MR. SCHROMSKY: I kind of agree with Roger. We went through this last time. We said, well, we could do all these wonderful things but I keep going back to, okay, what's the platform? What's the foundation I'm building off of?

I look at Apple and their ecosystem, right? Apple's the governing body. They don't tell the app developers to build whatever may be. But they have a different device for app-certified sites. Right? And do certain specifications on the device and whatever it may be and they build the app and then they're on their merry way.

You know, if it's webshare or whatever may be and I'm

sure there's some business models. I look at this platform and that's where I'm really focused on fixing. Say, okay, to make this platform successful, right, to propose to the manufacturers, the infrastructure people, what specifications do I have to build to? How is it certified? What do I have to do to maintenance to work from this standpoint? And that's really it to some extent, right?

I don't know, to your point earlier, I don't know what killer app or program is going to be developed on. I don't know ten years but could we build a platform or recommend a platform that's flexible enough to enable that? I mean it's almost like writing the Constitution, right, I mean if you ask me.

But that's kind of where we're at right now that, that focused on safety and that's the core goal. I think we can all key in to say, well, there's going to be an app for this. There's going to be a device for this. Whatever it may be. But it has to be built on a foundation.

I think that's where I'm kind of really focusing on six and saying, okay. We know the technology pieces. What should the platform look like and how should it work to some extent to mandate? We'll be going around and around on this.

MR. MCCORMICK: Okay. Once again, are we going to be able to tell them what they should be doing for that with regard to the 2018 to 2020 timeframe because, like I said, it doesn't come out until -- our report doesn't go to anyone until 2016.

MR. SCHROMSKY: I mean, at the end of the day, I'm building a black box and I'm building a model. I'm using a protocol.

(Simultaneous speaking)

MR. SCHROMSKY: That's really all I'm doing, to some extent. I'm really breaking it down, right? I could be wrong.

MR. MCCORMICK: Oh, yes.

MR. SCHROMSKY: But I mean that's what it is. It's a black box to some extent with a framework that authenticates that black box. What gets built around that black box I don't necessarily know. I'm not conscious of it being in a traffic signal. I don't know if it's in an aircraft. I don't know if it's in a railcar. I don't really know.

But I do know that it has to communicate with everybody and then also has systems that manage that. How do we do that? Maybe I'm wrong but I mean I think the frustration is we kind of go off on these tangents and we waste 20 minutes.

MR. BERG: Nat said he's not going to run the SCMS. Is he going to run the device certification?

MR. BEUSE: SCMS will do that.

MR. BERG: So, that was a no?

MR. BEUSE: Yes. I mean I think one thing to focus on in the report --

MR. BERG: Again, my question about the role. What's the role?

MR. BEUSE: -- and the RFI, the --- system. SCMS has a lot of responsibility. From a new vehicle certification standpoint, it's probably not familiar to most people. It's just that we do self-certification here in the U.S., meaning our role it to put out standards to manufacturers. By whatever means, they then figure out how to meet those standards. Sometimes they do actual

testing, sometimes they don't.

Sometimes they use engineering judgment and say, well, this model is pretty much similar we did this to and, so, it's going to meet. That's the way we're anticipating that would be the role of DSRC would be as well. And, so, the question about device certification on that is really probably more for SCMS than for us. We won't be doing that.

MR. BERG: I knew that. I just was asking the question.

MR. BELCHER: Nat, are there particular parts of the program that you would get greater benefit from us weighing in on -- I mean is there an area that you're looking for advice or feedback or counsel on?

MR. LEONARD: That's a really tough question to answer because --

MALE PARTICIPANT: He really doesn't want any advice.

MR. LEONARD: -- because we know what we're looking at, right?

MALE PARTICIPANT: Right.

MR. LEONARD: What we don't know is what we're not looking at that we should, or is there a different perspective on something that we're looking at that we haven't considered that we should? And, so, to me, one of the values of a group like this is -- this doubles the size of my workforce brain.

You know, this is as many people as I have in the joint program office and you all have different backgrounds and perspectives. And, so, to me, a Program Advisory Committee is an incredible force multiplier, because it's a group of people who can say, have you thought about and then think about it, and then make some recommendations.

So, I know the areas that we're working on and we talked about the things we're doing and I've given you some insight into the broad areas of the strategic plan. And even inside of those, you know, I told you what our data program was. And, now, we're trying to focus more, a little bit more, on how we get that from just being --- capturing research data into utilizing data to improve transportation.

If that was the only thing we did, we could still use an advisory committee to help us figure out how to do just that. But our portfolio is incredibly broad. So, you know, I'm not looking for anybody to craft work packages and to tell us here's a specific study that should be done.

Although, you're an advisory committee. If that's what you want to advise, that's, you know, it might be just the thing we need to hear. I'm not trying to be --

MALE PARTICIPANT: Yes, that's helpful.

MR. LEONARD: -- evasive but I'm really looking for you to tell me what I don't know and help us think bigger about an already big problem --- answer things and fill in the gaps on an already big problem.

MR. MCCORMICK: With that, we had four very energetic responses on the institutional deployment issue. So, I think that definitely ought to be eared as one of the topics for consideration, because we have people that are now voicing their concern about the

fact of, you know, what can we provide?

Even if that's only here's what we think the Department should consider or look into or study or be aware of when they're doing -- when they're considering deployment, both rural or for transit or for multimodal. I think that's a very useful topic that I don't think I've seen covered anywhere well.

MS. WILKERSON: I think you should continue with your list.

MR. MCCORMICK: Yes. There you go.

MR. KENNER: Well, I mean, I'm quite frankly struggling with how to proceed, because I don't know how many issues we want to take on, you know? So, you can say that's too many, even though we haven't, you know, gone through there.

MR. ALBERT: I think, if we had a list typed up on screen, we'd be able to say, you know, this is a main heading. This is a subheading or be able to winnow it down by voting around the room and everyone raising their hands.

MR. SCHROMSKY: Do we have to form the subcommittees today?

MR. KENNER: Well, it would be nice to figure out how we're going to proceed relative to, you know, focus backwards between now and the next meeting. So, that was a desire. But --

FEMALE PARTICIPANT: I'm happy to stand and read these.

MR. SCHROMSKY: Go ahead. Why don't we --

MS. WILKERSON: So, we had six. We came up with six --

MR. KENNER: Yes.

MS. WILKERSON: -- six topics, which weren't many. Under each of those there were four or five subcategories that that subcommittee could evaluate and prioritize.

MR. KENNER: Yes, or we can choose new ones.

MS. WILKERSON: So, the first ones were --

MR. KENNER: -- if all of them are none.

MS. WILKERSON: Right.

MR. KENNER: Right.

MS. WILKERSON: So, there's really six. I'm happy to type some of them up or --

MR. KENNER: Well, I don't know. Is there a way to do that on the screen?

MS. WILKERSON: Yes. We can do that here.

(Simultaneous speaking)

MR. ALBERT: Ken, we're trying to get your outreach money back.

MR. KENNER: Well, I guess I would --

MS. WILKERSON: This is fluid. So, we're just --

MR. KENNER: -- I would rerank them, right? So, the first one that we -- you have to go to escape. There you go.

MS. WILKERSON: I don't see that one.

MR. KENNER: There it is, Slide 40. So, one of them was, you know, the role of ITS in multimodal transportation is one that was brought up. And, specifically, then the public transportation is the subset of that. And, so, that was one.

DR. SHAHEEN: And shared mobility could easily evolve

as it compliments, largely, mobility and the public transit system.
MR. KENNER: So, we could say the role of ITS in multimodal transportation and shared-use mobility?
DR. SHAHEEN: Yes.
MR. KENNER: Okay.
MS. WILKERSON: Were there other modes of transportation that would be -- one of the things someone talked about was that we didn't -- we weren't looking at whether it's freight or trains or rail or what have you. You know, that we really need to be inclusive and not just focused on the vehicle, itself.
MR. KENNER: So, is shared mobility a subset of multimodal? Is that what you would say?
DR. SHAHEEN: Yes.
MR. KENNER: Okay. Fair enough.
DR. SHAHEEN: And I think you could put freight in there as a third bullet.
MR. KENNER: Okay.
(Simultaneous speaking)
MR. KENNER: So, let's just stop right now. So, Roger, now what do we need to ask about this to make sure that this is of value?
MR. BERG: No. What are we -- what's the question we're trying to answer?
MR. MCCORMICK: Well, we need further research or further study to enhance this.
MR. BERG: So, one of the points I made that maybe wasn't so clear was that there's probably research going on in this area in Ken's organization or somewhere near the Joint Program Office.
MR. MCCORMICK: Well, that's why I think our process needs to be a little different than it was last time. I think, when we take this, the first thing that ought to be done is Ken or whoever feeds back to the Committee, this is the work that's being done. Then we can do the gap analysis and say, okay, there's nothing for us to add or there's something where we can add.
MR. BERG: So, is that the objective of all these topics is to ascertain the gaps between what should be done and what is being done?
MR. MCCORMICK: I think among other things.
MR. BERG: As long as that's the objective, I'm okay. I don't know about anybody else.
MR. KENNER: But, so, what if it wasn't? Are you saying that the things on the list should only be things where no research is currently going on?
MR. MCCORMICK: No. No.
MR. KENNER: So, what are you saying?
MR. MCCORMICK: Well, it's not just researching. Maybe where funding is being applied. You know, we could have funding being applied for pilots and we may feel it's not enough --
MR. KENNER: Yes.
MR. MCCORMICK: -- or too much.
MR. CAPP: Well, they -- it should be things that, you know, at least loosely you would say that's the responsibility of Ken's program to do for the country.

MR. KENNER: So, is it?
MR. CAPP: Well, I think already that's a list of some pretty broad --
MR. MCCORMICK: Wait a minute. Our charter is not to recommend to Ken. Love Ken, but our charter is reports to the Secretary of Transportation. If we wanted to go into FAA, we could do that if we wanted to, I mean the way our charter's written.
MR. CAPP: I don't think so. Is that true?
MR. MCCORMICK: I think it's specifically around the ITS program.
MR. LEONARD: I think you currently are to report these to the Secretary just goes through my office. I think that your charter limits it to ITS. And, generally, the enabled legislation, I don't think it specifically excludes aviation but it is very -- it's singled-out service.
FEMALE PARTICIPANT: Yes.
MR. LEONARD: So, I think you might have a hard time getting my Mike Huerta to read your recommendations.
MR. MCCORMICK: Well, my point is that, if that's of importance to the participants of this Committee, that they can add value to, if we can't add value to it, we shouldn't be talking about it anyway, but if we've got four people that find something of value in that thing that we can offer information that you'll pass through to whoever that organization is, I think that's a useful use of the Committee's expertise is my point.
MR. LEONARD: Right. If you felt that there were things that we were not doing or not doing well that involved us coordinating with other modes, other Departments, industry and that was -- and there's an action that we could take or that we could use the offices of the Secretary to approach, I think that would be reasonable advice.
But, if you're asking, you know, okay, so the Secretary does have responsibility for multimodal transportation, including public transportation. In terms of freight, I mean Highways has a freight office. We are doing freight research. Kate Hartman and Randy Butler, who is actually on detail form the Highway's freight office to my office, is working on some freight issues.
We actually have a dynamic mobility application called Freight Is. Guess what that one's about? So, certainly, freight is part of what we look at in ITS. So, I'm not sure. I'm sure there's more that could be looked at in freight. I'm not sure, specifically, what the advice would be when reading through that.
(Simultaneous speaking)
MS. JOHNSON: Even transport. Exactly. It's shared roadways. It's all about, you know, just when you look at transportation trends in trade, all of it needs to fall under the auspices of ITS, because how do you push that forward and generate money into the economy? So, that's the clear cut nexus with all of that.
DR. SHAHEEN: All of that stuff needs logistics.
MR. MCCORMICK: But, Roger, what is this Committee doing? What are we -- what advice do we give?
MR. KENNER: But help me --- explain better the filter that you're mentally using. What would be a filter where you would

say, yes, that should be a subcommittee, because I'm not -- maybe I'm the only guy, but I don't get it. I'm not sure of what your mental map is.

And here's where my confusion is. There's research going on in everything. So, if you say, there's already research. Shouldn't be a subcommittee. I don't get that.

MALE PARTICIPANT: That's not what I meant to say.

MR. CAPP: I'm not sure I know exactly what Roger's filter is either but I am sure there needs to be a filter.

MR. KENNER: I agree with that. So, explain it so a simply guy like me could understand it.

MS. GOODIN: Could we review our charter? The charter would be a description of our duties as we're standing.

MR. KENNER: Before he answers the question, is that what you're saying?

MS. GOODIN: Under Section F of the binder.

MR. KENNER: Yes.

MR. ALBERT: The connected vehicle tag line might be here, my guess is.

MR. KENNER: Yes.

MR. ALBERT: What you really want to look at is can technology move between the modes, whether it be from public, if you're a user, whether using public transportation, shared mobility or freight, so that there is some interoperability?

And that's something we know that government has currently stove piped. I think that's kind of what the intent was here was we're looking at the intermobile connections and the technology applications to move you from one to the other, whether you're riding your bike or whether you’re walking --

MS. WILKERSON: Exactly.

MR. ALBERT: Whether you're using a bus, whether you're using a truck.

MS. WILKERSON: And that's why the subcommittee gets to discern what from those issues might be relevant for ITS to explore further or to make recommendations on. It's not to come up with an exact solution today of what we're going to recommend or to limit ourselves to one particular --

FEMALE PARTICIPANT: Right, to set a framework.

MR. KENNER: Well, but -- so, Roger, if the charter says that we are to provide input into the USDOT's strategic plan and that we should review whether the activities that were engaged in ITS research are advancing the state of the art of ITS and are likely to be deployed by users and, if not, what are the barriers to implementation. that's kind of the summary.

And we mentioned that a few times throughout today's discussion. Then, again, help my understand your filter of, if this, then filter, filter, filter. That should be, you know, a focus of a committee. I'm genuinely just trying to understand it better because I'm not understanding the framework.

MR. BERG: In one sense, I don't want the area of focus quote/unquote to be so broad that we don't get anything done. That's at that extreme.

MR. KENNER: Yes.

MR. BERG: The other extreme is that we only look at

one issue or we only understand very deeply one area of research. So, there needs to be some balance there and I don't know exactly what that level of balance is. But there has to be some balance there, so maybe it's three topics as a magic number.

MR. SCHROMSKY: To your point, Roger, so let's say best case scenario, everything passes and the mandate to, you know, be compliant. Okay? Now, do you think, for instance, we make the vehicle connected, right?

I think one of the things I took away from George I think, generally, is okay, I have everything connected but the systems won't talk to each other. I've got a connected sensor, but it doesn't talk to this group over here or vice versa. What are some of the pitfalls and, once I have a connected sensor, how do I go back and forth? Does that make sense?

You know --- is the open standard of whatever may be, I think you've mentioned before. You talk V2V but, with this stuff, that's a whole can of -- right?

MR. BERG: Right.

MR. BELCHER: So, it strikes me that the last couple times we have done this, we've kind of had a process that actually worked pretty well. Now, what you guys are trying to do is you're trying to, you know, get us to the three or four topic areas.

We've got expertise around the table that is expert in, you know, even if we had eight of these, we've got expertise. But we can't have eight.

MR. BERG: Right.

MR. BELCHER: We=ll have a manageable number. And, then, so these people already know. And, so, part of at least what we've done in the past is we've brought in subject-matter experts either from the Committee or from outside the Committee to bring the whole Committee up to speed on the state of play in that particular area.

So, if we were to do it in, you know, multimodal transportation, we'd want, you know, Ken to brief us on all the work that they're doing in that field with the other modes. We'd want to take advantage of Susan to tell us about all the research and all the deployment that's happening, so that we could identify where the shortcomings are and figure out if there's a federal role, if there is a U.S. Government federal role that is the only way that we can overcome those.

If they're going to be overcome by the private sector naturally, then we don't want U.S. Government spending their money.

MR. BERG: Right.

MR. BELCHER: But, if there's a federal role that gets us over that hump, that's really our guiding craft. And, so, I think that process actually works pretty well because it makes everybody comfortable that, when we're then editing and looking at the document, we're all on a common platform and saying, yes, that makes sense, or you missed this.

So, I think what you're trying to conceive and I think you're right is, if you can get to the three or four areas that we all know, yes, I don't think we have to -- I think where maybe, Roger, you guys are kind of are at odds a little bit is I don't think we got our -- I mean if we did this multimodal and we spent, you know,

half a day getting smart about it and used the expertise and then came in and say put a group together and they said, you know, there's really nothing here, I think that's okay.

I mean I think, if that's in the topics we think is important and we realize that there's no good advice we can give to Ken because he has no role, I think we say that --

MR. BERG: Yes.

MR. BELCHER: -- and claim victory and move on.

MR. KENNER: Yes. So, exactly right. In terms of scoping it down, you know, I don't think in this group, if we're all together as 20, we're never going to be able to scope it down. We need to go in and say, if that's an area that we think is interesting and we should look at it, then the subcommittee can go off and do what Scott just said and come back and say either, you know what? It looks like there's two areas that we really, you know, think are important relative to multimodal transportation.

So, that's what I was hoping to do. I'm not trying to jump to the answer or the solution. It's the areas of focus. Right? What are areas that we'd like to look at? I'm not presupposing that we know the answer to what we'll find, relative to the state of the art of ongoing research and the adequacy of current, you know, let's say, you know, federal oversight.

I'm just saying, if it's an area of focus, you know, who would like to pursue that area of focus, so then, when we come back, you can go, yes, we got nothing, or, you know what, there's a couple of things here that are pretty interesting.

And, perhaps, when we come back, we may need to refocus, right? We may look at four areas but there are subsets of them that may cause us to say, yes, the scope's still too big. But, boy, there's some really neat ones. Let's narrow it even further into the follow-up that the subcommittee would come up with. But that's kind of how I was thinking of it. But that's just me. You guys need to help me.

MR. CAPP: Actually, from a process, that make sense and I like the way Scott described identifying areas of interest and then we'll figure out areas to focus on. You know, maybe what I read as create so-called subcommittees, for example, we create a subcommittee on the multimodal and I'm on a different one, then I don't get to hear Susan's interesting talk about the deployment or you know, what's going on.

I want to hear it. I might want to hear some other thing. Maybe we need to hear some of these things that you laid out, Scott, as a group, and then decide, all right. Here's the gaps where we should really zero in.

MR. BELCHER: Yes. No, you're right. I agree. We all have to sign on. The memo comes from all of us.

MR. CAPP: Sure.

MR. BELCHER: So, the Committee will write their couple of paragraphs on their area but, then, it comes to us. And, you know, I remember Scott and Roger. I mean you guys all had opinions about areas that you didn't draft and that's good. But you've got to have the background to be able to do that. So, I think you're right, John. I think we do need to hear the subject matter experts, you know, on the various areas that we're talking about.

MR. MCCORMICK: Well, we have opinions on a lot of things we don't know anything about. I would take out SCMS. I think we addressed that in the last two-year pack and I don't think that we have anything more that we're going to add to the certificate management system.

MS. WILKERSON: I'm just looking at your notes and putting what people talk about. So --

MR. MCCORMICK: Right. I'm just saying. I mean, Roger, do you agree? Is there something more to address there?

MR. BERG: Where is it?

MR. MCCORMICK: If you think there is, we'll leave it. I just don't know that there is.

MR. CAPP: Well, it's probably fair to say that what's still needed is going to be driven by the process that Pat described and what work is remaining in Ken's area that the industry is working on.

MR. MCCORMICK: Yes.

MR. CAPP: Probably what's needed there has its own momentum we probably don't need to help with.

MR. MCCORMICK: I mean, again, I'm trying to keep that 2016 to 2018 timeframe in mind that, you know, the certificate-management system better be solved by then.

MR. WEBB: Yes. That's one issue I want to look to our federal people here. The local impact of the potential vision of how an SCMS gets implemented might be what? If we had been doing this, as I said, by what? And I don't have a sense here. I don't have a sense that, you know, whoever decides that, yes, I'm going to step up to the plate and do this, the impact as far as local infrastructure requirements or local right-of-way use or whatever is what?

Is there a vision out there somewhere, because I can't go back and articulate it to my counterparts and my elected officials, oh, by the way, there's some decisions being made that is going to affect us in this fashion, because I just don't have it.

MR. MCCORMICK: Wouldn't that fall under something like implementation issues under institutional issues, rather than under security?

MR. WEBB: Oh, absolutely. Yes. I agree.

(Simultaneous speaking)

MR. WEBB: I'm just saying we need to relate it to SCMS because, again, SCMS or at least the picture I've had out there is there's got to be something physically installed in the rights-of-way supposedly, to be able to broadcast out to vehicles to get exchange of information. That is a vision that we talked about.

MR. BEUSE: Not necessarily. We've actually talked about several options in the report to deal with that: satellite, cellular, dealership, many different options including roadside infrastructures or something like that.

MS. GOODIN: What about V2I security? Is that going to be back up? I don't know anything about that.

MS. WILKERSON: Someone suggested I take something off, but I wasn't sure what it was. Was it SCMS?

MR. BEUSE: SCMS. Yes.

MS. WILKERSON: Okay.
MALE PARTICIPANT: I'm moving it to administrative.
MR. ALBERT: So, the word that was being used in the institution was implementation?
MR. MCCORMICK: Yes. I would say besides administrative, you would also add implementation.
MS. WILKERSON: Hey, you guys are talking over each other. So, if one person could speak.
MR. KENNER: Under administrative issues, implementation issues.
MS. WILKERSON: As a subset?
MR. KENNER: Yes. But it has the same weight as administrative issues.
MS. WILKERSON: Okay. Thank you. Sorry.
MR. LEONARD: I think one thing you're going to find over time is, when you get this list down to the topics you want to focus on, you will realize that there are relationships between the high-level topics.
FEMALE PARTICIPANT: Yes, I agree.
MR. KENNER: Yes.
MR. LEONARD: So, is the SCMS local impact an institutional issue? Is it a security issue? Is it a data issue? Answer, again, is yes.
MALE PARTICIPANT: Right.
MALE PARTICIPANT: Yes.
MR. LEONARD: So, as you break this up, like I look at multimodal and I look at the three things there and I think we could probably add a lot more there. And, so, I think you have to realize these are big topics and they're inter-related. And, so, as your subcommittees meet, you're going to want to make sure that they cross off.
And it's okay if two committees talk about data or two committees talk about security issues, because that will help you, as a committee as a whole, reach a decision and a consensus on the advice you want to give.
PROF. RAJKUMAR: So, it's correct in taking technology we are in the midst of understanding ---
MR. KENNER: What's that?
PROF. RAJKUMAR: They give it the heavy emphasis on DSRC connected vehicles by the DOT. What are their thoughts, if you had two bullets before and one bullet disappears?
MR. MCCORMICK: Well, yes. I mean when you look at security, we're not talking about whether or not it's DSRC. It could be, you know, Wi-Fi to enable the car. It could be cellular. It could be, you know, somebody slipping malware into a CD into an entertainment system.
MS. WILKERSON: So, do we think about incentives, deployment incentives? Was that not included? --- I'm just looking at my notes.
MR. ALBERT: I think I'd put it under institutional.
MS. WILKERSON: That was under institutional?
MR. ALBERT: Yes.
MS. WILKERSON: Okay.
MR. KENNER: So, if we follow the recommendation to

not create subcommittees but to then be briefed on these topics and then decide what subcommittees we want, is that what everyone would like to do? Is that the right next step?

MS. WILKERSON: My understanding was that I thought, at least the last time it was done in concert with the subcommittee creation. Was that correct or not?

MR. MCCORMICK: Some people didn't want to sit through some of the detailed technical information and security issues, obviously.

MS. WILKERSON: Would you like me to go through the list of the expert sessions that you all discussed?

MR. BERG: We shouldn't get into detailed technical summaries.

MR. KENNER: What did you say, Roger?

MR. BERG: You shouldn't get a detailed technical summary. You should get here's a list of the topics. Here's what's being researched. Here's what's not being researched. Is this the right formula or not? That's what we're being asked, not does that research reach the right answer or not.

MR. KENNER: Correct.

MR. BERG: That's not what we're supposed to be doing but that's what we ended up doing last time.

MR. KENNER: So, what do you think the right next step is?

MR. BERG: I think it's --- when I look at --- when a company does their whole company research overview, which is kind of like what we're talking about here, they set up the landscape first. And they say, these are the, you know, the pertinent trends or the right kinds of macro trends in society and in transportation, for example.

And we're allocating X percent here, X percent here, X percent here, X percent here. At that level, some people could say, George might say you're not doing transit. I don't see transit up there. And this is just an example. And somebody else might say, I don't see shared ridership up there. Somebody else might say I don't see multimodal.

So, if we can list all those kinds of maybe broader perspective and, then, narrow them down.

MS. WILKERSON: I thought that's what we were doing.

MR. BERG: I think that is what you're doing. But we were getting like way down here deep in. And even this time we started talking about, you know, who owns data. I don't think we should decide who owns data.

MS. WILKERSON: The think the goal was to come up with a broad perspective, create an umbrella of those very high level issues that we thought. Then list some subtopics that a group or others as a whole, not formulated today, right, it's pretty fluid, could then discern whether or not they were going to move further on exploring this topic. That was my understanding. I don't think we're making a final decision.

MR. MCCORMICK: Yes. Maybe I didn't articulate it well. But, when we talk data policy, we're not talking about what the answer is to who owns it --

MS. WILKERSON: Exactly.

MR. MCCORMICK: -- or what. We're just saying that the recommendation is that the Department needs to have or should consider creating a data policy that addresses the use expansion and the privacy of the ownership and considers all these other things.

I can see your point. We don't give them the answer. We tell them what they should be doing and we don't see them doing. But, to your point, we don't know that they're not doing it already. It's just not visible to us. So, you're right. Tell us what you see in place.

MR. CAPP: Scott, at this point, I would say, we're curious about what is going on in data policy. Right? I would take a lot of what you said but you used the word recommendation a couple of time. I'm like recommend what?

MR. MCCORMICK: Right.

MR. CAPP: We're curious. And, so, I'm kind of getting a sense we aren't ready to break off into little teams. We need to do research as a team a little bit. Maybe we pick some of these topics, get the right expert to come in and we dedicate a whole day to one-hour reviews, so we can kind of get a sense together on ---

MR. MCCORMICK: I like that.

MR. CAPP: -- do we think this area's covered or not? I think that's kind of what Scott was suggesting.

MS. WILKERSON: Okay.

MR. CAPP: And, then, maybe we can decide, all right. There's a lot of meat in here. Let's break off into some subgroups, because one thing I want to share from last time is I think we do have a little bit more time, right, from the time table that Steven laid out this morning? We have a little more time. So, we could devote a session to getting some one-hour education on these things and try to use that as background to decide, all right, where do we want to dive a little bit more.

MR. KENNER: Okay. So, now's, you know, sort of the proof. So, if we went through the top. We really list five broad categories there, right, that we want to learn more about. So, I think now, as we go through and say who would be willing to either, not pull it together or bring forward, you know, other people that are experts, right, to help us to set up in the next meeting these one-hour reviews of these five topics?

MR. BELCHER: Well, I have a couple people I would like to recommend. I'd recommend Sue.

MS. WILKERSON: We had Susan first.

MR. BELCHER: Susan to talk about the status of things with shared user ability. MR. KENNER: All right? Got it?

Mr. BELCHER: I think that's important. And I would recommend that we bring in somebody from FHWA to talk about the issues with the vehicle infrastructure thinking.

MS. WILKERSON: Well, we added the footprint. We did talk about the infrastructure footprint.

MR. MCCORMICK: Yes. I have a little bit different idea. I really think I need to know what you're doing in research in these areas now, because then, you know -- then we can do a gap analysis and say, well, no, we do need to bring in an expert in this

area.

If we bring in an expert to tell us that they're doing everything that we need to do in multimodal transportation and we go, okay, looks like they've covered everything, we don't need to spend any more time on it. But, if they bring in somebody on data policy and say we don't have anything and we elect to say we need to do something on that or not, to me it's one of those, we have to know whether or not these are worthwhile topics that need investigation. And maybe you can just tell us they are or not.

MR. LEONARD: So, when you said you wanted to know, you want to be able to do the gap analysis, would you like us to open with a briefing on all these, like an overview on all these topics saying, you know, here's facts on multimodal and data policy and institutional, security, future ten years.

MR. MCCORMICK: Yes. I don't think we have to meet to do that. I think that, if you can provide the Committee with that, then our first meeting is exactly what Scott said.

MR. LEONARD: Okay. Well, we can certainly provide background materials where we have it. There may be some issues where we might say, well, we don't know that we're doing a lot in that area.

MR. MCCORMICK: Okay.

MR. LEONARD: We're not sure if what we're doing meets what you're thinking about here. But, certainly, we could provide background material and/or some kind of opening summary briefing of what we're doing.

MR. MCCORMICK: And maybe it's not part of your charter to be doing something in that area, which is useful to know also.

MR. LEONARD: So, we could open with an overview from the Program Office but I think the idea of going into specific briefings with Susan --

MR. MCCORMICK: Right.

MR. LEONARD: -- you know, Scott was suggesting somebody to talk about. I think a briefing on the AASHTO footprint analysis would be in order in combination with some insights into where Highways is going with the guidance. That gets into some areas that would be of interest to folks with a local perspective.

And there may be other infrastructure issues that you want to talk to. So, probably, somebody from Jeff Lindley's shop on that.

PROF. RAJKUMAR: We have to reinforce what Jeff said earlier, in Section 4, it says the meeting of expectations for this Committee, we have to first locate a strategic plan and locate the assets of the program, at least annually.

MR. KENNER: Yes. That's what I read out loud, actually. Yes.

FEMALE PARTICIPANT: Yes.

MR. KENNER: Well, I think --

MR. LEONARD: If you look at Section 3(a), Scope of Activities, middle of the paragraph it says, "Through the ITS JPO, the ITS PAC will make recommendations to the Secretary regarding ITS program needs, objectives, plans, approaches, contents, and progress." That, at the highest level, is the single sentence that

described your charge.

MR. KENNER: And, in the discussion we had earlier about the strategic plan is one that's not public yet, right?

MR. LEONARD: Right.

MR. KENNER: But will be shortly?

MR. LEONARD: I'm almost positive that before the next meeting we will have distributed to you the strategic plan. It's coming. It's going to be available in the coming weeks.

MR. KENNER: But the way you would say that is the last Committee gave input that we would then assume made its way into that and, then, our goal is to then provide an assessment of and then input into either adjustments or development of the next one. Is that true?

MR. LEONARD: Well, actually, the next one -- well, how will this work? One, we're not sure there will be a statutory requirement for the next one. But, if there is, it'll be the 2020 to 2024 plan.

MR. KENNER: Oh.

MR. LEONARD: So, we're a ways off from writing that.

MR. KENNER: Yes.

MR. LEONARD: Probably in the '16/'17 timeframe, we will write an update to this strategic plan rather than spending time writing a plan and two years later write an update.

MR. KENNER: Got it. Okay. So, that would be accurate that this Committee would be the one that then provides guidance on the content of that update?

MR. LEONARD: Right.

MR. KENNER: So, then, if we say what do we want to talk about again next time, so far we have Susan that's going to talk about shared-use mobility. We just talked about the infrastructure and the actual footprint that isn't on there as an update.

MS. WILKERSON: Is it within any of these categories?

MR. KENNER: I'm not sure. Where would you say the infrastructure -- does it fit under institutional issues or is it its own thing?

MR. BELCHER: It could be its own thing or it could be a communications thing, either one.

MS. WILKERSON: Where would you like it, AASHTO?

MR. KENNER: Two As.

MS. WILKERSON: Oh, yes. That's right. Sorry.

MR. ALBERT: Just a thought, Steve.

MR. KENNER: Yes.

MR. ALBERT: I've heard a number of people, maybe it was more on this side of the fence, saying what we really need is some cross-pollination between the groups. I'm wondering if it would be worth our time to write up just a paragraph about, maybe someone take the lead or work with a small group on, say institutional issues, as an example.

MR. KENNER: Yes.

MR. ALBERT: To write up a paragraph. What are we talking about there that, then, we would have as a place holder when we get subject-matter experts to present, that we kind of have an understanding of what are we thinking might be an issue. I don't know if it would help doing that, doing things concurrently rather

than waiting to hear the presentations and then going to breakout groups to write up all these things we're talking about. I think it's just a different more proactive approach.

PROF. RAJKUMAR: So, what I get from that is Steve is wanting David to chat with the subcommittee?

MR. ALBERT: I was going to volunteer someone on this side of the table.

(Simultaneous speaking)

MR. ALBERT: If some other folks were, like I can probably write something up. But it might expedite the process or at least allow us to say, oh, we got something. But maybe it's 100 percent wrong, maybe it's 50 percent wrong. And, now, because we know let's say the footprint from AASHTO, we can make it more accurate.

PROF. RAJKUMAR: Could you sort of basically have somebody here from each subcommittee to get that rolling?

MR. KENNER: But let's not call them subcommittees yet, just say topics of interest.

MALE PARTICIPANT: Yes.

PROF. RAJKUMAR: And, then, see a show of hands of how many people would be interested in each of those titles?

MR. KENNER: So, let me just do this just for my own sanity. Right. So, if we said, go to the very bottom. The ten-year-plus future and disruption, raise your hand if you think that's an area of interest for the group. Okay.

MS. WILKERSON: So, do you want us to put our names down?

MR. KENNER: No, no. I just want to make sure I understand that there's interest.

MR. LEONARD: Steve, I actually think, because I mentioned the secretary has a 30-year-planning activity going on.

MR. KENNER: Yes.

MR. LEONARD: There is a very lengthy briefing I have not seen yet but it's just starting to make its way through the building. So, I think, when that becomes more public, we could probably have somebody come in and do that.

MR. KENNER: Yes. Who would be the right person, or you don't know?

MR. LEONARD: I don't know.

MR. KENNER: So, right now, we'll write down the DOT secretary 30-year briefing. And, then, we'll --

MR. LEONARD: And I think that will be a start.

(Simultaneous speaking)

MR. KENNER: So, who cares about security?

MS. WILKERSON: Can I add to that last one?

MR. KENNER: Yes.

MS. WILKERSON: I think it would be great to have someone who's not in this space come to talk to us in some way. I mean I've talked to a lot of futurists who look at all these issues from a very global, noninstitutional perspective. So, it may be great to have somebody who's not in this space who is touching all these different issues to think outside the box for us. Just a thought.

MR. BERG: Be careful that that gets spread too

broadly.

MS. WILKERSON: What?

MR. BERG: That was part of the issue that we've had in the past is it gets way too broad. And, yes, that's interesting. And all of a sudden we go down this --

MS. WILKERSON: No, no, no, no, no. I know what the focus is and the charter is but a lot of times you don't know what you don't know until you understand that there is something ten years down the road that could potentially -- I mean that's just how my brain operates. I'm looking 20 years down the road. So --

MR. MCCORMICK: Part of it is behavioral, too.

MS. WILKERSON: Yes. So --

MR. MCCORMICK: There's a lot that we don't have --

MS. WILKERSON: So, I'm not trying to say. I'm here to broaden our thought process and our perspective. Just like I think DOT at one point did the tech scan, right? What technology out there could potentially impact ITS, right, whether it's RFID or what have you?

It wasn't in our mandate to look at RFID but the goal was to say, at least we know it's out there and it haunts us, will be disruptive in 20 years. That's what I'm getting at. That's what I'm getting at. I'm not saying let's go do a study on it. Let's go create a subcommittee. It's just having a different thought process from different people outside of DOT who might come here.

MR. KENNER: Well, how about for now let's just say at least people are interested. So, that's massive progress. And, then, we'll just leave it at that and, then, we'll move on to security. Who thinks security is something that we're interested in?

MR. MCCORMICK: Well, I'm going to say this. We're talking about the 2018 to 2020 timeframe. I'm not clear that most of the issues won't have been addressed, resolved or under heavy study by then. So, I'm not sure that our forecastability, in terms of unless it's had a very high level of traction, are going to be very useful. That's just my opinion.

MR. KENNER: Fair enough. I just want to maybe not have as much dialogue but just do the hand thing and try and, you know, get a sense of it. So, institutional issues, who thinks that's an area of interest? Okay. So, there's some broad ones there.

What about data policy? Who thinks that's of interest? Okay. And, then, how about the multimodal transportation, including shared-use mobility? Who thinks that's of interest? Okay.

So, it looks like, if I had to go back, I would say the security one is one that it doesn't sound like there's broad interest, including the statement Scott, who had previously volunteered if we were doing subcommittees to do that. So, I think we can just drop that one off.

MR. MCCORMICK: So, I no longer have to subchair anything.

MR. KENNER: Well, we'll see. We'll see. I mean there's a new relationship between these things. Right? So, what's the strategic planning guidance discussion? What's that? So, that somehow --

MS. WILKERSON: Well, we all have to take a look at that. It was a topic. You said, we're all going to take a look at the strategic plan.

MR. LEONARD: That's when the Secretary comes in and briefs us.

MS. WILKERSON: Yes.

MR. LEONARD: We're all interested.

MR. KENNER: Well, that's different than the 30-year briefing.

MR. LEONARD: Oh, okay.

MR. KENNER: That's actually what you were going to talk to us today but we weren't. So, certainly, we need to have an awareness of what that is. Sure. So --

MS. WILKERSON: That's in our mandate. We just heard that.

MR. KENNER: No, but we would have gone through the details had it been public, right?

MR. LEONARD: Right. I mean we will release the strategic plan to you when it's published and you may want to comment back on it.

MS. WILKERSON: That's what I thought I heard.

MR. KENNER: Yes. Yes.

MS. WILKERSON: So, delete it?

MR. KENNER: No, no. Don't delete it.

MS. WILKERSON: Okay.

MR. KENNER: I mean because that's clearly in the charter.

MS. WILKERSON: Yes. That's why I put it there.

MR. KENNER: Yes. So, that one I won't do a hand raise just because, you know, whether we want to or not, you know, it's written down and that's what we do. All right. Fair enough.

So, what I'm going to do but, in the interest of time, we'll have to figure out how to structure the next meeting to be able to have, you know, briefings on, you know, let's say the four areas that are outside of the strategic plan. The strategic plan was something we got a briefing on already today.

FUTURE MEETING DISCUSSION

And, then, we can go through the details as well the next time we meet. So, let's just talk a little bit about the next time we meet. Are people able to spend and have another meeting before the end of 2014?

MR. MCCORMICK: If it helps to narrow down the time windows --

MR. KENNER: Yes.

MR. MCCORMICK: -- we keep a calendar of events. I don't have all of them. I don't necessarily have yours. But, between now and September 23rd, you've got some at the LA Auto Show. And, then, nothing really starts up again until the 15th of October. So, there's a window between September 24th and October 10th that I found no major international or national events.

MR. KENNER: Yes.

MR. MCCORMICK: Similarly, there's one between

October 21st and November 12th.
MR. CAPP: So, when you say "meeting," is that face-to-face or is that --
MR. MCCORMICK: Yes. Where things like convergence goes on.
MS. WILKERSON: I think he's saying face-to-face?
MR. MCCORMICK: Yes.
MS. WILKERSON: Okay.
MR. MCCORMICK: You guys are going to participate?
MR. CAPP: That's right.
MS. WILKERSON: I think we have to be considerate of people who don't work in this space who maybe at the state's --
MR. MCCORMICK: That's what we were saying earlier. I know what I have, what we have. I don't know what all of you have.
MS. JOHNSON: Well, right, and I was just going to interject that the American Public Transportation Association has their annual conference and expo in Houston, which is October 12th through the 15th. So, that's something that we have.
MR. KENNER: But that wasn't in the -- that was a window that you didn't mean to be as an opportunity, right?
MS. JOHNSON: Oh, for an opportunity. All right.
MR. KENNER: Yes. So, he was basically saying the 24th through the 10th or the 21st through November 12th. So, let's do this. Raise hands if the 24th of September to October 10th is a window that works for you.
MALE PARTICIPANT: No. That's too soon.
(Simultaneous speaking)
MR. KENNER: September 24th to October 10th. I see no hands.
MR. BELCHER: Don't we have one tentatively scheduled for the 24th?
MR. KENNER: I don't know that.
MS. JOHNSON: Originally, we had proposed a date in September, I think, in the first email. But I don't think we --
MR. KENNER: No. Yes. There's nothing planned going forward.
MR. BELCHER: Okay. I just have it on my calendar.
MR. KENNER: We have no plans.
MALE PARTICIPANT: I think it was an alternate date for this one.
MS. JOHNSON: Yes, that’s what it was.
MR. BELCHER: I just mean it's open.
MR. KENNER: But September 24th, so, if we did something that week, are people open that week or not?
MS. WILKERSON: I need to get back to you.
MR. KENNER: Raise of hands? Yes, I'm available.
MALE PARTICIPANT: I cannot that week. I'm completely committed.
MR. KENNER: It looks like almost nobody's available. All right. It's too soon.
(Simultaneous speaking)
MR. SCHROMSKY: Ken, is there anywhere a DOT facility or location that maybe like Maui?
MR. LEONARD: Well, I did want to just level set some

expectations. Those of you that have been to these meetings before, we don't usually get this --

(Simultaneous speaking)

MR. LEONARD: We can use DOT headquarters, although that could pose some security problems getting in and out. The Marriott over there has an atrocious conference room. The acoustics are terrible. The Crystal City Marriott, that worked fairly well. Turner-Fairbank is an option and there's some great laboratories there.

You know, the simulator that the president rode in and it has some other activities. So, we can always get a conference room about this size up there.

MR. KENNER: Where is that?

MR. LEONARD: Turner-Fairbank is McLean. Do you know where CIA Headquarters is?

MR. KENNER: No.

MR. LEONARD: Okay. Ten miles near downtown, inside the belt.

MR. GLASSCOCK: We can also do an off-site meeting.

MR. SCHROMSKY: If we've got a facility in Boston, Oklahoma City? Hit up your FAA buddies? I don't know.

MR. LEONARD: Yes. There's VOLPE in Boston.

MALE PARTICIPANT: We can do it anywhere.

MR. SCHROMSKY: Yes. I'm thinking of DOT because, if we're looking for certain expertise, they might be residing kind of like D.C. That would be one area.

MR. LEONARD: Well, VOLPE actually is -- there's a lot of ITS work going on there.

MR. KENNER: Well, we'll get through the balloting.

(Simultaneous speaking)

MR. KENNER: When we did in the DOT building, I mean it was hard to get a decent conference room and, then, you add an hour of security.

MR. BELCHER: Yes. Security is a challenge.

MR. KENNER: You know, getting in and stuff.

MR. SCHROMSKY: But I know for some, when we went to Ann Arbor, right, and you actually saw it, you know, it opened up your eyes. You know, so if you're at a DOT facility and you're doing a demonstration --

MR. KENNER: So, you're not talking about the actual DOT headquarters?

MR. SCHROMSKY: No. I'm talking about the DOT research facility laboratory or --

MR. LEONARD: I was -- that's why I was thinking Turner-Fairbank might be a really good opportunity. There won't be another one simply because they have 400 scientists and researchers on staff plus another 400 contractors. And I don't know. We probably have 50/60 of them working on ITS issues. A significant portion of the funding either directly from us or indirectly goes to them. We'd be able to bring a lot of speakers who would all be located there.

MALE PARTICIPANT: I like that alternative. I agree with it.

MR. KENNER: So, what we'll do is we'll put out the

topics we had and try and get, you know, a plan for how to get briefed on those five subject areas. But the one, of course, is, you know, the more detailed review of your plan that we'll all see in advance. Right?

But, then, we would want to spend some time reviewing and commenting on that plan, I think. We'll send out every week between now and December 31st balloting to see when we can try and get a quorum of participation and then, if that building -- I mean that sounds great to me. It sounds like a good plan.

And, then, what we were thinking of doing was more of a two-day approach. One where we would get all the briefings and then maybe decide areas of focus. And, then, try and set up maybe a Committee, you know, infrastructure that would pursue three or four things that we think we want to follow up on.

It seems like, you know, that's a consensus. I don't want to go too far past that. I think just trying to set up the next meeting is good. And, then, we can decide, you know, what we want to do relative to the first half of the 15th. I think that's it. So, any other comments or business that we need to take care of that we didn't talk about?

MR. GLASSCOCK: I don't think so.

MR. LEONARD: Just the travel instructions that we passed out --

MR. KENNER: Oh, yes.

MR. LEONARD: -- to get your reimbursement for this. If you have questions, let me know about that. And, then, Sheryl I think wanted to --

MS. WILKERSON: I just wanted to, just for those people who weren't familiar with the process, put the time line. I was just really trying to talk about them briefly. But --

MR. MCCORMICK: Are you going to mail us the two new charts?

MR. GLASSCOCK: Yes.

MR. LEONARD: And, Steve, I would just add my thanks again to the Committee for your attendance, your participation. I'm really looking forward to working with this Committee for the next two years.

MR. KENNER: Yes. And it ought to be good. And the goal is I want to make it so everyone feels like we're doing the right thing in the right way. Right? As painful as it is, I think it's worth spending that painful time in the beginning to make sure, you know, we don't end up in a place where everyone's like, yes, I didn't like how we did or how we did it. Right?

So, we'll just go through that, you know, muddle through that together. Any comments or suggestions you have individually? If you say, Steve, I really think we should do this or do that, please, you know, with Sheryl or myself, send us your suggestions. Right? Because, you know, I want it to be something where you feel like we're doing it in a way that makes you want to come to the next meeting because you think we're interacting in a way that provides value and benefit, you know, to each of you.

MR. MCCORMICK: Well, I did have a question from before. Is it possible that, you know, we missed four or five more weeks from now. Is it possible that we could attend some or all of

it via telecom in the future? I know everyone, we get much richer dialogue going when we're all together. But, again, since we meet a few times.

MR. GLASSCOCK: Yes. We can set up, it's just not proven to work very well in the past. We can certainly try it again. But, for various reasons, it just doesn't seem to be a lot of benefit.

MR. MCCORMICK: Okay.

MR. GLASSCOCK: But, you know, we have conference call available to us. So, the next meeting we'll hopefully --

MR. MCCORMICK: I know the subcommittees used it. But that was different for sure.

MS. WILKERSON: When does the transcript become available?

MR. GLASSCOCK: All right. It takes several --

MS. WILKERSON: I just wondered to let the folks who weren't here know when it might be available.

MR. GLASSCOCK: It takes two weeks to get the transcript back and, then, we have to create the minutes from that. So, it will be four to six weeks.

MS. WILKERSON: Okay. So, the folks who aren't here will have benefit of that, in the future?

MR. GLASSCOCK: Yes.

MR. KENNER: All right. Very good. Thanks, everyone. Safe travels.

(Whereupon, the above-entitled matter went off the record at 4:11 p.m.)