U.S. DEPARTMENT OF TRANSPORTATION
RESEARCH AND INNOVATIVE TECHNOLOGY ADMINISTRATION

MEETING OF THE

INTELLIGENT TRANSPORTATION SYSTEMS PROGRAM ADVISORY COMMITTEE

TRANSCRIPT

Wednesday, April 7, 2010
Oklahoma Room, U.S. DOT Conference Center
1200 New Jersey Ave., S.E.
Washington, D.C. 20590

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The meeting of the ITS Program Advisory Committee (ITSPAC) was convened, pursuant to notice, at 8:05 a.m., DR. JOSEPH SUSSMAN, Chairman, presiding.

ITSPAC PARTICIPANTS:

Mr. Steve Albert

Mr. Scott F. Belcher

Mr. Joe Calabrese

Ms. Robin Chase

Mr. Bob Denaro, Committee Vice-chairman

Dr. Adam Drobot

Ms. Ann Flemer

Dr. Genevieve Giuliano

Mr. Randell Iwasaki (by telephone)

Mr. Jack Lettiere

Mr. Don Osterberg

Mr. Janette Sadik-Khan

Mr. Kirk Steudle

Dr. Joseph M. Sussman, Committee Chairman

Dr. Peter Sweatman

Gary Toth

Mr. Pravin Varaiya

Mr. James Vondale

NON-ITSPAC PARTICIPANTS:

Mr. Sam Alibrahim; Federal Railroad Administration, U.S. DOT

Mr. Peter H. Appel; Administrator, Research and Innovative Technology Administration, U.S. Department of Transportation (U.S. DOT)

Mr. John Augustine; Deputy Director, ITS Joint Program Office, Research and Innovative Technology Administration, U.S. DOT

Dr. Robert L. Bertini; Deputy Administrator, Research and Innovative Technology Administration, U.S. DOT

Ms. Valerie Briggs; ITS Joint Program Office, Research and Innovative Technology Administration, U.S. DOT

Mr. Brian Cronin; ITS Joint Program Office, Research and Innovative Technology Administration, U.S. DOT

Ms. Linda Dodge; ITS Joint Program Office, Research and Innovative Technology Administration, U.S. DOT

Mr. Walton Fehr; ITS Joint Program Office, Research and Innovative Technology Administration, U.S. DOT

Mr. Bob Ferlis; Federal Highway Administration, U.S. DOT

Mr. Stephen Glasscock; Program Coordinator, ITS Joint Program Office, Research and Innovative Technology Administration, U.S. DOT (ITSPAC Designated Federal Official)

Mr. Mac Lister; ITS Joint Program Office, Research and Innovative Technology Administration, U.S. DOT

Mr. Ben McKeever; ITS Joint Program Office, Research and Innovative Technology Administration, U.S. DOT

Mr. Andy Palanisamy, Citizant, Inc.

Ms. Marcia Pincus, ITS Joint Program Office, Research and Innovative Technology Administration, U.S. DOT Mr. James Pol; ITS Joint Program Office, Research and

Innovative Technology Administration, U.S. DOT

Mr. Tom Rippinger, Motor and Equipment Manufacturers Association

Mr. Steven Sill; ITS Joint Program Office, Research and Innovative Technology Administration, U.S. DOT

Mr. Jeffrey Spencer; Federal Transit Administration, U.S. DOT

Dr. Curtis Tomkins, Research and Innovative Technology Administration, U.S. DOT

Mr. Carlos R. Vélez, Jr., Citizant, Inc.

Mr. Gregory Winfree; Research and Innovative Technology Administration, U.S. DOT

ITSPAC MEMBERS ABSENT:

Mr. Peter Kissinger

Mr. Bryan Mistele

P R O C E E D I N G S

(8:05 a.m.)

CHAIRMAN SUSSMAN: I'm Joe Sussman. I'm the Chairman of this Federal Advisory Committee for Intelligent Transportation Systems.

And it's a pleasure to see all of you here today. We've got a lot of fresh faces on this committee. We had 20 in the first go-round, and in the reconstitution of the committee, we ended up with only seven of those folks from the original 20 and 13 new individuals. So we're going to spend some time getting to know each other, to an extent. I know many but not all of you, and we'll have ample time to get to know each other.

But first, let me turn it over to Rob for the welcome to DOT.

USDOT WELCOME BY DR. ROB BERTINI, RITA DEPUTY ADMINISTRATOR

DR. BERTINI: Thank you, Joe. Thank you all for being here, and on behalf of Secretary LaHood, who actually appointed you to these positions on this important advisory committee, welcome to Washington, D.C. and thank you so much for your willingness to serve on this committee.

It's actually the first advisory committee that we have convened within RITA since both Peter and I have been here at the Department. We have one other advisory committee in transportation statistics, but you're the first. So we hope that sends a signal to you and to the stakeholders essentially that you represent about how important our intelligent transportation systems program is here at DOT.

The program as it exists now and as it hopefully will evolve in the coming years has strong support across the Department of Transportation from the Secretary on down across all modes of transportation. That's a bit of a new flavor I think over the last few years. We have strong supporters from our sister modal administrations, and we really look to you as not only individuals representing yourselves but also representing the rest of the stakeholders who are so important to any transportation program or project succeeding. We can't do any part of transportation in a vacuum because transportation is affected by and affects so much about our society and our planet.

I'm not going to say much more than welcome and thank you, and I will maybe say that we had a nice dinner last night and I heard probably about 10 times from different people, either to me directly or I overheard, this notion that I'm not sure if I'm going to say this tomorrow, but what I really like to say is -- so what I would say is that, along with my colleagues here who we will be introducing to you from the ITS Joint Program Office, we want to hear from you. So we need to hear from you. So we want not only to listen but to hear, and we want you to see that we have actually taken your advice and implemented something. I think you'll see some examples today about how the committee in its prior incarnation -- we listened to you and we made some changes and we intend to continue to do that. So please let us hear from you. If you need me to bring in an anonymous box for you to submit anonymous comments, we have some of those upstairs, but I don't think we'll need that. But please let's have a good open discussion today, and thank you again very much.

OPENING REMARKS

CHAIRMAN SUSSMAN: Rob, thank you. When Peter Appel arrives, we'll give him some air time as well.

I'm sorry I was unable to make the dinner last night. I didn't get to Washington until about 9:30 when all was said and done. I, like all of you, have a day job and had to teach a class late in the afternoon, and my standard line is with what MIT is charging nowadays, I at least ought to show up. So, indeed, I was involved in that activity.

Several of you have sort of hinted at the fact that it was a very interesting dinner, a lot of interesting discussion. Some of you even said, Mr. Chairman, you missed the meeting last night. So I hope we will have the meeting again today, and I would urge anyone who said, well, I'm not sure I'm going to say this tomorrow, to say it today because we don't do these folks at USDOT and RITA and JPO any good if we're not forthcoming in what our advice should be -- what our best advice is, I should say.

So we have a rather broad charter, and we've tried to interpret it in a broad fashion. Referring to the charter under L, we say -- or DOT says -- the ITSPAC should act solely in an advisory capacity. So we have no executive power. But the scope includes the study, the development, and the implementation of ITS. We are not constrained to comment only on their research program. And I want to emphasize the fact that questions of how the ITS movement develops, how the work of JPO and DOT relate to what's going on externally is going to be certainly within our charter.

I've been involved in ITS for many, many years here in the U.S. and abroad. I was

part of the Mobility 2000 Group back in the late '80s/early '90s that ultimately gave birth to, at that time, what was IVHS America before the transit folks woke up and said, well, it really ought to be ITS, not vehicle highway systems, and they were exactly right, of course.

And in the work I've done on ITS within the context of committees like this, as well as the research efforts that I am involved in, I've always thought of ITS as kind of a leading-edge thought leader for transportation in general. When you think about ITS in a microcosm, you've got advanced technologies that we're trying to use in effective ways. We've got concerns for issues like sustainability inherent in ITS, that is, through the mobility component to try to generate economic growth, through the technologies to try to create a cleaner environment, less impact on the environment, and social equity as well, the famous three E's of sustainability. And as you look at what ITS tries to do like, for example, congestion charging and road pricing as ways of advancing a variety of agendas in innovative ways and trying to deal with the institutional changes that have to be part and parcel of any strong technology push, I've always viewed ITS as trying to be a thought leader, trying to shape and structure what all of DOT is doing in some ways.

So I have major aspirations for the program in general and what this committee can produce.

In the past after each of our meetings, the modus operandi is we produce an advice letter. We take into account what we heard at the meeting, and generally the way it's worked is that Bob Denaro, the Vice Chair of the committee, and I take a first crack at a letter that will ultimately be submitted as official advice on behalf of this federal advisory committee. We

usually have several iterations. We send it out to the entire committee for their comments and iterate for a while and ultimately produce a letter that we believe is taken, as Rob suggested, quite seriously by USDOT.

So, for example, in the very first letter that we wrote, I would say the main thrust of it -- and both those letters are in your notebook. I don't recall offhand what tab they're under.

But in the first advice letter we wrote, we had some low-hanging fruit that we could nail because in the research program that was presented to us, there was zero -- I mean not a little. I mean zero -- on the environment, and our argument was that in this day and age, having a major program of this sort without concerns for environmental impact was absurd. And we were gratified to see the environment quickly added to the list, together with some research programs that relate to it.

So there is a sense that if we have good ideas and get them on the table and articulate it and put the force of the committee behind it, that DOT will respond. Although, as I say, we are only advisory in an official sense, there are candidly a lot of heavy hitters around the table whose opinions are valued throughout the world of transportation and the ITS world in particular. So the strength of you, my colleagues, on this committee will carry quite a bit of weight.

In our second advisory letter, we talked specifically about an additional goal for the program that dealt with accessibility to the information that is created by ITS across society. So here we were concerned about issues like the so-called digital divide, that the have and have-nots in society are perhaps further disadvantaged by not having the ability to access the

information that's being generated and are we creating, in a sense, an inequitable and, hence, an unsustainable system.

So one of the things on my hit list for this meeting is to ask DOT where they are on that particular recommendation that we made to add a fundamental goal to the four goals that already exist for ITS.

So the strength of this committee is the intellect and thoughtfulness of the people around this table, and we want to be sure that the people around the table have plenty of time to get their views on the table and to get some iteration with their peers on the committee leading, we hope, to advice letters that can be even more valuable.

I think in the earlier go-round of the committee, we perhaps gave the DOT folks a bit more flexibility in the amount of our time that they ate with presentations about what was going on. We have some statutory responsibilities to comment on particular research programs. So we gave them that slack. I think particularly here in the first meeting, and I hope further on, that we will have much more time for open discussion, and to that end, what we've asked the DOT folks to do is in each case of a presentation, to limit it to no more than half the scheduled time. Now, I of course have excused myself from that particular constraint, having probably already talked more than 10 minutes, but that's --

DR. BERTINI: Professors speak in increments of 50 minutes.

(Laughter.)

ADVISORY COMMITTEE MEMBERS INTEREST AREAS

CHAIRMAN SUSSMAN: That's what professors do. So after I finish, everybody

else should only speak for half their time.

What we want to do to begin is simply do more than introductions, although in some cases introductions may be necessary, and really get some points of view on the table about -- as is indicated in the agenda, give us your thoughts on what you think the most compelling needs in the ITS program are, gaps in the DOT program, how we can be as productive as possible on this committee, and how do we know we've done a good job at the end of the day.

And to that end, we're simply going to go around the room and ask each of you to spend in the order of 5 minutes -- and I don't mean in this case 2 and a half. I mean 5 -- and give us your sense of your perspectives on this large program and multi-dimensional program that is ITS simply as a way of getting us warmed up and getting views on the table. I heard there were some very interesting views presented last night. I hope we'll have an equally interesting set of views presented today. So are there any questions before we begin this go-round?

(No response.)

CHAIRMAN SUSSMAN: Okay. So why don't we begin? As an old poker player, I'll start to my left. Steve, why don't you begin?

MR. ALBERT: Thanks, Joe. Well, it's always interesting going first to a group like this.

My background, for those who don't know me, I guess I'm one of the seven who is carrying over. I've been involved in ITS for 25-30 years, starting most of the Houston ITS program, then going into consulting, than back to D.C., and then finally realizing that Montana is a much better place to live than Washington, D.C. and I like living out there and work now at

Montana State University at the Western Transportation Institute directing that, but really focusing on rural ITS.

As Joe mentioned regarding the digital divide, I kind of see one of the major issues is there is always the assumption that there will be a migratory path from urban to rural, and yet rural does not have power. It does not have communication. It does not have ubiquitous coverage. And there are always those impediments.

So I think one of the roles that I sort of hear, Joe, is to not only provide a reality check from some of the ideas and the solutions that might be forthcoming from this group, but also to represent some of those stakeholders that are beyond just State DOTs to locals, to tribes, to public lands, to national parks who are predominantly in somewhat rural settings where technology is important but a recognition that transportation many times is not the hook that brings people together. It's what can transportation or technology provide in the way of economic stimulus, economic development, and being an enabler for people to have jobs, have a quality of life in rural areas.

That was off the top of my head. I did not at your questions there, Joe.

How can this committee be most productive in terms of our role? One, I think we all need to be honest, respectful, disagree, and see where we come from there. I do think sometimes advisory boards can just be a rubber stamp organization. I don't get the sense that this group will act like that from many of the strong personalities I know around the room.

And one of the things I think in working with Joe and Bob, it may make sense where if we do have some select topics that we all feel strongly about, is to have some type of

subcommittee regarding that to report back to the broader committee so that we all use our time in the most effective means.

I do think we need to be very candid. I have no problem being candid, and some of you know that. I think we all really need to be that way so that what we don't have here is just a program that moves forward without any reality checks.

CHAIRMAN SUSSMAN: Steve, thank you. We appreciate that, those of us who sometimes note that California with its 38 million people have two Senators and Montana with its however many have two Senators might quibble about you're under-represented perspective, but that's a constitutional question.

(Laughter.)

CHAIRMAN SUSSMAN: Steve has always given us a real reality check in recognizing that ITS is not simply about congestion in the big cities but has a number of other dimensions, and we're very pleased to have him as one of the holdovers.

Now somebody who I met just for the first time a few minutes ago, Joe Calabrese from Cleveland.

MR. CALABRESE: Joe, thank you. My pleasure to be here.

My background is public transit that involves the private and the public side for, I like to say, 30-plus years because anything more than that makes me seem much too old. But my interest here is really to see how we can make ITS make public transit more attractive to more people in terms of addressing convenience, environmental concerns, air quality concerns, energy independence, all of those normal things.

I think we have got to be more convenient not only for our current customers but for the next generation coming up. They're going to want more real-time information, better information at their fingertips.

Another major concern and emphasis is safety. I know the Secretary and FTA will be more and more involved in safety both on rail and bus transit, a lot of discussion now with positive train control, things such as this because of some major, unfortunate accidents that happened from coast to coast. And one of the things that that could do is really slow down our system. I think that would be a major mistake. So how do we become safer and also not lose that productivity that is so important now and in the future? So I think that could be a major focus here, how we can work together to get that to happen.

On the public side, currently I run the transit system in Cleveland. We have, obviously, bus, light rail, heavy rail, paratransit, bus rapid transit, job access, the complete array. We try to use technology to make us efficient, to reduce our costs, to make it more convenient for our customers, and I think we're doing a great job of doing that. But there's a lot more in the future that we need to do.

On the private side, back in the mid-'80s, I started a company where we were providing one of the first real-time information systems to passengers in major transit markets using dial-up modems and 1200-baud connections, but we've come a long way from there.

But again, my main focus here is to be sure that transit is not left in the dust. We're often the stepchild, often the last ones at the table because we're not invited. I thank you for inviting me here to see how we can work together to make both systems better and certainly

all systems interconnect and work together.

CHAIRMAN SUSSMAN: Thank you, Joe. I made my comment in my remarks about IVHS, Intelligent Vehicle Highway Systems, morphing very quickly into Intelligent Transportation Systems, ITS, because of articulate views by people like you and your fellow transit managers.

So I've always from my perspective seen transit, to a substantial extent, as under-utilizing the technology. Back in the early '90s, we characterized transit as potentially one of the early winners that seemed to be so primed to take advantage of this technology. But as you commented, you used a term like "left in the dust." We don't want that to happen, of course. So being assertive on the transit agenda is certainly something I resonate with.

MR. CALABRESE: It's economies of scale. When you make 3,000 bus units a year, it's not enough to get a lot of people too juiced about investing into the technology.

CHAIRMAN SUSSMAN: Okay, sounds good, Joe.

Next, we have Adam. I can't quite read your last name from that distance. Sorry, Adam.

MR. DROBOT: Drobot.

My background is in telecommunications. I run the applied research organization at Telcordia. It used to be part of the Bell system. One of the things that we do is take a broad view of communications technology and how that's evolving. It's exciting times. What we typically find today is that there's something new that comes out almost on a daily basis.

One of the things I find, not being an expert in transportation -- and I haven’t been

involved with it for the last four or five years -- is the world moves a lot slower. In the mobile telecommunications world, right now we have roughly something like 3.5 billion people on the planet who are subscribers to mobile systems.

One of the things that I've seen when I look at the programs from DOT is that the way one would have approached them 10 or 15 years ago is very, very different than one should be approaching them today. And the first thing is that the infrastructure that we have in this country and around the world is a lot, lot deeper than it was 10 to 15 years ago. To give you an idea, in 1995, the penetration of wireless in the United States was somewhere around 5 percent. Today an average person has more than one cell phone.

One of the trends we're seeing is that the use of that infrastructure allows you to support what used to be thought of as special purposes in the past. So everything from law enforcement, I think, to transportation, to health care is likely to run on the same systems. Figuring out how you interface the transportation world with that trend in technology I think is really one of the things we ought to be taking a hard look at.

I think I'll stop at that point.

CHAIRMAN SUSSMAN: Adam, thank you so much.

Next, we have Professor Gen Giuliano.

DR. GIULIANO: Hi. I'm apparently the academic social scientist with some technology transportation issues.

DR. BERTINI: An academic researcher who's a social scientist.

(Laughter.)

DR. GIULIANO: So I have no technological background to speak of. My degree really is in social science, believe it or not, and my area of research is in transportation policy and planning.

So what are my interests in ITS? I actually also was around for IVHS. I remember it actually pretty clearly in terms of it being an interesting thing for me to observe. We're supposed to be candid. Right? And I remember at the time thinking these forecasts of automatic highways are absolutely crazy. It won't happen in 10 years. And actually it's refreshing to me to see that the ITS program has now sort of come back to earth and seems to have objectives that are much more feasible and at the same time, technology has now caught up to some of the ideas that were around in the 1990s. So from my perspective, I find this all actually very interesting.

I've done a lot of work in technology evaluation and implementation, and so for me, one of the things I'm always looking at is exactly how technology gets implemented and under what conditions. And that's one of the things that I almost see missing in what I read on the airplane coming out here, that there's a great deal of technology out there. The real question is who is implementing it and are they using it effectively, and if they're not implementing it, why is that not happening?

For me, one of the issues with public transit in particular is the inability to actually take advantage of technology in different ways. And when you study this, you find out that most of the problems are institutional. They're about organizations. They're about the internal structures of organizations. They're about labor issues. They're about all kinds of things that are

not technology. And so that sort of aspect of how you implement things and what are the barriers I think is really important.

In terms of opportunities that I see, I like Joe see that public transit is potentially a huge benefactor of technology and really that's because we should be able to do the seamless transportation. At this point, we have the technology to do seamless transportation, and the coming generations of travelers have that expectation. If I can learn just about everything with my Blackberry right now today, then if we want people to use transit, they have to be able to use their Blackberry to do it, and they need to have as much information about the system and their options on and off the system as they have in every aspect of their lives. And I actually think that is doable. So that to me is a huge opportunity that I would like to see emphasized here.

The second thing is actually my generation and that is that I see tremendous applications in ITS for older drivers in older driver safety. And although there was a great deal of discussion about safety in here, I didn’t really see a lot that had to deal specifically with older drivers and I think that is something that is coming.

In terms of challenges, what I see, aside from the implementation issues that I've already talked about, is we live in a highly fragmented political world and policy world and operational world, and so the whole issue about interoperability and standards is going to become bigger rather than smaller because of where the decisions are made. So it's going to be harder to have common policies that cross borders in different ways. So I see that as a big challenge that I think we should be paying attention to.

There's also the challenge to me of what I would call how to work with markets.

It's really hard to move things forward if you're moving against markets. It's a lot easier if you're moving with markets with demand. Again, I think we should be thinking a lot about the demand side, and I'm not sure if I saw that.

The last thing to me is effectiveness. I'll just call it effectiveness evaluation. I really liked looking at all the, you know, we're going to achieve this and we're going to measure that and all that stuff. That's really good. But I think there should really be strong emphasis on effectiveness. At the end of the day, what exactly did you accomplish?

So I will stop there.

CHAIRMAN SUSSMAN: Gen, thank you. Gen was overly modest in her description of her credentials in the transportation field, but we appreciate her participation.

So now Mr. Osterberg, please.

MR. OSTERBERG: Thank you, sir. I'm very delighted to be with this group today.

Just by way of introduction, since this is my first meeting, I'm a senior vice president. I actually wear four hats for Schneider National trucking company headquartered in Green Bay, Wisconsin. I'm in charge of safety, security, driver training, and regulatory compliance.

But by way of expanded background, I am a retired Army officer. Many people assume, since I'm with a trucking company, that I must have been logistician. I was not. I was an infantry officer, Airborne Ranger, steely-eyed killer kind of guy.

(Laughter.)

MR. OSTERBERG: There is some irony, I suppose, in the fact that I spent most of my adult life learning new and creative ways to kill people and break things, and now I spend my waking moments trying to avoid hurting people and breaking things.

But we're all shaped, I think, by the sum of our experiences. I want to share maybe just a little context. Way back in 1983, I was a young captain, a company commander in the 1st Infantry Division. And someone in the Army had what I thought was a great idea. They said, you know, the general officers are often defined by what they know as opposed to what they're willing to learn. And they wanted to bring together some fresh, young minds to really think about the future of warfare. And they assembled a lot of researchers and technology providers to listen to people like me pontificate about the future of warfare.

Well, one of the topics that we spent a great deal of time talking about was the issue of fratricide or casualties due to friendly fire. I was assured in that forum by many technology providers that the maturation of communications was going to serve to reduce the fog and friction inherent in warfare and that situational awareness would be enhanced such that friendly fire casualties wouldn't be an issue.

Fast forward a few years. I was chief planning officer for the very same 1st Infantry Division in Operation Desert Storm, and I found myself communicating on an FM radio that was older than I was and the fog of war was thick and the friction was ever-present. And as a result, the 1st Infantry Division suffered 18 casualties, 18 fatalities on the first day of the ground war, and all 18 were a result of friendly fire.

It was a situation whereas I looked at the conversations that we had had and the

research that had been done -- I think very consistent, Gen, with what you were talking about -- is we had essentially done nothing to apply any of the research or to leverage the technologies that were certainly available that we were acutely aware of, and as a result, we had 18 great Americans that died that day on the battlefield as a result of friendly fire.

So I liken this opportunity -- and when I was afforded the opportunity to join this group, I thought maybe I could have another bite at the apple to be able to serve as a catalyst to drive change in a very pragmatic way to this industry.

I will share with you one other vignette. If you haven't figure out, I communicate through stories. It's just the way I communicate.

When I came to Schneider National and took over accountability for safety in 2004, there were 48 deaths from crashes involving Schneider National drivers. And we would hold a quarterly meeting with our chief financial officer, and what I quickly concluded was -- and this wasn't because these were bad people, but they were intentionally insulating themselves from the emotional reality of 48 fatalities. And we were talking about high-severity crashes as statistics and talking about how much it was going to cost to settle those. And I realized that something didn't feel right to me about that.

And so I implemented what we now call the “Empathic Program” where whenever we are involved in a high-severity crash, I reach out to the family and I ask if I can attend the funeral and I've attended many. And I can tell you that one of the common messages that I get from family members when I apologize for their loss is that they want to believe that either me, my company, my industry or, even more broadly, the transportation community can

have learned something from their tragic loss such that no other family is exposed to the kind of emotional trauma that they have had to endure.

So I intentionally engage in the emotions of those situations and it's what creates a passion in me and really an obligation for me to try to be a catalyst to drive fundamental change that's going to improve public safety.

So what do I bring to the table? I know how transportation executives make decisions, and I know what paralyzes that decision-making process. I know that research, in order for it to be relevant, has to enable better decision-making. So the lens through which I look at it is somewhat again under a pragmatic lens to say there's the “so what” and then there's the “then what.” And absent the “then what” step -- and I think that's what you were talking about, Gen -- this is of dubious value. The research is plentiful and the technologies are there, and the bridge in my view is that decision-making. That's ultimately what you have to do in order to bridge that.

So I will try to provide a perspective in terms of what we need to do in order to enable better decision-making to get penetration and proliferation of technologies such that we can actually have a material effect on substantially improving public safety. I believe we can and that's why I'm here today.

CHAIRMAN SUSSMAN: Good, Don. It's a pleasure to have you here.

Next, we have Kirk from Michigan.

MR. STEUDLE: I'm Kirk Steudle. I'm the Director of the Michigan Department of Transportation. I've been the Director for going on five years now. I've been involved fairly

intensely with the ITS program in Michigan for the last eight. Prior to that, I was more on the outside looking in saying this looks like a bunch of Buck Rogers stuff.

You said it before. This has to get back to a dose of reality and frankly I've seen that in the last six to seven years of the reality check coming back and saying let's figure out what's really doable here instead of looking so far into the future.

I appreciate Don's comments and I'm really an implementer. The research stuff is nice. I want to know how do we implement it, how do we put it on the street. So my focus is really to figure out what technologies are stable and how do we push them out there. How do we push them through the agencies whether they're transit agencies, road agencies, or some other agency? How do we push them and make them available so that they can be used and we can be getting information to customers?

I think there are two primary drivers for me in the ITS world and that's the safety aspect. I do think we can have a significant reduction in fatalities in the country on the roadways and in the transit area as well.

But I also think it's about information and providing information to people. Once people have the taste for it -- as Gen said, you can everything off of here -- they're going to want it faster, and they're going to say, well, why can't I have this. Why isn't there an app for this? And I think in order to stay relevant, we have to figure out how we provide that or somebody else will and it may not be what we maybe we would really like it to do.

So when I look at your last question, how do we measure success, I think it's do we measure success of ITS. And then I would say, what do we implement? If it's how do we

measure success of this advisory committee, then I would say how are our recommendations or discussions and our thoughts taken into the discussion. And you gave a great example up front and said at one of the first meetings, you talked about the environment. It wasn't there and now it's there. And just from the beginnings here, I think there are going to be some very robust conversations, and frankly I'm looking forward to it. I think this is going to be great.

CHAIRMAN SUSSMAN: Kirk, thank you, and we're very happy to have you here.

Next is Mr. Toth.

MR. TOTH: My name Gary Toth and I'm a civil engineer, but I got my real education working at the New Jersey Department of Transportation for 34 years working and figuring out and understanding how we plan, prioritize, scope projects, and deliver them and put them in the system.

And one of the things that I learned or came to believe is that we've lost our way in the transportation establishment. We've lost our focus on community and society and goals, and bridges and pavement and intersections became more important.

Don, when you were talking -- I liked your terminology about “emotionally attached,” and I think what has happened inside the transportation industry is that we've become emotionally detached from the effects of how we invest and plan roads and transit and the effect it has on our communities. So after 34 years, when they got tired of listening to me at New Jersey DOT and people like Jack Lufkin, the remaining folks didn't want to hear any more. I left and went to the Project for Public Spaces where I'm continuing to try to work to help the industry

understand our transportation has got to be community-based. It can't be pavement management-based or bride-based. One of my peers at New Jersey DOT used to say all the time bridges don't vote. My current boss says that cars don't shop. So we just need to think about, you know, we're a logistical support to creating what we need in society.

And so ITS is something that we dabbled with when I was Director of Project Planning and Development for New Jersey DOT, and I'm interested in seeing how we can use it more to help us achieve these kind of goals.

One of the things that I did learn is that -- and so one of the compelling needs I think in terms of ITS -- I'm not so worried about the technology. I think it is there. There are lots of smart people out there to try to figure it out. To me one of the most compelling needs is to overcome the internal resistance inside the industry in doing this. I've been to a number of State DOTs since I left New Jersey DOT and the people in the practice are just really not interested. It's like real engineers and planners don't design ITS. We've got to widen our roads and add new capacity in order to solve our problems, get rid of the curves. It's obviously the problem. And I think there's a tremendous amount of internal resistance inside of the practice.

There's also the political process that directs and shapes a lot of the programs that the State DOTs, the MPOs, and other folks are doing. They're oblivious to ITS. And again, we sort of train a whole generation of people to think -- to just keep putting more money in and adding high-speed rail and more freeways, and that's going to solve the problem. So I think we need to -- those are the compelling needs.

In terms of a gap in the USDOT program. I think that USDOT, Federal Highway,

FTA have to become more aggressive in seeing this gets implemented. In all my years of working with the Federal Highway Administration and FTA, the policy has sort of been just guidance and a little bit of encouragement and almost like just whisper something in somebody's ear and hope they would figure it out. But it gets back to that system I talked about. Way too little of ITS is being deployed inside the system, and I think if it's going to change, USDOT is going to have to become more aggressive in doing it.

How can I be productive in my role on this committee? I think having worked inside the “belly of the beast,” I think that my role, along with several other folks on this committee, will be to help us understand what we need to do to take this great technology and get it institutionalized.

CHAIRMAN SUSSMAN: Gary, thank you so much.

Mr. Vondale?

MR. VONDALE: Good morning. I’m Jim Vondale. I work at Ford Motor Company. I've been there for almost 29 years. The last 10 years I’ve been the Director of the Automotive Safety Office, which means I have global responsibility for dealing with safety at Ford.

I’ve been working on ITS issues for quite some time through Ford, and then we have a group called the Alliance of Vehicle Manufacturers, which puts together most of the major vehicle manufacturers. We've also formed what is known as the VIIC, which is a group of vehicle manufacturers working together with DOT on policy issues.

And then from a technical standpoint, I think the vehicle manufacturers are well

positioned working with a group called the CAMP, which is the Crash Avoidance Metric Partnership, and again, we're working with DOT on that.

Obviously, based on my background, I have a real focus on safety but very supportive of the broad agenda that ITS has. I think it is good that we're expanding our agenda.

In terms of compelling ITS needs. I think the list is pretty long, but one I was thinking about recently -- I don't know if this is going to be a real problem or not. Obviously, with the Toyota situation and the public being bombarded daily with criticism and concerns about electronic controls, if we can’t such things as electronic throttle controls right, how are we going to get something much more complex right? So I think we really have to understand where the public is going to be on all of this.

I think all of us, including the federal government play a role. I know the Secretary is taking a leadership role in saying we need to get to the bottom of this issue and I think if we're able to do that, that should go a long way helping deal with it. But I think there could be some fallout because all of the focus and criticism and what I view as an industry springing up critical of electronic systems.

Gaps are kind of similar to the needs. One of the gaps I see is I have a concern about the policy side of all of this. There has been a tremendous focus on the technology, but policy issues are, I think, going to be more challenging than technology. Just to list a few of them, privacy, liability, patent, intellectual property, data ownership, who will enforce DSRC standards, certification of DSRC safety devices, who will operate the certificate authority, and how will individual vehicles be able to communicate with the certificate authority. That’s just

sort of a starting list of very important policy issues that I think we need.

There's been a lot of discussion. There's been some work on it. It's not that we're not working on it, but I think we really have to have a clear plan for the policy issues just as we have a plan for the technology.

Another gap that I experience all the time at Ford Motor Company -- we spend billions on research and research is very important and obviously, it's the focus of what's going on here. But the hand-off from research to implementation can be very bumpy depending on how you plan that. So I think that's something that we really have to start thinking about. I believe that phase-ins are a good thing, that fleet implementation phase-ins, finding ways to sort of gently get this technology into the marketplace is a good thing, not a bad thing. Obviously, just like other safety features, we want to try to move to standardization as quickly as possible, but given the costs and given the challenges that we have in the technology, I think that is going to be something we need to focus on.

Something that was raised with me at a meeting a while back from a GHSA person was something that I haven't given a whole lot of thought, but let me see if I can articulate it. I think particularly from a vehicle manufacturer's perspective, we really want to focus on 5.9 gigahertz and we think, obviously, standardization is extremely important. And it was related to me that a lot of States are implementing ITS related technologies that may be inconsistent with 5.9 gigahertz. And I think there are lots of reasons why that's going on.

But I think there needs to be some thought about how quickly we can move to standardization or picking the standards that we're going to operate under. Maybe the federal

government, when they give money out to States, needs to put some strings on how that money is spent so that we start to see some standardization occurring earlier rather than later because if a lot of money is invested in systems that aren't going to be consistent or able to communicate with the systems that we ultimately end up with, we may have some problems.

And then the last issue is one that's always near and dear to my heart, which is globalization. From a regulatory standpoint, the U.S. is kind of the Galapagos Islands now. The rest of the world has moved to European standards or European-based standards. I know there is work being done. I think that's very important that we develop all of our research and our standards globally. As a vehicle manufacturer that produces and sells vehicles globally, it is of critical importance that we have global standards and a global reach of what we're doing here.

Like I say, all of these things are being done. They're not truly gaps in the sense that we're ignoring them, but I'm trying to put some emphasis on where I think the emphasis needs to be placed.

CHAIRMAN SUSSMAN: Jim, thank you.

We'll switch to the other side of the table. Professor Varaiya, we're glad to have you with us.

MR. VARAIYA: Thank you.

I'm a professor of electrical engineering at Berkeley. My involvement is principally on the telecom side.

My involvement started I think almost exactly 20 years ago with participation in the national ITS architecture effort, following which I was the lead of the Berkeley team in the

automated highway systems program that Gen talked about, and realizing that that was too far away, I got interested in traffic on our streets and understood the data was lacking. So I began a project called the California Freeway Performance Measurement System, which is now 12 years going, and it's the best data available for highways. It's limited to California, but it is the best data available.

And then I realized that the loops that were collecting the data -- half of them were broken. And so I started an effort on wireless sensing and started a startup doing wireless sensing.

And subsequently I decided or observed all along, which many people have noted, implementation of these various ideas -- there is a resistance and so currently my project is on active traffic management.

However, unlike several of the earlier folks, I think that what the field lacks is research, and I think research in transportation is extremely underfunded. You can see it in many, many ways. You can see it in transportation research or transportation programs in academia, and at most transportation students in engineering don't have the foggiest notion of what technology is or what ITS is.

We can also see it in the program here. Compare IntelliDrive and the focus on DSRC with what is happening in telecom outside of this, and you realize that this is now 10 years behind the times. I mean, basically DSRC is WiFi. Just the band is 5.9, but otherwise it's nothing new. And in the meantime, you can see what's happened in the private sector with everybody's cell phones and PDAs about the information that's available, which is far more than

ever will be available with DSRC.

So the question in my mind is why this sort of -- when started 10 years ago, this was a very, very good idea, but by now it's really been outstripped by technological developments elsewhere. And I think one of the disconnects I see from a research viewpoint is there's virtually nobody from the telecom area that I know of who participates in these technologies. If we look at IntelliDrive, it would be nice to get a list of research publications which come out of IntelliDrive and compare it with research publications on the very similar area which come out of the telecom field. And I'll bet you will find that the actual concrete research that comes out of this is not accessible or not appreciated by anybody else because, in fact, it is really behind the times.

And in my own observations working with Caltrans in particular is that there's been a gradual diminution of funding in the transportation area. By research and the lack of research, I don't simply mean gadgets about 5.9 gigahertz or something like that. I mean research in management. I mean research in logistics. I mean research in safety that is funded through universities, and most of the time it simply does not seem relevant. And that is why I think we find this disconnect between when people say the technology is out there, but we don't know how to implement it, there's resistance, and so on. But that is a conundrum.

I don't understand why. When I look at Silicon Valley, they are ahead of academia, and when I look at transportation, they're sort of 20, 30, 40 years behind and even compared to other countries where if you go to Hong Kong and you look at their public transit system and compare it to anything in the U.S., it is just shameful, or if you look at the roads in

other countries compared to the roads here or the tolling facilities and so on. And I just don't understand why that is the case.

So that is my question.

Thank you.

CHAIRMAN SUSSMAN: Thank you so much. Were you passing the baton or just catching your breath? I wasn't sure.

(Laughter.)

MR. VARAIYA: Yes, I am.

CHAIRMAN SUSSMAN: Next we have --

DR. BERTINI: I thought you were going to tell us some real feelings that you have today.

(Laughter.)

MR. VARAIYA: I said I seriously believe that when IntelliDrive comes to an end, which is in 2013 or '14, it will disappear without a trace.

CHAIRMAN SUSSMAN: Thanks so much.

Let's move on to Peter Sweatman from UMTRI.

DR. SWEATMAN: Thanks, Joe. Good morning, everybody. My name is Peter Sweatman. I'm Director of the Transportation Institute at the University of Michigan.

I guess my previous life was in transportation, so mainly in freight innovation in my home country of Australia, which is the highway freight capital of the world, unless you didn't know that.

And I had occasion to go down there a few weeks ago, and I was at a conference sort of related to my previous life in the heavy truck field. When I talked about ITS, there's a lot of skepticism. I guess where I came from, it's sort of where the rubber meets the road a little bit, and that is disappointing. In fact, it pisses me off because these people don't realize what we need to be doing. So I think the problem is that we haven't been thinking clearly about what we're trying to achieve long-term and then getting the actions aligned with that.

I guess one example, because safety is paramount. Between 2006 and 2009, we've seen a reduction of about 6,000 fatalities from 43,000 to 37,000. Nobody around this table is able to claim credit. We don't know why. We know that travel is down. We know it is impacted by the fuel price. We know it's impacted by unemployment, and we know the impact is being altered by the fact that various groups are traveling less than others. But beyond that, we're trying to track this at Michigan, but we have to wait for these databases to be updated and not take six months to a year before we can even try to figure out what's happened.

So hopefully in the future we would have -- the systems that we're developing here are going to provide us real-time data about what's actually going on. So somebody hopefully around this table -- we can take credit for what is going on. 6,000 less fatalities. That's incredible.

To the future, we're still looking at personal transportation and probably a high degree of autonomy in that transportation system. The freight side needs to be intermodal , a system which ITS is essential. There's no doubt that these personal vehicles that we're going to see and continue to have will be very different. They will be electrified. They will be a lot

lighter, and they will be owned very differently and attitudes of users will be completely different from what they are now.

Safety, looking at the long-term, is much more than just avoiding risks. When I first came here six years ago, I was totally captivated by the VII program. I guess that's one reason I got heavily involved in ITS, and that is really about avoiding risks. But I think looking forward, it is more than that. We need to get to a situation where we can understand how autonomous vehicles can coexist with human-controlled vehicles in a system. And that sort of cooperation has got to be seamless.

So unless we understand how this is going to happen, we don't really understand how to deploy something like IntelliDrive because IntelliDrive is really one step in this long process ahead of us. And being able to emulate the way humans operate will be an important part of that.

Once we get IntelliDrive deployed -- and I think the DOT program is very apt in terms of thinking about how the density of deployment will change over time. It's absolutely essential if we're able to measure what's going on. We're going to have many, many -- not only IntelliDrive is going to bring back changes in our system out there, but the vehicles themselves are going to change. The drivers and operators will be very different in their attitudes. We can see unpredictable -- I guess, in sort of complex systems terminology, we're going to see maybe unstable changes take place in the system.

So it's essential that we have immediate data to tell us what's going on and that immediate data needs to be in the public sector. So I think that's a huge part of successful

deployment of IntelliDrive and then going beyond IntelliDrive into the future.

CHAIRMAN SUSSMAN: Thank you.

Janette?

MS. SADIK-KHAN: I'm Janette Sadik-Khan. I'm the Commissioner of the New York City Department of Transportation. We have 8.3 million New Yorkers. We've got 789 bridges, streets, and intersections. So there's a lot going on.

My background also is at USDOT. I was Deputy Administrator of the Federal Transit Administration. I also worked for 10 years at a local engineering firm and I had the pleasure of serving on the ITS Board of Directors under Scott Ledger's leadership. So that's a bit of my background in terms of transportation.

The focus at the New York City Department of Transportation is really about the sort of safe, efficient, and environmentally sound movement of people and goods, and I think it's really important that we hit all of those safe, environmental, and efficient boxes. And in ITS what that means for us in New York City is better information, and it's managing our system better and better information is exactly what's been talked about on this side of the table, which is information that the public can get here and now.

And I have to say there's a lot out there. We do not need to reinvent the wheel on this stuff. In one month, I will have next ferry information out for folks to take ferries in New York City. We run the largest ferry operation in the United States. We'll also have next bus. All of this is out here. We've got a lot of technology that is able to be out there, and I think we really need to think about what it is we're prioritizing in terms of what we want to deliver to the

American people.

In managing the system, we really need to -- from my perspective, I need help on rapid response to emergencies, alleviating congestion. I know Joe mentioned congestion pricing and prioritizing sustainable modes of transportation.

For me, I will take credit for Mayor Blumberg. We have reduced traffic fatalities to an all-time low of 254. That is still emotionally 254 people that we don't want to see dead, and so far our goal is to cut traffic fatalities by 50 percent and we're well on our way to doing that. They're the lowest that they've ever been -- traffic fatalities -- in 100 years, but we have to do a much better job on driving that down.

That does not necessarily mean this is going to be a private sector box where if I give you information later on in the public piece, but it's not really IntelliDrive. That is not what I need to do to drive fatalities down in the city. That will help in part, but I need -- my big problems are speeding off-hours and my other piece is drunk drivers. That is really what I've got a problem with. I've got a problem with men, ages 21 to 39, who don't necessarily start out wanting to drink and drive, but find themselves in that kind of situation. That is 63 percent of my problem, and I'm not alone in that way.

So when you take a look at what the compelling need is, I think, out there, I need to be able to address and bring traffic fatalities down like that. I also need to get people around more effectively and efficiently, which is bus rapid transit.

So Joe is doing a great job in Cleveland bus rapid transit. You take a look at what's happening in this country right now. That is where a lot of energy and momentum is

going. And cities aren't going to build their way out of congestion by triple-decking their road networks. What they're going to do is prioritizing things like transit, particularly the bus rapid transit because it's more cost effective and easier to deploy, and things like the biking network. So if we can't start to talk to the real-time information needs of metropolitan areas where, by the way, 80 percent of the American people live and where 75 percent of our GDP is generated, then we're not going to have a really relevant issue.

So it's funny. I look over at Steve and he's like it's not working for me here on the rural side, and I'm kind of like on the city side, it's not working for me so well. And I think that there's been a lot of progress, but we do not have, based on the strategic plan that I reviewed in depth, a multimodal program here. This is not a multimodal program. If you read through it, it's IntelliDrive, IntelliDrive, IntelliDrive, not that they're not important things that need to be happening on the safety side.

And I think James is doing a great job at Ford, and that side of the market is going to drive that piece. I think that you're going to see a great demand, consumer demand, for the kind of vehicles that he will be producing that have those kinds of technology applications embedded in them, or at least that's my hope. That's the kind of car I'm going to buy.

So I think that what we need to do is we really need to speak to the challenges that cities face, and I assume that that's partly why I'm on this committee.

I also think we need to have a shared standard format for data, similar to what we see in the EU and Google. We need to get that done. That would be a great outcome to share information and reduce fatalities with the one-off applications, and I think the notion of having a

mandate to open up the data and sort of tying the receipt of federal funds to certain standards in terms of open platforms, different kind of data platforms is a great idea. It's a fabulous idea and will really do more to drive that change than almost anything else.

So from my perspective, we really need to focus on having a program that is practical and relevant which is very much what Kirk was talking about. It needs to be practical. We're not going to be able to sell ITS unless people can sort of see what it means in their daily lives, and I think it's really important that we have a plan to get there.

CHAIRMAN SUSSMAN: Great.

MR. LETTIERE: Good morning. I'm Jack Lettiere. I spent 32 years at the New Jersey Department of Transportation.

CHAIRMAN SUSSMAN: This is like an alumni club we have here.

(Laughter.)

MR. LETTIERE: Yes. There's normally a New Jersey connection somewhere throughout.

I ran the agency from 2002 to '06 and then I was chairman of New Jersey Transit and was honored to be AASHTO president in 2005.

My background is in the automotive industry actually. I graduated from General Motors Institute. Sorry, Jim. Competition there. But many of your folks have come out of Kettering I understand.

Part of being an old guy with gray hair is that you've experienced a few things, and I was around when VII was first discussed and was at some of the early meetings that had

gone on. I got out of it for a while and got dragged back in. And I find myself very frustrated. We've heard a lot from everyone around the table. Going from the research into implementation is taking an extraordinary amount of time, and some would argue that it still hasn't been implemented.

Gary Toth pointed that out I think we've lost our way a little bit. This is a case of if this were a product that Jim were selling at Ford, we wouldn't have a group of people meeting every three or four months. It wouldn't be spread out all across the globe. It would be a concentrated effort in putting the resources if this were important enough to integrate all of the modes, get a group of people, and get this done.

The goal that you'll find throughout this document is safety, and to me that kind of whitewashes a very big social issue. We have got to stop killing people. We heard cars don't shop. Well, the problem is dead people don't vote. And one of the major focuses of this should be stoppage of the killing of people, and if that were so important, this would not be a group of people that would meet every so many months. It wouldn't be spread out in all of the agencies and departments. There would be a concentrated effort to get this done. Technologies exist. Technological problems can be addressed and solved.

What we haven't concentrated on is providing folks, taxpayers, whoever, users of our system with value. We hear about ITS with value. What am I getting? What are you giving me? Why isn't there the integration of how systems operate using ITS?

The next generation of air traffic controls is going to begin to be developed in our State of New Jersey, and why isn't that technology being looked at by folks here on the highway

side or the transit side? I don't even like to talk about it in modes because those technologies can easily be diffused into all the modes working together. The fact of it is the silos still remains. You're not going to develop a product in that kind of a way.

And then I think we have to concentrate on using this to provide folks with value as time. Everyone knows one of my biggest beefs is why do you sit at a traffic light at 10 o'clock at night. I mean, traffic engineers will tell me at a 90-second signal and I'm not seeing a person coming across this highway. It's savings of time, the savings of just in its economics and the environmental aspects of that are huge. And that is technology that can be important. And I think that's what's missing. We've got all of this knowledge and all this technology, and from a social aspect we are not understanding this value. We're not getting that value. It's time. It's safety and it's information and a concentrated effort to get it there.

We do have a lot of challenges, and I guess how I could be most productive is if you need a group of people to try to get a program put together to get something built, which I think is very important, I would be happy to help. Sometimes we in the United States grind things to a real fine powder, and we have to have all of the issues worked out, and sometimes the best way to get them worked out is to start to build this. I think the American people and industry are not being paid a good service by our delay.

So I appreciate the opportunity of being here, and I apologize to the professor for going on so long.

CHAIRMAN SUSSMAN: No, that's quite all right. I'm quite sympathetic to going on too long. I do it all the time.

(Laughter.)

CHAIRMAN SUSSMAN: Ann Flemmer, please.

MS. FLEMMER: I'm the Deputy Director for Operations and Policy at the Metropolitan Transportation Commission, which is an MPO, a planning organization for 7 million people in the San Francisco metro area.

We got in the business of ITS probably about 15 years ago for the basic reason that nobody else was really looking at how technology could, in fact, help us implement a better and more comprehensive set of solutions for the Bay Area. We have to marry that technology with long-range planning. We have to marry that technology with investment priorities, and that has been brought up many different ways already this morning.

I think our biggest challenge has been to find a way to finally reach a point where we can package the value composition for the Bay Area public and for our transportation agencies, of which we have many, to internalize for them the fact that investing in communications, data collection, and all of those other good things that technology allows us to do is worth as much as expanding the capacity of our roadway, expanding and filling potholes, all of the other investments that are important and that are on a day-to-day basis the major competition for technology in the Bay Area.

So one of the things that I think is really important here has been brought up already -- I won't spend a lot of time on it -- is how do we organize ourselves within metro areas to allow ourselves to be able to deliver in a comprehensive way the information that people need to better implement their daily travel decisions.

I think oversimplification -- there's a lot of technology that's built into that. Janette has already said there's so much data out there today. Where we are really failing I think is being able to bring it all into one place so people can use it and not to interfere with their access to it. And we interfere because we take -- it's 15 years we've been developing our traveler information system. That's shameful in the Bay Area where we have technology. Google just leaped right past us with respect to travel information. Great. We now can back off, but what's our access to data? What are the proprietary approaches to all of that that we have to be dealing with?

I think the other big piece is the equity question, and it hasn't really been brought up yet too much. We can't only be valuable to those who can afford access, and in the San Francisco Bay area that is always before us as an issue.

I think the good news is that there's less of the digital divide in the metropolitan Bay Area, but when we talk about moving into electronic payment systems, into ways and mechanisms to allow people to make choices based on economic decisions, we have to have our attention to what is really important which is abilities for everybody to take advantage of that. And that is a big issue for us.

When we move to a smart card technology for transit, who are the unbanked in the country. There are a lot of folks who are. We are relying on the banking industry to help us collect fares, collect tolls, and the like, but we cannot assume that everybody has equal access. So that's another technology piece that I think we should include in our agenda.

And I'll stop there.

CHAIRMAN SUSSMAN: Ann, thank you so much.

Robin Chase, please.

MS. CHASE: I guess I represent the innovation entrepreneurship side. I was founder of Zipcar and GoLoco, which is an online ride sharing company, and I've done a lot of work thinking about how to use technology in cars, wireless connectivity, impediments to innovation in the transportation sector.

So as I looked through this report, I think we moved a long way from what I think was a set-aside that has been discussed here, that transportation thought it had to work its own little silo. We've seen the rest of the world work successfully and with a huge pace. So as I look around this report now, we talk about cars and roadside infrastructure, and I think we need to broaden that to be devices and wireless and wired infrastructure, communications infrastructure, and to make ourselves part of this much larger world, and I think that's how we will move forward.

Janette or someone said, isn't there an app for that? And these apps are happening very quickly. And why is it happening very quickly? Because we now have the platforms on which to build those apps. And I think for me that is where this committee needs to -- or not this committee -- DOT's efforts need to lie, is building the platforms for people to make these things.

I can tell you I've talked to so many people who are innovating in the transportation sector, and not one of them is using DSRC and not one of them wants to deal with that sector because it's a little, tiny set-aside that is complicated and annoying. So they're

uninterested, and we have shaped that realm.

So specifically we need to open up all the data we have, and we know that when there's open data, innovators want to get in there. Where there is a problem, we want to solve it, and there are a lot of problems in the transportation sector. People are addressing traffic, time to work, multimodal stuff. And the barriers are access to data. Open in-vehicle platforms. I think we're dying to get into cars for the after-market, and every one of those guys have to build their own platforms to figure it out.

So I think we need to have an open in-vehicle platform that takes the data from the car, which needs to be more open, brings us up to the Internet, and just like in iPhone apps, all those vehicles can have a thousand apps on top of it. But today every innovator has to be a vehicle engineer and communications engineer and build these hard things. We need to get beyond that.

The other piece is communications platform. We need to create an ad hoc, peer-to-peer mobile platform. I think that’s the role for transportation, that we don’t want to have to rely on expensive recovery that doesn’t work in rural areas, that doesn’t work in downtown cities, and that is an excellent piece of work for the transportation sector to solve on which -- I can tell you when you have those things, that innovators are yearning and eager to get in there. So I looked through this report and there’s all this talk about apps, apps, apps. I think forget the apps. Provide the platforms open, open, open, and we will see innovation come pouring in, which is what we've seen with Google Maps when they opened up and the iPhone and the Internet. So we need to get these platforms down, and I think things will happen.

I want to second Janette's piece that I feel like there's a little bit of dishonesty in this -- I shouldn't say that. That was really horrible -- that this is not a multimodal proposal, as I see it here. It says 63 percent is multimodal research, and then you look through the criteria and it's not multimodal. It's cars, cars, cars. And I think we have been a heavily car-dependent society, and we know we will categorically be moving to less car dependence, and that is where the largest gaps lie, in that realm. And this multimodal piece comes back to the communications platforms and the data, opening up the data and how to do that data in a local place.

And these are areas for research. What is the content-centered networking? How do we have local data cached locally we don't have to go retrieve it from far places? How can we have the data consistent so I can get an Amtrak schedule easily with my bus schedule? Right now, it's all in different formats. That is why we can't get this multimodal stuff because the data isn't in a nice, quick way.

So basically the biggest issue for me is the integration of ITS into the rest of the technology world, and if we stop thinking of ourselves as a set-aside and join the rest of the technology wireless mobile world, I think we will see a rapid update.

And my last thought was there was this urge to say, "Let's build it. Let's builds it right now, and let's get on with it." And I think thank God three years ago you didn't do it because it was the wrong, closed proprietary set-aside path, and I'm just so thrilled that we didn't build VII and spend trillions of dollars at it. All of the closed, proprietary, single-purpose efforts are now a thing of the past. And if you think of this device, it's no longer a phone. It's got 20,000 things you can do.

And we've got to make sure that transportation -- I'm on a tirade. I'll stop -- doesn't keeping see itself as a little, tiny piece. If we make ourselves part of the group, there are so many problems in transportation, innovators and companies are yearning to solve those problems. That's their job and the reason they can't is we've made it hard.

CHAIRMAN SUSSMAN: Robin, thanks so much.

Scott Blecher from ITS America.

MR. BELCHER: Steve, I don't know whether it's better to be first or last.

I think this is a really interesting conversation. I would note that -- well, actually I'd say to Peter and to Rob, welcome to my world. Fifteen of the 20 people are ITS America members and five are board members. So these are the kinds of discussions that ITS America engages in on a pretty regular basis.

I guess I'm not going to restate what's been stated already. I think from the ITS America perspective or from what we're trying to accomplish, I think there are really three areas that we need to continue to move forward on and that are absolutely critical.

The first is really all-around deployment, and you've heard that in a variety of places. But there is a lot of technology out there. Trying to get it deployed and trying to get it so that cities know about it, cities can know what their options are, States know what their options are, that's a real challenge.

We spend a lot of our time out there marketing new deployments. I was in Houston yesterday talking about this new cutting-edge hurricane evacuation program they put together, and they built it in three months with $75,000. And it's state-of-the art and it's

awesome and it's the kind of thing that other States and cities will replicate.

We were in Portland, Oregon talking with a program where they've been actually retired 153,000 cubic tons of CO2 emissions through synchronizing 17 arterial traffic light areas. So we're trying to do that. That is an important thing, and I think it is an important role to figure out how to continue to do that.

I think part of that, part of the real challenge is how do we go from those ad hoc deployments to the broader, systemic deployments, and then that then drives the open platforms, the need for shared data.

As we all go around the country, the vast majority of the transit systems, the vast majority of the highway systems, the vast majority of our data systems are closed. The data is not being made available to the public so that entrepreneurs can create the conditions. So when you go to a place like New York or you go to a place Portland where they're actually putting this data out there, that is where you're seeing these new applications. That's where you're seeing things happen. So if we as a group can somehow promote that and somehow make that happen, that is going to lead to some of the things that I think you've heard.

I think I too kind of applaud the movement on IntelliDrive. Maybe I'm not as pessimistic as some. I do think that it has a very important role to play, and I think DOT has done a good job over the last two years in refining and focusing that role. So I think that if this group can help support in keep being your eye on that mission, I think that is a good role for us, not to build a massive system that will someday will turn on the lights and we'll have the big brick cell phone, but really something that will do what Jim wants, which is really to drive safety

in the vehicle communications.

I'm not going to restate everything else, but I'm happy to be here. I'm happy to have so many colleagues here. I think you've got really a great selection of people. I don't envy Joe and Bob trying to bring consensus around some of these issues because I think they're all important issues.

CHAIRMAN SUSSMAN: Yes. I've given up already.

(Laughter.)

CHAIRMAN SUSSMAN: Just kidding.

Bob Denaro, the Vice Chair of this advisory committee.

MR. DENARO: Yes, thanks, Joe.

Well, since it was my idea to put these questions in this thing, so I better answer my own mail, so I'll walk through them.

In terms of background and focus on ITS, I think you know about my company, NAVTEQ, digital maps and content services. What you probably know is about some of our data like turn restrictions and signage and address ranges, traffic flow. What you probably don't know, technology-wise some things coming down the pike, are extensive LiDAR and imagery, everything around every road in the country, LiDAR in high resolution imagery, real-time cell phone probe data which obviously can go far beyond other sensors, and even things like precise curvature and slope information using sophisticated mathematics, working on data from high-grade, weapons-grade inertial measurement units in vehicles. So it's gotten quite sophisticated, and all this probably in the last three or four years. So a lot of new data for all of us to deal with.

As far as my personal background, I started my career in the Air Force. I guess I'll date myself by saying my early days were in helping launch the GPS satellites in the Air Force, but then moved into the civilian industry, a lot of early work in fleet management, vehicle tracking, and the first telematic systems when I was at Motorola, which later became Onstar and Teleavo Systems.

And then right now, my responsibility is really not in the navigation area, which the company is really involved with, but more in the driver assistance safety applications, energy efficiency, use of data, and things like road user charging and some of these technologies.

I've always been involved in future technologies that a lot of my colleagues all seem to understand, including sometimes unfortunately my supervisors. So I kind of live by the idea that visionary ideas do have lonely childhoods.

The most compelling ITS need in the U.S. I'm just going to go with what we've really established. I like the safety, mobility, and environment, sustainability areas. And I think that we worked hard in our previous committee activity to, as Joe said, introduce the idea of environment, which was conspicuously missing, but also to increase the focus on safety. I don't think we can emphasize one of these over the other. I think all three are essential pillars of what we're doing and need to be in there.

As far as gaps in the ITS program, I'll pick one little area that's kind of a pet area for me, and that is, I think we're missing the integration of on-vehicle technology and the sensors that are on-vehicle. So you know, we've got radar sensors and LiDAR and video sensors, these kind of things coming on the vehicle, which will play a huge role in reducing accidents and

making driving a better experience.

While we tend to say, all right, that’s not a government responsibility, that’s going on in the private sector, that’s true, but we need to make sure that we have a coherent system-wide solution where we're not duplicating, conflicting, and all of that. So I think there needs to be more integration of those kinds of concepts and really working for more synergy where things will work.

How can we be most productive as a committee? I love the comments I've heard here today. This was outstanding. I think we ought to ask ourselves if we're here 10 years from now or our successors are here 10 years from now and we've failed to implement the goals we've said, what will it be that we failed at? What will our successors say in 10 years that we missed? We need to figure that out and make sure that’s not going to happen. So it’s just a suggestion for a perspective.

And then I see we added another question on the agenda for today, measuring success. I really like that question. I’m glad it was added. I think metrics are crucial to what we're doing. Everyone has been talking about deployment and implementation. I think we have to measure how we're doing that. We have to measure results. And I’m a big believer in both my company and here in accountability, and by accountability, what I mean is -- let’s take an example. We might say that a particular technology is going to reduce run-off road accidents by 60 percent and that’s why maybe we’ll consider legislation or whatever. Someday that will be implemented and we will achieve 30 percent, and we’ll all cheer about how we reduced 30 percent. Well, that’s okay. But let’s go back and say why did we say 60 percent and only

achieved 30 percent. In a sense, that's a failure. Yes, the 30 percent is a success but not meeting that goal -- and what can we learn from that for the next round to be more realistic about that? So the accountability.

And I find this a big problem not only in the government but I mean in my own company. We always seem to forget that stuff that we said before and we don't go back and say why didn't we achieve either on time or on budget or performance-wise what we said we could. So I think "accountability" is a big word.

I think I will just close with saying in my role as Vice Chair here -- this was Joe's idea to have everyone give their comments here, and I'm just thrilled by the comments I'm hearing. I was going to say something like, gee, we want to make sure everyone speaks up. At least at this table, we have spectators here, but no spectators allowed at this table. It looks like I don't have to say that. So that's great news.

We had a good committee in the past. We have a better one now. So I'm really encouraged by what I'm hearing, and let's keep up that activity and that contribution. And I think we're going to have a good day. I think we're going to have a good day. In fact, based on these comments, Joe, I don't know. I think we're done for the day.

(Laughter.)

CHAIRMAN SUSSMAN: I need to ascertain if Randy is on the phone. Do we know?

MR. AUGUSTNE: We've been able to call. I heard one beep. Randy, are you on the line? Randy Iwasaki?

CHAIRMAN SUSSMAN: It sounds like no. It's only a quarter to 7:00 in the morning. So that's perhaps understandable.

Since we did our go-round and our introductions, let's now turn it back to the RITA administrator, Peter Appel, for his welcome. -- I assume you still want to welcome us -- and any brief comments he has at this point.

USDOT WELCOME BY PETER APPEL, RITA ADMINISTRATOR

MR. APPEL: Sure. Well, thank you very much, and given that my welcome is coming after your going around the room, maybe I'll adapt my comments to fit a little bit more with the structure you've used and talk a little bit about my perspective. I'm not a member of the committee, but I am a stakeholder and a recipient of your advice.

I am thrilled as well. We put together this committee to make sure we heard from a pretty wide variety of perspectives, and we specifically sought out people who would challenge the status quo and would challenge the way we're doing business because if we're trying to achieve transformational change in transportation, we can't just fill the room with people that are going to be cheerleaders for what we're doing. We have to fill the room with people that are going to talk about the issues, the hurdles, the problems that we might face if we were to go down a particular path because if we learn about those perspectives early rather than late, we can deal with them and we can integrate those perspectives in what we're doing.

So to that end, from what I'm hearing here, we achieved that. We achieved the range of perspectives and I'm extremely optimistic about the dialogue in the months and years to

come from this group that it's going to keep challenging us, that it's going to keep bringing different perspectives of the industry and the public sector and safety advocates and commerce advocates all together in what we're doing. So thank you for that.

I'll touch on a couple of the bullet items that were asked of you.

I'll talk a little bit about my background. I've been at RITA for about 11 months now. I've been in the transportation field for about 23 years now. I started out doing work in aviation and aviation scheduling and optimization, and then I got into the railroad industry and worked in rail pricing. Then I came to the FAA and did a lot in aviation and aviation safety. I went into management consulting. In my first year in management consulting, I worked in the trucking industry, the rail industry, ocean container shipping, airline and infrastructure.

I guess what that says about me is I'm a transportation guy as opposed to like so many of my colleagues when I was at Amtrak, you know, worked with a lot of rail buffs, and I worked with a lot of aviation buffs when I was at the FAA. I've seen a lot of people that care about different parts of transportation. I care about transportation as a way of figuring out how to get a person or an item from point A to point B in the best way possible. And optimizing that network in transportation is something that I care very, very deeply about and looking at things from a cross-modal perspective is critical to doing that. So I love the cross-modal flavor of this discussion.

And I came to DOT and I came to DOT for the second time. As I mentioned, I was at the FAA in the '90s and now I'm back. One thing I've been doing in my time at DOT, both back then and now, is shifting a lot of my personal focus toward safety. Safety is the

number one priority of the Department. I know you've all heard it a million times before. We have a number of strategic priorities: safety, livability, environmental sustainability, economic competitiveness, and state of the repair of our infrastructure.

What I love about the ITS program is the ITS program can help us achieve all five of those objectives at the same time, and so many of the initiatives that many of you have talked about can advance safety, can advance livable communities, environmental sustainability, et cetera through common platforms and common ways of approaching the problem.

Having listed those five initiatives, I will make clear that within the U.S. Department of Transportation, safety is first and foremost among those priorities. So they're priorities but they're not equal priorities because safety is what we tend to put our focus on in the broader scheme of things, while at the same time addressing all at the same time.

So how does that come into play when we look at the ITS program? There have been many great comments in this room about the great things that are already happening in ITS and there's so much that's already out there and so much wonderful data and so many great applications that are being developed by Google and others that are advancing intelligent transportation systems. And I think that's wonderful and I think that's advancing transportation.

But there are certain roles of the U.S. Department of Transportation, in particular in the federal transportation program, that sometimes go beyond, and that gets into filling in the gaps part of ITS where the U.S. Department of Transportation and the broader transportation policy community sometimes focus on certain areas that don't necessarily get picked up by the free market in the way that a lot of the Google applications come out. And a lot of that gets to the

safety area.

Peter was talking about the improvement in safety on the roadways and that we're at 37,000 fatalities. The year before that we were at 41,000. The year before that, we were at 43,000. Actually the new numbers just came out about two weeks ago, and we're at 34,000 this year. So you can, on one measure, say that the number of fatalities is dropping and that's a positive development. The way I see it, 34,000 people killed on the roadways is unacceptable to us. It is the one statistic more than any other statistic that we look at in this Department as what we need to pay attention to, and we need to dramatically improve it. When close to 100 people a day are killed on our roadways, we have to look at every tool in our tool kit to address it.

So looking at the role of ITS in that, it's what I've talked about in a number of ITS-related audiences, which is so much of the wonderful progress we have made in the last 50 or so years in reducing that number has to do with innovations in the automotive industry to protect the occupants of vehicles from the crashes that occur, whether it be seatbelts, it be air bags, et cetera, innovations in transportation developments and roadways and the like, a lot of innovations.

And a lot of those innovations still assume that vehicles are going to crash into each other and try to figure out what to do about it. And when I look at the safety side of ITS, I look at how ITS can help prevent vehicles from crashing into each other. And that part of ITS, helping prevent vehicles from crashing into each other, is, A, one of the hardest possible things you can do in ITS and, B, about the most important thing to me you can do with ITS.

And so I know that there are tremendous applications in ITS that cross all of those

strategic goals that I talked about, but the safety goal is one that I will always personally come back to as making sure that this Department and the overall federal transportation community is putting the resources to make sure that we advance safety.

I look around this room and I look at the tremendous expertise that you all bring to the table, and I certainly appreciate what you're all bringing to the table in helping us achieve not only that safety goal but all those other goals as well. So thanks and I look forward to participating with you.

CHAIRMAN SUSSMAN: Peter, thanks so much. I hope you will be able to spend a good part of today with us. I know you've got a very busy schedule.

We're actually right on schedule, remarkably, for our break. So let's take 15 minutes and we'll resume again shortly after 10 o'clock. Thanks to everybody.

(Recess.)

USDOT GOVERNANCE

CHAIRMAN SUSSMAN: Well, let's resume. I have many pages of notes based on the excellent comments that the committee had to say, as well as those of Rob and Peter from RITA.

The next item on the agenda is to talk about DOT governance and how it relates to the task of this committee and the overall management structure. So let me just turn it over to Rob, the Deputy Administrator of RITA and, as you see on the agenda, also the Acting Director of JPO. Perhaps you'll have a few words on that as well.

DR. BERTINI: Yes. Thank you very much, Joe.

So since some of you are new to DOT and to this committee, I thought I would just take a minute to talk about governance. Many of you know Shelley Row, who is the Director of the ITS JPO, and effective several weeks ago, she's on leave in the south of France, and my estimation is that it's probably time to have a glass of wine in France right now.

(Laughter.)

DR. BERTINI: At this time of day, I often think of Shelley and Mike and wonder what they're doing and probably enjoying the scenery and the lifestyle. We are indebted to Shelley for bringing the ITS program to this point, as well as our great staff. Peter and I very strongly supported her request for a leave of absence for this year partly because we know she's coming back and also we have her office upstairs waiting for her. And also we know that the program is headed in a good direction thanks to the hard work of many people, the staff, our colleagues around the different modes within the Department of Transportation, and our stakeholders.

And because of my background and my personal interest, I was really happy to hear some of the discussion about transportation data because having studied Berkeley partly with Pravin Varaiya and spending time in Oregon developing a multimodal transportation data archive, working closely with the transit agency in Portland and with the DOT and the City of Portland there, I think I bring a bit of a passion for ITS actually and for transportation data and for openness and transparency and for performance metrics. So hopefully over this coming year with this role of Acting Director of the JPO, I can bring some of my own passions to the program and work with all of you and the staff and all of our stakeholders to move the program forward.

I'm going to talk a little bit about the DOT, but you have an org chart of the JPO in front of you, and I thought I would ask the staff to briefly introduce themselves to you since the program is actually made up of people. It's not only paper and data and such and devices and widgets, but it's actually people who make the program happen. And I'll start with John Augustine, our Managing Director. You're welcome to say a few words.

MR. AUGUSTINE: Good morning. I think I've talked to everyone either last night or this morning. So welcome. I look forward to continuing the discussion.

DR. BERTINI: And Linda Dodge, our Chief of Staff.

MS. DODGE: Hi. I'm Linda Dodge, Chief of Staff. I also work in the public safety and the rural ITS areas.

MR. CRONIN: Hi. I'm Brian Cronin. I'm the team leader for research and demonstration.

MR. LISTER: I'm Mac Lister. I'm the program manager for the professional capacity building program.

MR. FEHR: I'm Walt Fehr, and my responsibilities are in the underlying system that enables the IntelliDrive idea and the test beds where ideas will be tried out.

MR. POL: I'm James Pol. I'm the team leader for program management and evaluation.

MS. BRIGGS: I'm Valerie Briggs. I just wanted to say I work on implementation also. I'm very interested in following up with several of you, and I'd be interested in hearing more about your ideas.

CHAIRMAN SUSSMAN: And anyone in the audience should speak up as well.

MR. IBRAHEEM: I'm Sam Ibraheem. I'm the Chief of Signal Technical Implementation at the Office of R&D, FRA.

DR. BERTINI: Federal Railroad Administration for those of who haven't learned the acronyms yet.

MR. GLASSCOCK: I'm Steven Glasscock, program coordinator.

MR. VELEZ: I'm Charlie Velez with Citizant, support contractor for the JPOn.

DR. BERTINI: And we have one more.

MR. PALANISANY: I'm Andy Palanisany with Citizant.

DR. BERTINI: Great. Well, thank you all. I mean, it really is the people, and we have a great team in the JPO who are going to be moving our program forward.

I put on the screen an org chart of the DOT. I needed to create that so I could understand how the Department of Transportation was organized when I arrived about eight months ago. I think it's useful to show this because across the bottom there are 10 modal administrations.

MR. APPEL: I like to think of them as across the top.

(Laughter.)

DR. BERTINI: Well, I copied this from one that came from the Secretary's Office, so all the top part are components of the Office of the Secretary of Transportation.

The ITS program within the DOT is governed by a management council that is cross-modal, and the Deputy Secretary, John Porcari, chairs that council. The council approved

the strategic plan, which you've seen, back in December. And then all the administrators, including Peter and his counterparts, of the surface modes of transportation that includes the Federal Highway Administration, the Federal Railroad Administration, the Federal Transit Administration; NHTSA, the National Highway Traffic Safety Administration; the Federal Motor Carrier Safety Administration, and one non-surface administration, the Maritime Administration, formed this management council, as well as the Assistant Secretary for Policy, Polly Trotenberg, who is within the Office of the Secretary. Did I miss anyone? I think that's it.

So I've highlighted RITA in green in the bottom because we are a modal administration but we don't focus on one specific mode. We focus on them all, how they interconnect with one another. So like the Office of the Secretary, we are cross-modal. So I think that that explains why the ITS program resides within RITA. It explains a little bit about RITA's role in bringing together the modal administrations. So this is not a program focused specifically on highways or on pipelines or something else. It's a program that links the modes together as the people and the goods who move do naturally. I mean, people and goods who move don't necessarily care what mode they're on. They're trying to get from point A to point B. They also don't care what jurisdiction they're in. The lines on a map do not show up on the ground. So I think we have the luxury, in a sense, at RITA to focus on the cross-modal movement of people -- and I heard this come up a few times -- as opposed to strictly the movement of vehicles or containers. I mean, we're focused on things that are in those vehicles.

So on the next one, this is just a RITA org chart since some of you may not be as intimately familiar with RITA as the rest of us. RITA essentially has six program areas across

the top: the Bureau of Transportation Statistics, the ITS JPO, the Office of Research, Development, and Technology. We also have the Office of Positioning, Navigation, and Timing. I think Bob mentioned his early role in launching the GPS satellites. We actually at RITA handle the non-military, the civil responsibility for PNT policy within the U.S. government. So it's a big responsibility with a small office. Also, the Volpe Center in Cambridge, Massachusetts and the Transportation Safety Institute, which is our training arm down in Oklahoma City. Then, of course, we're supported by five support offices across the bottom.

But I wanted to show you that the ITS program actually has linkages across RITA as well as across DOT. With BTS focusing on transportation data, we have a natural connection to BTS becoming a home for some of the ITS data. We're really emphasizing transparency in everything that we do. The data that come out of our field tests and our research will be available for other researchers to access. We have linkages with the Office of RD&T who really focuses on coordinating research across the DOT beyond ITS. And the RD&T Office has formed 14 research clusters across the DOT, and actually one of those covers intelligent transportation systems. Of course, with positioning, we have a natural connection to the PNT office because location is such an important component of what we do in transportation in managing the transportation system.

There was one more thing I was going to say. Oh, someone mentioned the FAA, and I just wanted to mention with NextGen, also we have some new partnerships with the Federal Railroad Administration and with MARAD this year. We're very happy to have those sister administrations at the table with us and to be embarking upon a joint research with them. I

think within the various transportation modes, for example, aviation, I mean, it's pretty apparent that NextGen moving forward has a natural relationship with what's happening on the surface because clearly people use surface modes to access airports and the aviation system. So we can't be moving forward separately. In fact, I think we have on the calendar a meeting with the JPDO that is implementing NextGen in the coming week or so to talk about that. The administration, the White House, and the Secretary are very interested in moving NextGen forward. We want to tag along with them, seeing how we can collaborate. So all of your comments are appreciated.

Another interest of mine -- and I have some notes from my job interview with Peter and with the Secretary, and one of the things that I mentioned in both of those interviews was my interest in implementing good ideas which, after all, as RITA, "innovative" is our middle name, and innovation means implementing good ideas. So we have good ideas that are on the shelf. We have research. Our role is to help implement these good ideas, and I was pleased to hear that many of you mentioned that.

I would just mention two last things. Mac Lister is going to be talking about strengthening the connections with our university transportation centers. That program resides within the third box from the left, the UTC programs part of the Office of RD&T. Workforce development and linking to educational programs so that we have a workforce for the transportation industry tomorrow -- certainly taking care of the workforce we have now is important, but thinking about who our workforce will be tomorrow making sure that the workforce is ready for tomorrow's challenges is an incredibly important part of what we do at RITA as well.

Then maybe the last thing would be a suggestion that the committee think about its own sustainability, as we think about sustainability in transportation, but what we don't want to do is let this committee lapse again. So I would encourage us to be vigilant that a two-year term is fairly short, given lead time that it takes to renew the committee. So I would encourage, as you are forming agendas for future meetings, to keep that at the top of your mind about making sure the committee doesn't lapse again.

CHAIRMAN SUSSMAN: That led to an unfortunate interregnum. We woke up one fine day, unbeknownst to the committee, or at least to me, that we did not have a committee anymore because it had never been reinitiated, and by that time, we had a new President, a new structure with a new set of players, and it took longer, I guess, than normally it would. But we took advantage of that to build in many areas with, as I said, 13 new as well as 7 continuing members.

I for one, Rob, could use a hard copy of those.

DR. BERTINI: Sure.

CHAIRMAN SUSSMAN: We have a hard copy of the ITS. It would be helpful to have that as well because I'm not even going to pretend I can read that from here, and it would be helpful to have.

Are there any questions for Rob on the organizational aspects of this?

We wish him luck in his acting JPO Director role in Shelley's absence. This won't be an easy task especially since he has a few other things he's got to do unrelated to ITS.

DR. BERTINI: Yes. In that vein, I forgot to mention that at RITA one thing that

we initiated last summer was the development of what we call a RITA fellows program where we're encouraging more cross-pollination within RITA, within the DOT, but also from academia and from, let's say, primarily government agencies because the federal government has a program called the Intergovernmental Personnel Act Mobility Program, which allows, let's say, us to bring in an employee of another public agency through an IPA agreement where we would pay the salary of the employee. They can spend essentially a sabbatical working here, and we are about to finalize, we hope, an Intergovernmental Personnel agreement with a preeminent State DOT employee from one of our States of the U.S. to come and work with us for a year to support IntelliDrive, to provide us basically the State DOT and government employee perspective, and then to go back into the State DOT and hopefully bring some of the USDOT perspective. So we're hoping that that will be a program where we will be more open and more transparent and encourage more cross-pollination.

We also are working within the Department of Transportation through another mechanism that we're able to use by detailing staff members from other modes into RITA to bring perspectives from that particular program area. So we're working on one of those as well, and we'll be able to announce those in the near future.

We have a great team here who will help make sure that we survive this.

CHAIRMAN SUSSMAN: Adam.

DR. DROBOT: So as you've heard around the table when have made their comments, there are other parts of the U.S. government that are involved in overlapping research. So if I look at the communication aspect, I believe NIDR-D coordinates that. If I look at the

FCC just at the national broadband plan, I think it affects a lot of the things that you're looking at, including the future of spectrum. If I look at technologies on the DOD side, DARPA, and look at ad hoc networking, and objectives and investment in that, how does RITA interact with and take advantage of the other programs that are going on within the government? How do you coordinate and how do you incorporate what they're doing into your plans?

DR. BERTINI: Well, we have staff at RITA who coordinate, I would say, across the federal government. For example, the national broadband plan. We were deeply connected to the development of that plan and we provided input through the ITS program through essentially our policy office. So we were definitely at the table. Peter and I and others within RITA serve on White House committees under the -- there's a White House Innovation Council which brings people to the table from --

MR. APPEL: The overall umbrella of the National Science and Technology Council, of which there are a number of subcommittees -- Rob and I both participate.

DR. BERTINI: So there are plenty of venues for that kind of coordination.

DR. DROBOT: So when I look at things specifically, I look at DOE dealing with electric cars and communication systems and things of that sort, how does that work with what RITA is going to do?

DR. BERTINI: Sure. There's an interagency working group made up of DOT, HUD, and EPA with a focus on livability. There are other initiatives going on with the Department of Energy as well.

DR. DROBOT: Because my comment would be when I look at the plans that you

presented us here, I mean, one of the things that's absent is the links to other things going on.

DR. BERTINI: That's a very good comment.

DR. DROBOT: I mean, just totally missing.

MR. AUGUSTINE: If I can address that, Adam. There was a limit. We didn't want to bombard you with materials, but we're going to try and bombard you next time with more details because I see how well you've done your homework.

But just to address a couple of those points, recently we've actually had some dialogue with the DARPA folks and the TARDAC research group out in Michigan. And actually Walt Fehr was just out there. So we started that dialogue and to say would they like to participate and how could we work well together. So those activities are going. We just haven't presented all of that material here.

CHAIRMAN SUSSMAN: Good comment.

Others? Yes, Janette?

MS. SADIK-KHAN: In my previous life at DOT, there was a lot of coordination with the Volpe Center. For example, we did a lot of work with DOI, the Department of the Interior, on working at better transportation access in national parks. So Volpe did a whole program on that, and I wondered if there was an opportunity to use Volpe to help do some testing of some of the stuff that we're talking about today because I think they're an extraordinary resource for the Department, and I just wondered whether you had a strategic plan for Volpe in terms of what that might mean on the ITS front because it is just a great way for us to move forward quickly and show some quick progress.

MR. APPEL: I can take that one. Janette, I agree completely. When Rob was talking earlier, for example, about NextGen, there are actually three programs at DOT right now that need to be talking to each other a lot more, the ITS program, NextGen, and FRA's positive train control program. Those are three very, very important initiatives cross the Department. They all rely on a lot of things like GPS technology and integration.

One thing about the Volpe Center is the Volpe Center is the only organization in DOT that's working on all three of those at the same time. Inside the Volpe building, our scientists and engineers are working on each of those three programs at the same time, and one thing I do when I go up to Volpe is I encourage a lot more crosstalk among programs on which Volpe is involved. Volpe is also still involved in the national parks initiative and the transportation there. So there's a lot going on there.

In terms of ITS, when I said Volpe is involved with the ITS program, they are a service provider to the ITS program and are working on including testing and evaluation of a number of things that are going on here. So yes, that activity is happening. Yes, we intend to formalize it even more.

Volpe, for those that don't know, is a completely fee-for-service organization. There is zero congressional appropriation that goes to the Volpe Center. So the 500-some federal employees that are engineers and scientists and statisticians and economists and the like -- they are all doing essentially contracting work for other parts primarily of the federal government. Some of those parts happen to be the ones I mentioned. We see opportunity to get a lot more coordination across those programs which will not only be of benefit to each of those individual

programs, but they will make the Volpe Center a stronger place.

MS. SADIK-KHAN: So that Volpe might be open to having, say, some of the recommendations on projects or programs come to them through you as a result of perhaps this committee work?

MR. APPEL: Yes. I mean, Volpe already does work on the evaluation side of ITS. So in some sense, they're already doing some of that, and certainly any initiatives that come out of the ITS program that we want to do evaluation work, we would certainly consider having Volpe be involved in it. We sort of deal with it on a case-by-case basis, but Volpe can certainly play a role. It’s certainly well positioned to.

CHAIRMAN SUSSMAN: Just to emphasize some of the relationships, Peter used the term “fee-for-service.” As you well know, that means you can’t just push a button and say, Volpe, go do this. Somebody has got to provide them with funds to pay their staff. So it’s a question of resource allocation. Yes, it’s a great resource, but it can only be employed if we're, in fact, sending resources there for that purpose.

MS. SADIK-KHAN: That was one thing I was going to talk to Ann about. One of the things that I think needs to happen is that -- you know, we've talked around the table about making this tangible to the American people, and so you might want to take one jurisdiction. One that comes to mind is Washington, D.C. where our congressional leadership is and show what it is that you can do in terms of ITS and what it would mean. It would go a long way to get buy-in on the Hill, go a long way to show -- you know, to have this be a national model in terms of what you could do. So Volpe may be -- you know, you’ve got Gabe Klein at DDOT. You’ve

got some other folks that are in the region that are interested in dealing with a very congested system -- to be able to show something very tangible and what that could mean quickly. I'm sure that Gabe might be able to come up with some money for that. Then you'd be able to have something tangible to say this is what we mean when we talk about ITS. It's not the big picture, but at least a piece of the picture that gets on the table.

MR. APPEL: One of the things we've talked about a lot recently is exactly that, significant demonstration of ITS across-the-board capability, safety capability, mobility capability, environmental, in a concentrated environment, not just like the parking lot of a convention but rather in a significant area with a significant number of vehicles across a significant number of modes that are all doing something, that are talking to each other on ITS. We're looking at how to do that. Very possibly Volpe could get involved, but regardless of Volpe's involvement, we think that it's important to have those very, very visible test and demonstration projects.

CHAIRMAN SUSSMAN: Good, excellent.

Yes, Gen?

DR. GIULIANO: I wonder if you could tell us a little bit more about the process of advising. This group is supposed to give advice, and we write advice memos. This goes presumably to Peter and to Rob. Tell us more. Does it stop at your desks? What do you do with them? What would you like to achieve from advice, et cetera?

MR. AUGUSTINE: Part of the legislative requirement that we have in the ITS program is to formally respond to all recommendations from the advisory committee, and that

goes in a report to Congress every year. So every time an advice memorandum comes to us, we are required by the statute to respond in writing through the Secretary to report to Congress. So obviously it gets shared publicly what our views are. So I think it's a very powerful tool that when a recommendation comes to us, that we are required to formally publicly address it and make that available to everyone. So we don't have the option to ignore you. It's required that we do address it.

CHAIRMAN SUSSMAN: Other comments or questions? Yes, sir?

MR. VONDALE: Just a comment. One of the things that I like about this group -- and I've already experienced it just in some of my conversations -- it's a very diverse group, a lot of different ideas, different perspectives, different backgrounds. I started to realize very quickly how narrow some of views are and how I need to expand my focus.

Just an observation, though. I noticed you're not quite as diverse as we are. You don't, for example, have anyone here from NHTSA, and we deal with NHTSA all the time. I guess I'm kind of surprised that there isn't someone here from NHTSA because -- for example, we're working, as you know, on active safety, and they're very involved in that. And there is going to be a lot of debate about how does ITS fit in with active safety. Does it replace it? Does it supplement it? Does it supplement it in part? And so on.

So it's just an observation. I know this is kind of a kickoff meeting, but maybe in the future you might want to bring some additional diversity. I understand you're going to be communicating to NHTSA and other people, but sometimes it's better to have people with different backgrounds within the government actually participate in these meetings as well.

MR. APPEL: That's a great comment. NHTSA is just so incredibly critical to what we do in this program. This program doesn't exist without NHTSA, and we talk to NHTSA all the time about it. It's a good point that they should be in the room. A point taken basically.

CHAIRMAN SUSSMAN: It's interesting that I recall when Shelley presented at TRB the way in which the ITS program was structured. She showed an ITS JPO program and then in a larger circle, the ITS DOT program. I guess I've always been a bit puzzled as to the relationship between what JPO does and what DOT does more broadly in ITS and how we achieve the communication links there.

MR. APPEL: And I can talk about it a little bit. What Joe is referring to is that there is the ITS Joint Program Office program which is the bulk of ITS activity across the Department and it's very cross-cutting in nature and it really does touch on each of the programs among the ITS JPO. It touches on multiple modes.

Also, within modal administrations, particularly at NHTSA, they are undertaking ITS-related research that is funded separately from the funding pool of the ITS JPO. It's done in concert with the ITS JPO and there is very, very active communication. But any modal administration at DOT can launch research in a topic area for which there might already be a cross-cutting program. The good news there is that we are, indeed, talking to them. Essentially it provides a supplement that might be much more directly focused on that mode's specific areas of interest in the broader program.

MS. SADIK-KHAN: Would it be possible to get a list of this research?

CHAIRMAN SUSSMAN: More generally within DOT, yes.

MR. AUGUSTINE: I think one of the discussions I had with Brian Cronin during the break is the purpose of this meeting was sort of to give you a quick brief on what we are doing and to allow the discussion, but it sounds like maybe a suggestion to what Jim made is at the next meeting we have the actual modal representatives who we're working with present a little bit of their own specific views. I mean, obviously, we're representing their information, but hearing right from the horse's mouth sometimes is a little bit better. So we'd be happy to do that.

CHAIRMAN SUSSMAN: I speak now for myself, but perhaps this will resonate with the committee. I think that the charge of this committee is going to be interpreted broadly. We see ourselves as an ITS committee and a transportation committee. Being able to comment on some of these broader elements both within DOT and beyond I think is fair game as we put these advice memos together in terms of how one interacts with these other administrations.

MR. AUGUSTINE: In a lot of these projects that we execute, we do it jointly with the modes. So I would agree that the comments that this committee has would be relevant for them to hear as well.

CHAIRMAN SUSSMAN: I guess my own view is I wouldn't to be too sympathetic to being told, well, that is not ITS JPO, but we're casting it more broadly. I would expect that that is on the target.

DR. BERTINI: I think the only thing is that you provide the comments to the Secretary through us, but comments could certainly be as broad as you would like.

CHAIRMAN SUSSMAN: Secretary LaHood is coming on May the 3rd to talk at

MIT with great facilitation by Peter, and we're looking forward to having an opportunity to have a date with him.

MR. OSTERBERG: If I could maybe kick this dead horse one more time at the risk of leaving kind of the solution, one of the things that we often confront -- I suspect no one in this room would buy an automobile for your families without first researching the NHTSA crash rating or safety ratings on those automobiles. Yet, for the 15,000 drivers that we employ, if I were to say I want to put our drivers in the safest commercial vehicle available or large truck, the question is how would you know because there is no standard. There is no relative standard against which to measure truck safety.

What I've advocated for is a safety rating, not dissimilar perhaps to the crash rating, that would incent the OEMs to install safety technologies in order to create a safer vehicle, and then we can measure that. You know, with 4,229 truck-involved fatalities in '08, nearly 800 of them were actually the commercial drivers. So I think that's an example of where NHTSA can begin to help to accelerate the proliferation of safety technologies by creating a standard and get the OEMs competing in healthy competition to build safer vehicles.

MR. APPEL: Let me make a comment there and respond to both Don and Joe's comments which is about the DOT Safety Council. About six months ago, the Secretary decided that there shall be a DOT Safety Council which brings together all of the modes to assess and discuss and advance safety across the Department. One of the hats I wear at DOT is to be the coordinator of the Safety Council.

The first thing the Safety Council did, even really before it was first formally

created last fall, was to support our efforts in advancing transit safety. We recognized that this Department needs to step up in a more significant way in advancing transit safety, and we got around a table, a number of leaders in the Department, in how to do that and ultimately had some very substantive discussions with folks at the FRA and the FAA about safety culture and how to advance the safety culture and brought those discussions to some folks at the FTA and had a very good dialogue about best practice transfer to figure out how do you take the best practices of safety culture and safety management in places like the FAA and the FRA and bring it more to bear in an organization such as the FTA.

That concept of looking at our best practices in safety across the Department and ensuring that those best practices are brought to bear in other aspects of the Department is what led to the creation of the Safety Council. And it’s exactly the kind of thing you're talking about which is figuring out if we've got one part of the Department that is doing something very, very well and another part of the Department could benefit from that, we're looking at ways to do that.

That gets to Joe’s comment earlier, which is, well, how do we make sure that NHTSA doesn’t have a program over there and another program over here? This Secretary, Secretary LaHood, has made clear to everybody that works for him that we are going to break down these barriers, that this is not going to be run as the kind of stovepiped Department that it may have been run as in the past, that we're going to learn from each other. We're going to be working with each other. We're going to be working on shared missions.

In terms of the senior leadership team that reports directly to the Secretary, I have never worked with a more collegial group of people in my career that really do care about

working with each other to achieve a shared goal as opposed to just advancing one operating administration or another.

Basically those concepts of the Safety Council and then just the overall spirit of collaboration we've got at the Department I think is a step forward that addresses the points that both of you made.

CHAIRMAN SUSSMAN: Thank you.

Yes, Peter, please.

MR. SWEATMAN: I recall we convened a few years ago to talk about the USDOT's strategic plan which I think was pretty much --

MR. AUGUSTINE: Whoever is on the cell phone, could you put your mute on, please? Thank you.

CHAIRMAN SUSSMAN: Randy, is that you?

MR. IWASAKI: This is Randy Iwasaki.

CHAIRMAN SUSSMAN: Thanks, Randy. Glad to have you joining us even if virtually.

I'm sorry. We went to Peter.

MR. SWEATMAN: So I'm just wondering how what we're doing here relates to the USDOT's strategic plan. And I guess part of what I was saying previously was that we need to have a longer view than just IntelliDrive. We need to think about what comes after that. I wonder where this resides. Does it reside in the USDOT's strategic plan, which I seem to recall didn't really look that far out?

CHAIRMAN SUSSMAN: Just for clarification, you're talking about the TRB committee that I chaired. That was a review committee for the RD&T strategic plan of the USDOT, not their strategic plan all caps. So that was a research and development strategic plan that we were critiquing at that point.

MR. SWEATMAN: Yes. I'm really just asking the question where does the longer-term strategy beyond IntelliDrive reside. Who is responsible for that?

MR. APPEL: Okay. Well, there is a DOT strategic plan. It's currently being finalized and will be released by the Secretary relatively shortly. There is in development a new RD&T strategic plan that will, of course, be aligned with the overall DOT strategic plan. Then, of course, there are strategic plans in the individual programs such as ITS.

Your comment that they need to be looking far out in the future I think is a natural place for an RD&T strategic plan to make sure that it has a long view, and we're still in the process of forming that RD&T strategic plan that I think your comment needs to be reflected in it. My observation in my work so far on it is that we are trying to look far out given the nature of research and development is by nature a long-term thing.

CHAIRMAN SUSSMAN: Right. The alignment of the RD&T plan with the strategic plan is obviously fundamental and we need to stay on top of that. There's no question of it.

Yes, please.

MR. VARAIYA: As I said, this program suffers from insufficient resources, and I think there may be opportunities to leverage. For example, thinking about the DARPA grand

challenge for autonomous driving, it unleashed a huge amount of leverage, a big amount of resources from automobile companies, from academia, et cetera. Maybe there's an opportunity to combine with DARPA to say the challenge is the car that doesn't crash which leverages from Ford. I mean, all of these together as opposed to you trying to funnel your few dollars to this company or that company or that company to do specific research, to just allow people's creativity to come. It may not be implementable tomorrow but it would give you a technology direction which borrows from all sorts of domains. So that is one side.

The second side is the thing that Janette mentioned, demonstrations or tests of congestion management or pricing, et cetera, where again you leverage, not just go to Volpe. I mean, then the amount of money that you'd need to do that would be tremendous. But leverage with some cities and private companies and so on where your main task is to just catalyze that effort as opposed to putting in dollars to do that. So I think leveraging may be possible much more than, as far as I can tell, has been attempted.

CHAIRMAN SUSSMAN: Thank you. That's an interesting point.

Are there other comments before we move on to our discussion of IntelliDrive?

(No response.)

CHAIRMAN SUSSMAN: If not, I would close this session simply by mentioning that of Secretary LaHood on research is really quite refreshing and unique in my experience in my interactions over a number of decades with DOT. Those of you who were at TRB heard LaHood speak about some of his ideas about where DOT was going, and he made a special point of highlighting RITA and highlighting the research activities within DOT as being

fundamental to advancing the agenda. I suspect there have been DOT Secretaries that didn't even know they had a RITA or had a RSPA in earlier days, and yet, the only agency that Secretary LaHood mentioned was RITA, and the only administrator he mentioned by name was Peter Appel. So certainly in terms of a perspective on the importance of research, we've got that in the Secretary's Office.

But I think what my colleague from Berkeley says about the resources is very real. We're talking about limited resources to do the kinds of things that we'd all like to do and some ways of reaching out to other sectors, to use your term, to leverage that is certainly appropriate.

Yes, sir?

DR. DROBOT: One more question and a comment. From the comments around the table, when you look at ITS, the United States is not the only country worried about its transportation infrastructure, and while that infrastructure has a tremendous outcome for the economics for the country for the future, others are also working on this. And if you were to look at metrics in terms of resources, I'm just sort of curious, does RITA or does somebody within DOT keep a good set of benchmarks of what is the rest of the world doing, what are our programs relative to those.

I could offer you an example. Looking inside the European Framework program, there's an incredible amount that's, in fact, aimed at communication and transportation, information systems, systems for first responders. To me those dollar amounts or Euro amounts really are pretty stunning in terms of what is being spent. And I think it would be useful to have somebody who gathers that information because it is a benchmark of performance in some sense.

CHAIRMAN SUSSMAN: Thank you, Adam.

DR. DROBOT: And I think that is missing.

EVOLUTION OF INTELLIDRIVE

CHAIRMAN SUSSMAN: Good. So we certainly in this first session in which Rob spoke met the criteria of having a relatively modest part of the discussion being what DOT and RITA have to say and a substantial part of the discussion emanating from the committee and getting their views on the table. So that is a good model.

We turn now to the next session for a discussion of the evolution of IntelliDrive, and John Augustine, the Managing Director of JPO, will handle that discussion.

MR. AUGUSTINE: Thank you. Considering my presentation ended 10 minutes ago, I'm going to try and limit this as quickly as I can and get to the discussion.

I just want to say I think this conversation has been excellent. Actually I think we're hitting on a lot of the points that I was going to make anyway. So I'm hoping that this is a furtherance of the discussion we started this morning.

The point of this presentation is really just to walk you through some of the changes in the program and what's remained the same. We've talked a lot about the strategic plan and what it means, and we've changed the VII name to IntelliDrive. And some of the people in the room who have been following this for many years are following, but some of the new members may be thinking what is this all about and I keep hearing these old programs. So maybe we can just walk through this a little bit and we can explain some of the changes.

CHAIRMAN SUSSMAN: Excuse me. I believe you have your --

MR. AUGUSTINE: Correct. This is tab B.

CHAIRMAN SUSSMAN: Tab B has his --

MR. AUGUSTINE: The presentation we're giving here. Based on a lot of the work that's been going on and a lot of the work that Peter and Rob and the other parts of the Department have been putting on this new work, this material has been changing quite rapidly. The version that I'm going to brief here today is it's what's in your book. I didn't want to change your slides. But we'll also post a more refined version of this because the strategic plan was approved this past winter, but as we've moved out, there's a lot of actually new material that's coming out on the research.

The point of this slide real quickly is to say that the old Vehicle Infrastructure Integration project, VII, which is now IntelliDrive, started out with basically the same things we're looking at today: dramatic safety improvements, enhancing efficiency and mobility through wireless connectivity. That portion is still constant and nothing has changed there with the vision.

So just to talk a little bit about the original plan, if you look back at the old VII program, what you see there is a very infrastructure-intensive approach. There was a reason for that. V2V has always been viewed as a huge potential safety breakthrough, but if you look at the fleet turnover of 15 to 20 years, that's always been a big barrier. The thought there was, well, if we could look at spot safety or a full rollout of infrastructure nationwide, you would get that immediate benefit from the car that's equipped with the technology -- it doesn't have to wait for the other 300 million cars to be equipped -- it can get benefit as soon as it hits the infrastructure.

So that was the point of the VII model. We're going to talk a little bit about what's changed on that.

So essentially that was what we looked at in the original program and said, well, it sounds good on paper, you know, using this wireless connectivity to talk to vehicles on roadways, but will it work in reality when you really test it with real radios, real cars, on real roadways. So that spawned the proof-of-concept test, which we are executing in Michigan at the Michigan test bed.

So I think it’s important a little bit to go back in history and view what we accomplished and what we didn’t accomplish at the proof-of-concept testing.

You see here that the original approach was using the dedicated, short-range communication with the spectrum that’s been allocated to us from FCC. To communicate messages was done in a very infrastructure-centric approach. It really wasn’t a V2V approach because of the original assumptions we had. What we did is we tested the draft standards that we had at DSRC several years ago. What we've learned from the proof of concept has been rolled into the finalization of the current standards that we have underway.

And what we did is we looked at communicating data, a core set of data that we thought would be required to run a lot of applications. We didn’t develop applications. We didn’t do full applications. We tested the data exchange that would enable applications, you know, were the packets sent correctly, where they received correctly, what was the dropout, et cetera.

We only used a small number of vehicles, and we only used vehicles. We did not

use transit vehicles. We didn't use commercial or trucks or any of the fleets. It was a vehicle-centric approach. It was, as I said, it was a V2I-centric.

What we proved is that the basic idea, the concept of communicating between vehicles and between infrastructure, could work but it did not address a lot of the things that we talked about earlier today, who was going to pay for it, how do you govern it, what's the certification, is it scalable, what's the security. You know, there are real-world implications of it may work in the lab, but how do you roll it out on real roadways. So that's what we evolved to.

A couple of things that popped out from that is just what I mentioned. It worked but then there was the whole dilemma, because of the original assumption, how are we going to get thousands of jurisdictions to roll out 300,000 pieces of roadside equipment at billions of dollars when there were no vehicles equipped. And likewise, how are you going to convince the vehicle manufacturers to invest billions of dollars to equip when there's no infrastructure? So we had that. How do you get the benefit? And that's sort of what we call the chicken and egg problem.

So the bottom story there is the three big dilemmas. What comes first? Vehicles or infrastructure? How do we get to the critical mass? And Peter and Rob have been challenging the program to think really hard about that program. How do we get to critical massive equipage and make this a reality? What infrastructure do we need and how do we deploy it? So those really were the three dilemmas.

CHAIRMAN SUSSMAN: I just need a clarification, if you could back up to slide 3 where you're talking about the proof of concept. Was there any experimentation on V2V in the

proof of concept?

MR. AUGUSTINE: Yes, but I think it was built as an afterthought. It wasn't a core set. The camp and the vehicle, the V2V work sort of migrated together. We didn't set out to do the vehicle to vehicle. It was a V2I approach from the get-go. But we did the V2V work in conjunction with that.

CHAIRMAN SUSSMAN: Thank you. Sorry. Go back to where you're supposed to be.

MR. AUGUSTINE: I won't belabor this slide. I think Adam and others correctly characterized. By the time we started this until now, just the explosion of IT and smart devices, mobile phones, 3G, 4G, everything that's coming at us, we didn't factor that into the original plan. We were thinking this is going to be very car-centric and you're going to have this device slapped, you know, installed in the factory or in the car. What about all the mobile devices?

So we've had to wrestle with that, and I think this has been a very enlightening discussion that addresses -- we realize that there's a whole lot of data sources that we have to be able to incorporate into the final design, and to ignore that is foolish. So I think that's a reflection of the reality.

So again, same vision, but what we're going to talk about now is how we've altered sort of the pathways to get to the final objectives.

So the original approach that we talked about was using the DSRC spectrum that had sufficient bandwidth to do a very small, relatively small, safety message set that also had the capacity to do a whole bunch of mobility and convenience. So we said, well, we'll just bundle

all in one and it will work for a lot of different, simultaneous applications, which the proof of concept proved out. You can do multiple applications for safety and convenience simultaneously and you can do it at speed and it's secure.

However, as we looked at the reality of the way the world was evolving, a lot of the discussion we had, why aren't we looking at the current non-DSRC data that's out there, the mobile networks that are underway. And they're private networks. Private providers are providing this type of information.

So we had to factor that into how do we do the ultimate VII or IntelliDrive mission with this new data set that was emerging and growing exponentially every day. So we sort of looked at this as two pathways. You could do the mobility applications or the safety applications.

So in looking at the safety case, the business case for this, this gets into what we were talking about, I guess, last night at dinner. Working with the NHTSA folks on their assessment, their analysis of the different crash types, what jumps out at us, if you look at this -- and this is straight from the NHTSA folks that we work side by side with -- is that of the non-alcohol related crash scenario types, 82 percent of those could be mitigated, avoided, lessen the severity. I'm not going to say that we'd eliminate all of them, but you could take some fatal accidents and turn them into non-fatal, or you could take some minor accidents and avoid them. But the ability to address 82 percent of those non-alcohol-related crashes with V2V jumped out really to NHTSA -- and NHTSA is the one that has the energy on this -- to say we really should be looking at possibly making this the centerpiece of our research program for reducing fatalities

and injuries and crashes.

MS. CHASE: What is the percentage of impaired crashes to non-impaired crashes? How big a subset is it? How many are we taking out?

MR. AUGUSTINE: Right. I would say that loosely, if you look at this, you know, the 82 percent V2V to 16 percent V2I, that total -- and again, the rough estimate is about half the crash types could be addressed with this subset. Now, alcohol and other -- they're very obscure crash scenarios that I don't have the data on.

MS. SADIK-KHAN: No, no, no. What percentage of crashes are impaired like alcohol-related?

MR. AUGUSTINE: I would hate to quote that. Let me get that data for you. I don't want to guess off the top of my head.

MR. SWEATMAN: This struck me when I read through this. Why don’t we just make it non-impaired crashes?

DR. DROBOT: You could include the impaired crashes also.

MR. SWEATMAN: That just strikes me as a bit restrictive. I think it’s 15,000 or something of the 37,000 or 40,000.

MR. AUGUSTINE: Yes, that sounds about right, but I would hate to take that to the bank. We’ll get you an exact figure on that.

SPEAKER: According to the CDC, there were almost 12,000 people that were alcohol-related.

MR. AUGUSTINE: I think that’s a general rule, but we’ll get an exact figure.

MR. VARAIYA: I'm sorry. I've always wondered looking at these numbers, how many additional crashes would be created by V2V which doesn't work exactly as planned. The people who should not be addressed get the address, stuff like that. I've never seen an analysis of the false positives.

MR. AUGUSTINE: That's a great comment. I think really with the brain power in this room and the focus on this, I would really recommend that we have a NHTSA -- let's get the NHTSA data experts in here and we can have this discussion and figure out where we're targeting and where we're not targeting.

DR. DROBOT: John, I think I would put it a little differently in maybe the following way. To go and spend this kind of money without having had a single proof in a hardened way that you will actually have a positive effect all on speculation isn't the way it's done. There really has to be a research program in my opinion that in fact proves that something like this is even possible. It's the first question that you do before you make the investment. And that body of research is in fact missing.

MR. AUGUSTINE: Well, I don't think we're presenting all of that, as I think Joe asked the question, where did the V2V research originate and was it included in this plan or was it not. The VSC was the predecessor for the V2V in conjunction with CAMP and the automakers and NHTSA and ITS JPO. There has been pioneering research on this exact point. So I wouldn't say that we had done nothing.

DR. DROBOT: Let me say where I'm coming from. We have actually at LaJolla done this work for Toyota at a fairly good clip for the last decade. And I can tell you the deeper

you get into it, the more you start realizing what problems there are. So I would sort of agree with Pravin that there's a lot of things under the hood, but putting together a great demonstration isn't going to get you there.

CHAIRMAN SUSSMAN: You're suggesting the need for more fundamental research.

DR. DROBOT: I think there's a lot of fundamental -- look, I don't want to be in the following position: you don't build a car engine until you know the first principles. I mean, that's not practical. But there are some very serious questions, and that is you can do as much harm as you can do good by deploying such a system. And unless you have really thought that through, you have no business even going down that path.

MR. AUGUSTINE: That's a valid point.

What I would say is that in conjunction with the automakers, you're correct. The research has been going on for a number of years and we've done demonstrations of the automakers, V2V demonstrations. They differ. Each automaker does it a little bit differently, but essentially the concept is the same. I think what this is attempting to do is to universalize that approach and be able to present the data that shows that it is effective, there is benefit, and the integrity of the system doesn't create more problems than we're attempting to address.

But I really would suggest that we include NHTSA more fully in this discussion because I'm not a regulatory expert, but this strategy that we've developed is done in lockstep with the NHTSA regulatory folks who do this day in and day out. And I would really like to get the benefit of them talking to this group and having a discussion.

MR. LETTIERE: But I think the point of the professor, if I got it correctly, was how does this operate in the mixed system where once you start to begin to deploy vehicle to vehicle, not every car will have it. And with a mixed system, how do cars with the technology interact with the cars that do not? And are you creating more accidents there? It seems to be that stratum of knowledge that --

DR. DROBOT: I would take it sort of compared to the learning curve you had with air bags, and the learning curve is if you deploy an air bag, how do you make sure that passenger is in the nominally correct position. How do you make sure the force is right? How do you make sure the propellants don’t start a fire? And you learn all of these things. There is an incredible number of similar things that has to be learned with this technology and that has to be in the plans. We've gone through this once before. We don’t want to repeat the same story.

MR. SWEATMAN: Jim, I think that’s true, but I think we might not know all the answers before we go and deploy this. There may be people around here who really want to deploy pretty quickly.

But I guess the point I was making earlier is as we go into a world where we're going to have some automation mixed with some human control -- eventually that’s where we get to -- we need to have very good data as to what's going on on how the system might be changing. Is it still a resilient system or is it somehow becoming unstable because of the control systems we've introduced?

And so I agree entirely. This is something we need to be very careful of, but I’m not sure we're going to know the answers before we deploy. That’s why it’s so important to have

public safety data on what is actually happening.

CHAIRMAN SUSSMAN: Thank you.

Bob, did you have a comment?

MR. DENARO: Yes. I would like to use this chart to emphasize a point I made earlier also. Under both V2V and V2I there, you have road departure, and I'm not sure I understand exactly how they contribute to road departure. But the point I made earlier about the onboard sensors providing capabilities, we know that road departure can also be done by onboard systems that are available today using video cameras and GPS and that sort of thing.

And as a matter of fact, after NHTSA mandated the electronic stability control in 2006, in 2008, getting back to the European Commission, the European Commission also decided to mandate road departure or lane departure warning for heavy vehicles in Europe by 2012. So they kind of one-upped that.

So my point is that I think we need to take a look at some of these other technologies and understand how they integrate with a program like this so that the combination is an effective solution.

And then I completely agree with Adam's comments too, though, is to understand all the unintended consequences of systems like this as well.

MS. CHASE: Since everyone is commenting, I'd like to comment that this V2V is one of the reasons we need to look at communications platforms that are peer-to-peer.

MR. IWASAKI: I can only hear about one out of every four words that are being said.

CHAIRMAN SUSSMAN: So what are you suggesting, Randy? Why don't you take him offline and call him and tell him we'll bring him up to date after the meeting.

MS. CHASE: So I guess my point was this is why there's an opportunity for creating a communications platform that is vehicle to vehicle and furthermore meshed because 82 percent -- this is one of the things you need to make this interaction valuable.

CHAIRMAN SUSSMAN: Does he want to make a comment? Because this is kind of disruptive frankly.

MR. IWASAKI: I'm going to sign off after this comment. I can't hear very well. Maybe every fifth word.

But one of the things that I looked at was that -- I applaud the efforts of the Joint Program Office to provide the strategic plan for the main focal points for the future and for the next five years with VII or IntelliDrive.

I noticed that we've gone away from just focusing on DSRC and taking the other communication devices or opportunities into account. One of the things we've always talked about here in California is that we were bullish on DRSC for signal and intersection safety, but as far as V2V and others, you know, there are 3G and 4G networks and stuff like that. So in order for us to be recognized as a test bed, we had to agree to very stringent rules on using DSRC and we've always felt like there were opportunities out there.

The next comment that I have is that it is good that we're focusing on multimodal issues because there are golden opportunities not only in the transit and rail areas but as well in the commercial aspect of the movement of goods and freight.

The last thing that I would say is that we have a pretty robust test bed out here in California. Hopefully, we can get some help here to maintain it because I know there have been some discussions from the JPO to do some maintenance on the Detroit test bed.

So those are my comments and I'm going to sign off. But we have a study with numerous States that are trying to look at research, and the owners of the transportation system and the highway departments at the end of the day are probably not going to deploy lot of the VII. It's probably the local agencies.

So thank you for the opportunity to comment. I'm going to sign off now.

CHAIRMAN SUSSMAN: Thank you, Randy. Sorry you couldn't be here with us in person.

I was just going to make a comment about the upward mobility that's possible through this committee. When Randy started on the previous committee, he was only director of R&D. Now he's director of all of Caltran. So this can be a great stepping stone for all of you.

(Laughter.)

CHAIRMAN SUSSMAN: Steve?

MR. ALBERT: With 60 percent of the fatalities being in rural areas and 60 percent of those fatalities being road departure, it would be nice to see a breakdown of urban versus rural on the slide and maybe if the NHTSA folks come to the table and come to the next meeting, they can look at urban versus rural because it might help refine where a deployment or a test might occur because I know from my standpoint, every time we talk about technology, the first thing that comes up is we need to pick some metropolitan area to test all these things. If

you've been around as long as I have -- and many of you probably have -- I kind of say, well, wasn't that called the model deployment initiative? Wasn't that called the quarters program? Wasn't that called et cetera? So I'm always a little sensitive of the urban versus rural, and the first thing we want to do is to try everything in an urban area even though that's the path we've gone down seven other times before.

MS. SADIK-KHAN: I would like to respond to that and say that I couldn't agree with you more. I think you have to do both. I think you have to have a rural application tested, and you have to have an urban application tested. You know, some of your Senate delegation is very powerful, and it's very important that we recognize that there are more than just urban needs here. Although we've got 80 percent of the country living in metropolitan areas so you get a big bang for the buck there, it is a big world out there and we need to be able to show this is actually much more wired for you than it is for me. So I think that you'd be great to test out some of those things.

I just am hoping, in addition to that, that we have some deployment that actually resonates in areas where we're really trying to drive that down. Like I mentioned before, off-hour speeding and drunk driving -- those are our big problems. I want everybody to blow into their car before they get in. That's what I'd really like to see, but you know, that's me. And in the rural areas, this is a much bigger concern for you. So I think it's really important, as we do these initiatives, that we actually have a two-pronged strategy.

MS. CHASE: Does anyone know what the breakdown is? Of those 34,000, what's the rural versus urban?

MR. AUGUSTINE: 60 percent is lane departure into trees.

MS. CHASE: When we think about what is the mission of the ITS program, if it's 100 percent safety but an emphasis on safety does say you're interested in saving the lives of the 60 percent of crashes that happen to 20 percent of the population.

MR. APPEL: I don't think anything is excluded there. When we're talking about non-impaired, we're certainly not excluding the impaired. ITS, as has been mentioned, significantly benefits impaired drivers.

MS. CHASE: I wasn't talking impairment. I was talking volumes of --

DR. DROBOT: I would say the following thing. While we're focusing on deaths as the measure and you have 3 million crashes a year and 300,000 serious injuries -- and I have a feeling when you start looking at that next figure, the urban side of it actually comes out way ahead of the rural. You ought to be able to deal with both essentially.

MR. DENARO: That's a good comment. A few years ago, I was involved in some work addressing some of this, and I went to speak to NHTSA about their new FAR system, which is Fatality Analysis Reporting system, whatever. And they recounted a story to me that they did a study. Now they have this nationwide data for about four years, at that point, I think. They did an analysis of where dangerous intersections were, and they defined a dangerous intersection by having two or more fatalities per year. And they got great news from the study. There were no dangerous intersections in the United States because if you're only looking at fatalities, there weren't enough fatalities at the intersections to add up to this metric that they had. So by looking at accidents, you get a very different picture.

But I want to make a suggestion here, a recommendation. It's something I said at dinner last night. I keep hearing that, yes, NHTSA has that data and so forth. I believe that the JPO needs to have that data and I think I would like to see it. I would like to see a breakdown -- let's start with fatalities -- of all of the fatalities and the breakdown, as we've said, between rural and urban, run off road, alcohol impairment, all those things so that they add up to the total. That would be nice because actually I've looked at those statistics and I have trouble adding them up and getting the right numbers. So I'd like to see that.

Then I think it would make sense to look at technologies that apply to each one of those, candidate technologies. Let's not make any decisions at this point. Some of them are V2V. Some of them are V2I. Some of them are onboard technologies. You know, there can be various things that apply there. And just kind of stare at that chart and say how are we doing in terms of what do we expect.

And by the way, I guess another column in that table would be applying this technology, what would be our estimate of the reduction in fatalities in this particular category. I think that would be a very interesting overview for us to be able to look at.

DR. DROBOT: Add motorcycles, which are the fastest growing --

MR. DENARO: Great point. Add pedestrian while we're at it too.

MS. SADIK-KHAN: And you have to put in pedestrian injuries.

MR. DENARO: Europe has got these new rules about goods that will bounce people off when they hit them because they have such a pedestrian accident problem.

CHAIRMAN SUSSMAN: There's quite a bit on the table. There's no question

about it.

DR. BERTINI: It’s not that NHTSA has the data in some secret vault. It’s available on the Internet to anyone. So it’s a matter of plotting this in an interesting way. I think that could be done very easily.

MS. SADIK-KHAN: Maybe we could get it after lunch.

DR. BERTINI: James could probably pull it up on his laptop here.

CHAIRMAN SUSSMAN: Some of these technologies may, in fact, make the system less safe in certain situations. That has to be considered as well.

John, do you want to get off this pie chart?

MR. AUGUSTINE: I want the chair to note that this does not come out of my time in speaking, this discussion portion of the agenda.

(Laughter.)

MR. AUGUSTINE: But I think, no, this is great. I mean, what we're trying to present is just a snapshot of decision-making with NHTSA on the regulation.

The issue is we're looking currently to do the research on the V2V to enable a regulatory decision in the 2013 time frame. Bob’s comments on what other technologies are we looking at here, what are fused approaches are definitely on the table.

We're going to sort of jump around a little bit because we've talked a lot about this, and I don't want to over-talk on the slides. But some of the portions we don’t have a full understanding yet is the positioning and the security and some of the scalability. In order to make it appropriate to do the regulatory benefit/cost decision, you may say we actually need a

radar/LiDAR coupled with the V2V because you have outages or there are portions of the country -- in the urban you can't get the signal. And we're not going to try and put a gazillion dollars in a pure V2V. You would say it only makes sense to couple it with some other technologies tied into the vehicle.

So the point I want to make is we're positioning a NHTSA regulatory decision in the 2013 time frame. At that point, they may say, well, we need to put the decision in the future, but fill the gaps on what we've learned in the research. The point I'm trying to make to this group is the data on the V2V is directly driving the NHTSA regulatory process. We're not off in a bubble and just assuming that these numbers are about what we think it is. It's totally in conjunction with the NHTSA regulatory framework and a lot of the issues you addressed will be squeezed out in the research to say we can't do it as effectively with pure V2V or we need some other communications types to supplement the final solution. But we have to do the research and do the testing to present the data, and I think we would welcome a full NHTSA participation at the next meeting to sort of debate these ideas.

CHAIRMAN SUSSMAN: Can you help me out with what the phrase "assess regulatory potential" means?

MR. AUGUSTINE: That is code for saying we're not promising they're going to make a decision. They could look at the data and say the benefit is not here. It's not worthy of a regulation because the costs outweigh the benefits or the approach was not proved out or we need to do some additional research to make a regulatory decision.

MR. SWEATMAN: I think my question goes to that a little bit. It's not as if it's

a yes/no or a go/no go decision probably. I think it would be helpful for us to know what the potential range of that decision is. Is it just simply a platform that's going to be in vehicles, or is it going to then talk about certain applications ought to be built on that platform? What's the possible range of that decision that's going to be made? When I read through this, it looked like it was sort of a yes/no, flip-flop switch kind of decision, but I suspect it's probably not. And there's a whole range of decisions they could make, and I think we need to be aware of that.

MR. AUGUSTINE: What I would say is as much as we learn between now and then, we can factor that into the decision. For example, the positioning. You say we're not going to do it with GPS alone off-the-shelf commercial receivers. You're going to need a camera plus a LiDAR, plus an other odometer, fused inertial -- even someone mentioned -- I think, Bob, you did -- low-cost inertials. A fused approach may be the right solution. If we find that out early enough, we can roll that into the decision-making process so that when we get to the 2013, they say this is the decision. You're going to have to have this kind of approach in all vehicles by said date.

But there's no promises that we're going to find out everything or even that the research will prove out it's worthy of regulation. So we want to be up-front. This is a decision-making process. There's no guarantee the final decision will be regulation.

So clearly, we've got NHTSA -- and Peter, you've had lots of discussions with the senior NHTSA leadership. They're committed to this program. They feel very strongly. They will be at the ITS annual meeting. Peter is going to chair the panel where we can actually have some more of this debate to say how high this is on NHTSA's priority list. I think they're going

to say fairly high. It’s one of the dramatic breakthroughs they think that they can achieve on reducing those fatality numbers and the crash numbers.

CHAIRMAN SUSSMAN: We've talked a little bit about the institutional issues. What is the process by which ITS JPO interacts with NHTSA on this? Are we simply standing there waiting for a ruling? How do we participate, if at all -- we, JPO, participate in working toward 2013? It’s not clear to me.

MR. AUGUSTINE: All of the research we're doing, V2V, V2I, all the other things in the strategic plan, are worked jointly with each of the modes. We sign up a charter for who is doing what piece, where’s the funding, where’s the accountability. We develop road maps and a critical path. There's a program management plan that’s jointly signed by us and the modal partner. So this is not a we send them money and they come back with a plan or we devise a plan and they rubber stamp it. It’s a joint product. I think that’s one of the major achievements we've had over the past couple years through the leadership of Peter and Rob, of strengthening those modal relations, and Shelley Row and her job of really making sure that the research projects were jointly agreed to. And I think we even have a copy of one of the charters. I think it was the AERIS charter.

But the point is all of the information we put down is open for discussion between both parties. No one is dictating either way.

CHAIRMAN SUSSMAN: But at some point, NHTSA makes the call.

MR. AUGUSTINE: Right. I mean, we do not have the regulatory authority. So we have to work through their process to say what data is needed, how much data, do you need to

do 20 vehicles, 100 vehicles, 200 vehicles, how much data do you need, when can we do it, can we do it all at certain test beds or do we have to do additional pilots. So all that work is ongoing now. I think we'll be happy to share sort of the updated charter or road maps on the V2V specifically or any of them, if you're interested. There seems like there's a lot of interest on the V2V.

CHAIRMAN SUSSMAN: So is it fair to say NHTSA and JPO have agreed in principal to the pathways toward a regulatory finding in three years?

MR. AUGUSTINE: Yes. I mean, we're actually very proud that the work that we've done is enabling NHTSA to be so bold to say we're actually looking at regulation. A lot of times, they don't like to come out loud because it creates a lot of criticism and people want to say where's the data. Well, we've worked the data and they feel fairly confident that it's worthy of saying we may potentially regulate. NHTSA is by nature a conservative organization. They don't want to put data out there that they can't back up.

That actually was one of the points I wanted to make with the alcohol-related versus non-alcohol-related. When you talk to the statisticians at NHTSA and the folks that live this day to day, they take this very serious, and we don't like to say, oh, we could address that issue with V2V. They would say we cannot stand behind that statement unless we have the data.

So I think from my standpoint, there's a lot of potential that is understated here, but we've got to make sure the regulatory folks are comfortable with the data. I'm not going to put words in their mouth. I'll say if that's my own view. But I think there's a very solid plan

here.

But I think this is great. It sounds like we clearly need to get NHTSA in the room and open up this discussion.

CHAIRMAN SUSSMAN: Okay, sounds good, John.

Any other on that path? I saw Peter kind of -- no? This is like an auction. If you even twitch, I call on you.

MR. SWEATMAN: I wondered if we were focused on the platform or other applications.

MR. AUGUSTINE: I would say it’s more of a platform. There will be potential applications developed to say the platform has to support potential safety applications, but it’s at the platform level.

CHAIRMAN SUSSMAN: Yes, Gen, please.

DR. GIULIANO: Joe, I kind of almost have a procedural question. I have sort of a big question that I’m holding off on because I assume you're going to get finished through your slides sooner or later. Then I have sort of a less big question that relates to this which has to do with essentially implementation.

Since I’m not the techy, this idea of cars being able to talk to each other, for example, crash avoidance type systems, one can imagine a world in which automobile makers offer crash avoidance equipment, just like we have cruise control today and some of us buy it, and we use it at our own risk and so on. That’s really different from the government saying we're going to equip a bunch of cars -- right -- and see how it goes out there.

So I'm kind of wondering how this works. Do you crash cars on test beds? And then when you get to a reasonable sort of failure rate, acceptability, then you have kind of a sponsored demo and everybody signs off on the liabilities. They're willing to get into crashes if this doesn't work or whatever. Do you see where I'm going?

CHAIRMAN SUSSMAN: I'm not sure. I don't know if that's your big question or your little question.

DR. GIULIANO: That's my little question. I'm saving my big one for later.

CHAIRMAN SUSSMAN: You'll give us your meaning of life question later on.

MR. AUGUSTINE: I think the little answer is clearly the private sector can produce and are producing. You're seeing crash avoidance technologies on vehicles now. So we don't get in the way of that. A lot of those approaches are very effective. They're autonomous. So each vehicle manufacturer has its own way of doing it. Some are more effective than others, and they're just emerging. I don't think we have full data on it. But, you know, I've seen some of the more luxury models have more of those features than the common models. And some of those safety features are selling points. So, there is a market pool for them. So that sort of drives the amount of the deployment.

The V2V work -- I think the significant difference, to answer your question, is the V2V regulatory decision would enable all vehicle manufacturers and types to communicate interoperably on all models for the entire fleet. So you don't say, well, this maker is ahead and they've got some applications that are working. We'll just let them go their own way. And it never gets down into the more affordable vehicles that a lot of -- you know, a lot of those

vehicles are on the road. So we don't want to disincentivize the good work that's being done with crash avoidance technologies that are being deployed because they are being, but we want to make it universal and apply to all vehicles and be interoperable.

DR. GIULIANO: So one issue is about interoperability and standards. Another issue is requiring just like air bags in the car. All right.

MR. AUGUSTINE: That was a little answer. Is your big question coming now?

DR. GIULIANO: No. I'll wait until you get through your slides.

MR. AUGUSTINE: This is like being roasted at about 180 degrees, not quite boiling.

MR. DENARO: Just a little detail question. I don't know if you know the answer to this yet. When you say legislation, would that be for only new car production or for an install base as well?

MR. AUGUSTINE: The discussion at this point has been for new car, but what we can't fit into this full discussion is the after-market approach. So clearly there was a retrofit component to that, but the initial regulation was applying to new vehicles.

MS. CHASE: On both of these, you talk about which comes first, cars or infrastructure. And I want to strongly suggest that that's too narrow a question and that it's devices and infrastructure broadly defined as technology pervasive throughout the environment. And I think if you'd redefine that more broadly, I think you will enable many safety and many other applications that would inform your 2013 decision ruling.

So, for example, I really do want to see things that are embedded within the car,

whether after-market or future markets. But today cell phones have accelerometers and GPS, and it could saying, Robin, wake the heck up. You're drifting. And that could happen today. Or, Robin, you're driving like you're drunk. Slow down. That can happen with cell phones and you could achieve those results today with that application.

When we say car to car, vehicle to vehicle, somebody says, okay, it has to be in a vetted system, it has to be an active system hooked up to the car. With the infrastructure piece, are we only talking about communication to roadside equipment? If we acted more broadly, couldn't you communicate to a cell tower? We're saying it’s not just transportation’s own little investment in the thing, but how do these vehicles and devices interact with the whole realm of things that are happening now.

So if this were not cars versus infrastructure, which I think is the wrong question, it’s devices which are embedded in the car, in my hand, and infrastructure, not just what DOT invests in as roadside, but how can these communication devices interact with a much larger environment and when you look to multimodal stuff, it’s the same thing. So I think this question sets you up to go down the narrow path where I think we will not achieve what you want to achieve.

MR. APPEL: Can I jump in just for a second?

CHAIRMAN SUSSMAN: Yes, please.

MR. APPEL: That brings to mind what is the number one thing that Secretary LaHood is talking about these days about safety, which is distracted driving. We have to be very mindful in all of our technology discussions of the broader context of safety and distracted

driving. Distracted driving, in terms of contributing factors to accidents, is one of the fastest growing and very significant contributing factors. And Secretary LaHood has really taken a leadership role with the distracted driving summit that we were a big part of and with regulation, with legislation, and with education to get the message through that when people are driving their vehicles, you want them to be focused on driving their vehicles, hands on the wheel, eyes on the road.

Which begs the question of what do we do about handheld devices. The general answer in this Department -- and there are a lot of human factors engineers that are exploring this very carefully -- is that we don't want people holding handheld devices while driving, and we don't want them to be distracted from the road by those devices.

So then that begs the follow-up question which is how do you benefit from information that can come in wirelessly for safety or mobility purposes without adding additional distraction. I'm not saying we have all the answers to those questions, but it's just a backdrop of what we're doing. We have to be extremely mindful of the very, very serious distraction impact of handheld devices, and that question helps NHTSA as it looks into the overall question of how do you work with the automakers on dashboard designs so the right information is at the right place on the dashboard such that it can provide useful information and not be a distraction. It's just a set of issues that we have to look at.

DR. DROBOT: But, Peter, let's look at this mission and one you just talked about. So just like unintended consequences with V2V, we're discovering the unintended consequences of carry-in devices. So a person who is texting takes their hands off and eyes off

the road for 5 seconds or more, if they're drunk, it’s 10 seconds, and that creates problems.

The flip side is you have good things like a Ford SYNC which allows you to use that as a communication device, but Ford owns the real estate in front of you and can present stuff in a way that allows you to access all the information systems but do it in a much more careful way essentially.

And to me, this is where the research in things along these lines really has to be done. You're not going to get rid of, let’s say, distraction factors 100 percent, but I can tell you when I went back to the historical record and looked at the introduction of radios in cars, you have a lot of very hysterical things in the press as to all the bad effects that that would have. One of the good effects is on long drives avoiding monotony and keeping you awake.

So this is complicated. You can’t hide the fact that it is complicated and it has to be looked at carefully.

And when it comes to V2V, I think the problem is anything that you approach you have to look at all of the alternatives, and I think what Robin presented is a lot of low-lying fruits with another alternative. You have to be careful with it, but it can contribute in a positive way. You say drive distraction obviously has to be dealt with, but yes, it can be dealt with in a constructive way.

MR. APPEL: You illustrate the need for research and it is a major part of DOT’s research program this year and ongoing, what are the fundamental types of driver distraction and how do you mitigate those, a lot of emphasis completely outside of the ITS Joint Program Office.

DR. DROBOT: But all the way from what's in a car to all of a sudden seeing

beautiful technology -- and I see billboards that are live that pull your eye off the road. You didn't have those, I would say, five years ago.

MR. APPEL: That's certainly part of the scope of the research.

DR. DROBOT: And it's part of the landscape.

So I mean, I think in this debate what seems to be missing in a sense is a framework and in my mind it's a systems engineering framework in which you can actually do the tradeoffs and understand the alternatives. And that framework tells you what makes sense and what doesn't in the long term.

MR. DENARO: I think another aspect of this conversation, too, is one of the primary objectives of this committee, and that is the appropriate roles for the private sector and the government sector. That's part of what we're talking about here. So whether it's devices, whether it's public communication networks, private communication networks versus DSRC -- I know from some conversations with your team, John, I have learned that there is quite a bit work going on on the appropriate role. I mean, consumer devices have problems. How are you going to get standardization of what goes on if every manufacturer does something different? The problem of cellular having latency issues and so forth, the problem that you don't have coverage everywhere.

So there's a number of problems, and I think the job is to sort out, yes, this stuff is happening. These developments are happening, but what is the appropriate role of, say, consumer devices and networks and so forth versus where is something so safety-critical that it needs to be a dedicated communication, non-latency network and so forth. I think your team is

working on some of that, and I would just encourage that.

DR. DROBOT: Even in that setting, when you look at something like a communications network, I have a feeling we are getting to the point in time where it is unaffordable to build a nationwide network for a single purpose. And the answer may be how do you put in mechanisms that give priorities to certain kinds of traffic. And I have a feeling in the long run that's probably the likely outcome.

MR. DENARO: That came up back in the days of Onstar and those sort of things, you know, how are those messages guaranteed to get through because of latencies.

MR. AUGUSTINE: And just to sort of segue this and wrap this conversation up, the point of the -- it's hard to see in this, but you have it your reading materials. But on the bottom part there, we're acknowledging the existence of the commercial data that's out there, and I think, Robin, you have a valid point. You know, is it vehicles or infrastructure or is it the data or the device? I mean, it's available there. We've got the existing sensor networks from the DOT. We're trying to think about how do we take advantage of those data sources but do it -- according to Peter's point, just because someone has a cell phone on their car seat and it can do some things, should we just say that's the solution and we're done? We have to do it in a way that meets the human factors and the regulatory effectiveness.

So we're aware that there's a potential. You know, every signal out there is a signal of potential that we could utilize in some way, and we're going to look at how do we use that and what's an appropriate use and does it meet our human factors and driver distraction standards or do we need to do more work. So we're not ignoring them. We're trying to figure out

how do we capture both data sets and pull it into a seamless solution that does address safety improvements.

MS. CHASE: The seamless solution. Why does it have to be one solution? I think there are many, many small things that we can achieve, knock off just one by one. And we still might not be able to get the --

MR. AUGUSTINE: I would say that the approach we're taking Adam hit on a little bit, the systems engineering approach. But what we're looking at -- and NHTSA is advocating this. FAA does it -- is the performance-based approach. There are so many different ways to meet the performance requirements. There are infinite numbers of combinations of data and systems that could be fused together, but we have to get away from saying, oh, it’s got to be this, you know, these 14 solutions and not this, 15 or 18, to say here’s the performance you need to meet. Now, if you can meet it through a whole host of things, that’s what we're looking at.

DR. DROBOT: So, John, what might make sense -- and I have a feeling that this might justify an approach in IntelliDrive -- is you really want to have a long-lived standard interface on which people then can build the thousands of solutions that make this workable because that removes the barrier of scaling with lots and lots of people. That is a worthwhile goal. And if that’s the goal, then this is worthwhile. To then say that this is the monolithic solution to everything I think you don’t have to do.

MR. SWEATMAN: This is an interesting cultural difference because what NHTSA has always done is bringing safety standards, and the idea is at source. Let’s put them in every vehicle, and those vehicles would go out. We're very efficient. We're covering the field by

addressing the problem at the source.

I think what Robin is getting at is that doesn’t necessarily work here. We've got all kinds of other things circling around. Can we totally address this by some seamless system that starts at a source somewhere and spreads out and creates the benefit or do we need other pathways to make this happen?

But that really gets at the heart of the way NHTSA thinks about the world in terms of doing stuff at source, and all the benefits flow from there. This is different. I think that is what Robin is saying.

MR. AUGUSTINE: If we could go to the next slide. So to move away from this discussion, I think the issue that we're getting at is if a V2V regulatory decision was made, what you then have is the potential for all vehicles to have some core safety function that you could leverage and it breaks our dilemma of, well, we're never going to get there because cars won’t have it or you just utilize what's existing today and just hope it becomes voluntary over time and let it evolve. I think that’s sort of a combination of both. You’ve got to take advantage of what's available today, let that drive some of the solutions, but not say I hope everyone decides safety is important and I hope it happens on its own. What is the proper government role to say we think it’s so beneficial and we've done the work, the necessary research, and the human factors associated to require it in all vehicles?

So that is our current approach. We want to be up-front that we're looking at regulation as a way to solve some of that. It’s not to say that’s the only solution but it’s a big part of it.

Then we get into the fleet penetration issue I think you mentioned, Bob, about the retrofit and a whole lot of other things to the point of the mobile devices, the consumer electronics that are out there, we view that the embedding of a DSRC or some safety message in devices could address the pedestrian and the bicyclists and the people on Mopeds that don't have a dash-mounted system to be able to get to the retrofitting of the vehicles and getting it to the people that we need to be part of the network. We need to sense where pedestrians are, and it could be through optical cameras. It could be through the sensing of the devices and a combination of other things.

So my point is this is not a monolithic -- you know, we just put it on all cars and we shut the book and case closed. It's a layered strategy.

Next slide I'm going to move through. I think we've talked about this. We've covered this 10 minutes ago.

Next slide, please. So I think the issue that we're making -- and I think Peter presented it correctly -- is safety is the number one goal of the Department. This is driving the current IntelliDrive work. We believe that if it proves beneficial enough to be regulated, that it opens up a whole new capacity to do some efficiency, environmental, a whole lot of other benefits. But the core driver on the strategy is the safety approach.

It's not to say that we can't look at other mobility things on the side, which we will, and we are doing that now. But I think it's nice to take an overall approach to say how would the two work together and how do we arbitrate between a safety-critical message and a convenience. Knowing that your toll just went up a quarter is probably less important than

knowing the guy in front of you is slamming on his brakes and you're going 80 miles an hour. So how do we do those things?

Next slide, please. This is in diagram what we just talked about. There's a whole non-DSRC infrastructure that's going to be communicating. We acknowledge that. We think it could be part of the solution. How much I don't know, but clearly at this point DSRC -- the low latency issue is the primary driver of active safety, which is really over the horizon. We can do alerting. We can do situational awareness and audible alerts, but to really take control of vehicles and prevent crashes when people are alcohol-impaired, you provide the beep. You know, they're asleep at the wheel. No amount of beeping is going to wake a drunk driver up and get him to stay on the road. Sometimes the vehicle is going to need to take control. That is the far-range safety solution. We just don't see a way with a non-low-latency solution, basically a rapid communication to ensure that that process takes place quickly. That's still our long pole in the tent. We'll continue to work it.

MS. CHASE: I want to say something positive. I think the idea of having very specific -- roadside is an excellent thing. Likewise, that infield needs to be open so other things can use it, and you want to leverage other people's stuff. So it is this idea of multi-purpose and leveraging. There will be holes and we need to fill those holes.

MR. AUGUSTINE: I agree completely.

Next slide. I think we've over-talked all of this. I will say the one thing that we are -- I mean, that gets to the point about there are some very sensible spot safety approaches. If you have intersections where there is infrastructure, you do have the power, the vehicles are

equipped, why not enable the infrastructure to communicate at intersections or steep curves or construction zones where you know there's a potential safety hazard? It makes sense to do that limited deployment, and I think that's probably going to be the first step. Where do you stop? That's a different question. But we just want to acknowledge that clearly there is some infrastructure role here. We're not saying there's zero, but that's a bigger discussion.

Next slide. So here's just a quick summary. We're in the 2010 time frame. We're looking at a 2013 regulatory decision. But after that, that gets to Peter's point, well, what is the final outcome of that? Do you just hope that all the cars are equipped? No. The applications will continue to develop beyond that. It's a platform for a continual evolution, and so we're trying to capture the way that the technology is evolving and build it into our road maps and not say that as soon as we make the regulatory decision, we pack up our tent and go home and that's it. It will continue.

Next slide. So I think we've talked about a lot of this. There are still some questions that we have not addressed: data security, scalability, positioning. We still need to do additional research to answer the questions and to get at how do you know there are not unintended consequences. How do you know the system really works? So we're very up-front that while we've shown the proof of concept is feasible, we have not answered all the questions. There are some really fundamental research that needs to be completed, and I would say that the human factors is a key issue that we're going to have to address.

Next slide, please. Let me just pause here. We have embedded policy issues and questions into each of the technical research projects.

So I think we talked, a little bit earlier in the meeting, that while it was nice to think about this Buck Rogers, cars flying 20 years ago and how would that come about, we said, well, we've got to get more realistic. And part of that reality check is to say it doesn't do us much good if we say this system works and it will be beneficial, but it costs $50 trillion but we didn't think about that when we made the recommendation. We have to factor in who is going to operate it, who owns the data, how do you protect privacy. All of the issues that prevent us from deploying we have to embed in the research and not hide from it but attack these issues.

So this is why the advisory committee is saying have you thought about this and what about that. We need to get all those issues on the table, and we have enough time to refine the research to address the questions that we don't have yet. We have built these in, but some of them are going to be a policy decision. We have to do enough fundamental research to tee up the policy decision to say there's a tradeoff between a couple of these and at some level we need an approach that is publicly acceptable but technically sound.

So that's my advertisement that we hear you. We're aware of those issues and we are embedding it into the research.

Next slide.

CHAIRMAN SUSSMAN: Excuse me. Would you go backwards one?

MR. AUGUSTINE: Yes.

CHAIRMAN SUSSMAN: When you say you're embedding it in the research, I get a little worried about some reductionist aspects of this. There are some cross-cutting policy questions that one might want to consider on a program-wide basis as opposed to doing this on a

sliver basis.

MR. AUGUSTINE: Yes. Valerie Briggs is the team lead for this area. Actually to that exact point, we don't want to say each individual project, think about the governance and institutional issues. Valerie is working to actually embed these questions where it makes sense. We don't want everyone to be addressing governance, but it's a key part in sort of the VII/IntelliDrive area.

CHAIRMAN SUSSMAN: There are some overarching policy issues.

MR. AUGUSTINE: Yes. So we've got some central coordination of that point. The point I'm making is we're not ignoring it and we're not saying, oh, it's an afterthought. The policy folks are thinking about that. No. The policy folks are thinking about that and they're working with the technical folks to say are we addressing it in the research plan and what portion is appropriate and what is being addressed elsewhere. Some of this is going to have to rise up to the policy level.

CHAIRMAN SUSSMAN: Good. Thank you.

MS. FLEMER: I have a question about this. This is to guide a national deployment is what I'm reading. When I'm looking down that list, every one of those items, until you get down to certification which implies more of a technical review and maybe the risk and liability -- all of those are being tackled right now at a local level or a State level, metro area, rural area. We're all doing it a little bit differently potentially, but there's a lot to be learned from what we have all gone through on each of those items that could very well inform a national -- but in between now and a national deployment, getting back to what Robin had offered, what do

we do in the meantime that could also be helpful in this research arena that we could learn a little bit more from each other as being part of the research agenda. I don't know if that fits.

MR. APPEL: That would be a hugely beneficial contribution from the advisory committee. Because you represent so many of the sort of constituency groups that are contributing answers to this, sharing best practices and that, even before there are national standards, would be very, very helpful.

MS. SADIK-KHAN: I'd also suggest you take a look at what's going on internationally as long as you're doing that because we're pretty far behind some competitors there.

MS. CHASE: And the privacy in data should also be addressed at the national level.

MR. AUGUSTINE: Clearly, we want to leverage the findings that come out from a lot of these. These are not totally ITS-focused. They're broader. I mean, who owns the data that's out there and how do you protect privacy. There are a lot of people worrying about those issues. We want to benefit from that.

DR. BERTINI: At DOT and RITA, we're deeply involved in a number of data-related initiatives. TRB is leading a major policy study right now, as well as others. So clearly, many of these things cut beyond simply the ITS program and more broadly at all levels. So there are many more dimensions to this slide than could fit on there.

MR. ALBERT: Ten years ago before the automated highway system consortium for the Feds for Caltrans, we looked at these various issues in terms of what ultimately we

decided. We did a vehicle highway cooperative systems approach to looking at these and I always wondered, after we did it, why don't you look at policy issues first rather than coming up with technology strategies? And isn't the order really wrong? Because if you're trying to achieve a national initiative and you know that everything just really comes down to local decision-making on these points, should you not be trying to figure out the policy issues first rather than the strategies first? It's just a thought.

MR. AUGUSTINE: More time in the day, more resources. I agree with you.

SPEAKER: Can I make a statement? I think the real purpose of our work here is to determine what the federal government role is. It isn't to figure it out for everyone necessarily. There is an element of sharing best practices, but our focus really is on looking at what are the options and opportunities out there and where does the government need to be focused, and we don't want to be anywhere that we don't need to be. So it's defining the minimum government role in this area. It's not necessarily trying to come up with a grand scheme.

DR. BERTINI: I think collaborative is the spirit here. It can't just be a federal role. It has to be the roles of the multiple players, many of whom are represented by you.

MR. AUGUSTINE: Next slide. We've already covered that, but we want to make a subtle note. On the slide, there's a small footnote, We're aware of that issue.

The point here is, not to be flip, we realize that a lot of this research we're looking at has a human vehicle/human technology interface, and to say that we're not addressing that would be unwise. So we're putting a lot of energy into human factors research to enable a safe solution.

Next slide. Last slide. This is essentially a summary of what we've just heard. The vision, the safety goals or the mobility goals and the environmental that you'll hear this afternoon are embedded into this. That has not changed. We're still looking at DSRC for the safety-critical elements that require low latency. We're looking at ways to take advantage of a lot of the other data that's out there. There's an after-market component. It may or may not be DSRC. DSRC may prove unviable in an after-market product, and we look at the other after-market products and leverage that. I think it's sort of what Robin is addressing. So we're looking at a whole host of solutions, and really the non-DSRC data is really available now for mobility. So we're going to leverage that, and I think that's going to continue.

Technical issues still remain. We've talked about it. I think we should probably make the next iteration of this conversation a little more in-depth on the technical and the regulatory and some of the NHTSA issues that were raised. But I think we're looking to achieve the same objectives in the past but in slightly different ways and looking at different opportunities to get there.

So thank you. I'm five minutes over.

CHAIRMAN SUSSMAN: What do they call it in soccer? Penalty time? Injury time? You got some injury time.

Well, John, thank you. Let's now continue to field questions, please.

MR. VONDALE: Just a quick one. I appreciate your presentation. I think you handled the key issues.

I have a suggestion. On this slide, would you consider adding technical and

policy issues remain? Because, again, I think this overemphasizes technical and doesn't emphasize the importance of some of the policy issues that could be even more difficult.

MR. AUGUSTINE: Excellent point.

CHAIRMAN SUSSMAN: Gen, is this time for your big question?

DR. GIULIANO: Actually many people have skirted around it in the conversation which has to do with the government role.

We are in an interesting time with technology because technology is moving way faster than government can possibly move. So whatever we happen to legislate or whatever we happen to do, the technology is moving so fast that just as this DSRC stuff sort of came and went -- right -- from what I'm hearing here, other things are going to come and go similarly. And so when you think about that, it seems like we should be thinking -- and sort of sensitive to Steve's point -- about, okay, given the way the world works now, then what should government do?

So, of course, government has the role for research. That's clear. Right? Particularly the basic stuff that industry is not going to do and that sort of thing. That's very clear.

Standards are clear because even though in the long run, industry does have an incentive to have common standards, in the short run they don't because they want to lead the market and compete and throw other people out. So, obviously, that one is reasonable.

The provision of platforms that Robin has said at least 10 times already today sort of is clear. Right? If you're the purveyors of the data, then it should be out there.

So there are some things that are kind of clear, but there are a lot of things that are

not so clear. What I get here is sort of implicit government role. Valerie said we're waiting for you to tell us, but there's a lot here that's already implicit. And so it seems to me that there really should be a conversation about, okay, of all the things in the world that government might do, what are the things where you get the most bang for your buck.

So it may be, for example, that V2V is an enticing concept that needs a system manager to actually work, but at the same time, there are the things that Robin has talked about that achieve the same objective. Okay? So another part of this is kind of the effectiveness of the government role.

And then the third thing -- and this is just kind of an example -- I sort of cringed when I heard that we should have V2V so that when drivers drive drunk, they won't hit people. And my feeling is that we already have rules on the books about drunk driving, and that's a real government role. Shouldn't we be enforcing those? And there is the breathalyzer, as Janette mentioned. So we sure don't need V2V to solve the drunk driver problem. Right?

And so I just kind of feel like I'm not clear on, at this point, given where we are in the world, what the best use of government resources really is.

DR. DROBOT: You know, there is a thing called "wicked problems." Wicked problems don't have answers. So you can do the best that you can do. And I have a feeling there's some element of that in this problem.

CHAIRMAN SUSSMAN: Yes. Russell Acock called those "messes." That's what we're dealing with. Right?

MR. APPEL: You rattled off a list of potential significant government roles, and

a lot of those were spot-on, standards, platforms. Those are the kinds of things that we emphasize. And I think a lot of the policy research really does get into what is the government role in some of these things. In some of the other categories, it's less apparent exactly the government role, but there are some things for which it's clearly apparent and that includes things like standards and platforms. So it's an extremely important set of questions that part of our policy research really gets into making sure we have clear answers on. That's number one.

Number two, in terms of how do you solve the drunk driving problem, it's kind of like a lot of different safety problems we face. There's not one solution to it. You're absolutely right. We need to make drunk driving laws and we need to enforce it. This country has done a dramatically better job in the last 10 years of enforcing drunk driving laws than we did 20 years earlier, but it's still not good enough. We need to improve enforcement, and to that extent, I agree with you.

But when the Federal Highway Administration puts rumble strips on the sides of highways for which if a drunk driver is swaying off the road, it alerts them, that's helpful too. And there are many, many tools in that tool kit and we want to use as many of those tools that will continue to provide a significant marginal benefit. We think a lot of ITS technologies do, indeed, add that marginal benefit to make it worth pursuing.

CHAIRMAN SUSSMAN: At the same time, it's a system and it fits together in ways that perhaps we don't fully understand. Occasionally in those kinds of complex systems, one can do counterproductive things. So we need to think about those kinds of feedback loops and delays and all the nonlinearities we deal with in this kind of environment. So some caution

is always appropriate.

Are there any other questions? Gen's question was, indeed, a good question and a big one as well.

We're at the time for our lunch break. Is the plan we simply come back in here?

MR. AUGUSTINE: It's up to you. I think there's going to be sort of a buffet table right outside of this conference room. So we can go out and get the lunch. It's up to you as to whether people go on for a break or we come back.

CHAIRMAN SUSSMAN: Well, people can eat here. We won't resume until 1 o'clock. People have other things they need to do, I am sure.

So we are adjourned until 1:00 with lunch outside. Please feel free to talk among yourselves about the many interesting issues that have been brought to our attention.

(Whereupon, at 12:10 p.m., the meeting was recessed, to reconvene at 1:00 p.m., this same day.)

AFTERNOON SESSION

(1:00 p.m.)

ITS STRATEGIC RESEARCH PLAN, 2010-2014

CHAIRMAN SUSSMAN: Well, we are going to resume. Thank you for our sumptuous repast for lunch. We all enjoyed the break.

So again, we're moving into our formal agenda. We have Brian Cronin, the Research and Demonstration Team Lead, talking about the five-year strategic plan. Brian, I don't

know if you were here at the very beginning, but what I commented is that we're trying to hold the actual remarks to something like less than half of the total time block. So we've got an hour for this, so you should limit your comments to 20 minutes or so. That would be helpful.

MR. CRONIN: Okay. I'm glad to be here with everyone. I've been here all day. I've been in the back. So now it's my turn.

But what I was told in sort of getting the presentation together -- and if you look at the material and the slides, it's really just a few bullets, the titles of the plan -- is that Shelley Row provided to you in her webinar and introductory meeting a walk-through of the research plan. So really the intent of this hour is I've got five minutes just to remind you, in case you forgot or didn't get it from this morning, but really it's an hour for you all to discuss or ask more details about certain areas. If you've read part of the plan, the summary that we provided, I have details myself or some of the other folks in the audience can help answer some of those questions.

So real quick, the strategic plan is part of ITS that the Department does. We're really getting to this vision of a multimodal transportation system that looks like the connected transportation environment for mobility, safety, and environment.

We really have the research program structured into applications, technology underpinning, and then policy work. That gets us to the vision that we were talking about this morning in John's presentation.

So about 77 percent of the funding is in the applications area looking at are these applications valid, are there benefits, what's the infrastructure that we need, what's the market

penetration that we need for these sort of things to be successful. On the technology side, is the technology reliable? Is it stable? Are there standards? Is there a system of infrastructure ready or a system engineering network that could handle what we need to do? And then the rest of the funding on policy-related efforts to supplement that, which is in the research.

Overall, we're about $100 million a year program. 75 percent of the program is funds for research activities, and 25 percent funds technology transfer, evaluation, overall management of the program, and then some contingency. As things happen, we want to be able to adjust to different trends as the program goes forward.

Of that 75 percent, 63 percent is the multimodal research, which is the bulk of what's providing IntelliDrive. There’s mode-specific research which we’ll talk about and some exploratory research. We don’t have every great idea. So we want to put something out there for the industry to respond and apply some research, and then some other research, which is really the fact that we had some continuing programs that we need to wrap up as we move forward.

So, in the multimodal area, we have vehicle to vehicle for safety, vehicle to infrastructure for safety, real-time data capture, dynamic mobility applications, weather, environment, and human factors. Each one of these is multimodal. There is NHTSA, FTA, FRA, FHWA, MARAD. Every department in the agency is basically involved in every single one of these initiatives.

Looking at transit, we're not just looking at buses. We're looking at subways. We're looking at light rail. We're looking at commuter rail. So we have the whole package of vehicle types in this research, and we're really trying to understand what do we need to make

these applications work, what is going to be the benefit, and then what can be the ultimate goal.

In the technology underpinning, the comment came up earlier this morning. We need a systems engineering approach. We're very close to getting that contract underway. We had a concept, an architectural requirement for what was VII, and we brought in this notion of it’s not just cars. It’s all vehicle types. It’s not just DSRC. It’s all wireless communications. It’s not just the infrastructure but it’s using sort of a nationwide approach. Pedestrians -- we need to relook at that system. So we're going to do a systems engineering upgrade to really look at and analyze what do we need to make the program work.

We have the test environment in Michigan. We're ramping that up to make that a feasible test environment of IntelliDrive for the future, looking at not just government-funded testing but the private sector can come in and test and look at their applications. So we're hardening what we did in the proof of concept and we have plans to evolve that, whatever the systems engineering program defines as the new architecture.

Harmonization of international standards. Very important. A lot of discussion this morning about the global world of vehicle providing and data sharing. So we have that aspect.

And then certification of equipment and process for IntelliDrive.

And then in the policy -- probably the one top bullet didn’t really show up this morning -- deployment scenarios. Is it a national system? Is it grown up in metro areas and rural areas and evolves over time? Is it V2V? How is spot safety V2I defined? And so what do we need? So we have a body of research to look at that aspect.

Next slide. And then we have mode-specific research, and that was a nice term.

Actually every one of these is multimodal. But they started out with efforts that the modes came to us and said we want to do this in addition to what's going on in IntelliDrive. A lot of them still have a wireless connectivity theme, but they aren't as tied in. So active traffic management which is looking at freeway arterial roadway management for active management use of data, international border crossing, smart roadside. And the motor carriers are leading that one with Federal Highway. CVISN continuation. Multimodal integrated payment systems. FHWA and FTA working on that. And ITS maritime applications. And we are just starting to work with MARAD to kind of figure that one out.

The next slide. We have some exploratory research where FRA and FTA are partnered to look at heavy rail, sort of commuter rail, freight, and what are the communications needs and ITS issues and how that would work. And could you use DSRC for anything or not? How does positive train control fit into the equation? So there is an assessment of communications needs and safety related to those heavy rail platforms.

And then an exploratory solicitation, which is funding which is pretty much open. It's sort of what are other ITS research areas we should be pursuing.

DR. BERTINI: Maybe I can mention on that that the idea there is, I think, in sync with what Pravin was saying about leveraging, perhaps leveraging kind of the DARPA grand challenge style approach. So that is a piece of the program that's still open to being shaped.

MR. CRONIN: We also continue to have professional capacity building outreach and ITS architecture and standards. These are all part of the program.

So that's the very high level, very high level. This is more about how the funding

is broken out, the different research titles, some of the things of where we go.

What I would stress is everything is very much multimodal, very much managed multimodally. There's a JPO person and people from the different modes at FTA, NHTSA, whoever that actively manage these projects together. We have signed four and we have the other 4 to 10 charters that are kind of binding the Department together saying we are going to commit the resources, the people, the funding to deliver these research programs. Some of these programs, like the human factors, is actually joint-funded through NHTSA and the JPO. NHTSA is putting in some of their own ITS money, their own research money into that human factors analysis, jointly funding that.

So I will leave it at that. It’s a very short synopsis of broadly the research program entirely and some of the research areas, and I’ll leave it to the floor to however you want to take the discussion.

CHAIRMAN SUSSMAN: Brian, let me start with just a definitional question because it is a source of continuing confusion, at least for me. The report that was included under tab D is entitled “The ITS Strategic Research Plan.” All of the stuff that you just showed us is the five-year ITS strategic plan. Are those, in fact, identical?

MR. CRONIN: Yes.

CHAIRMAN SUSSMAN: So your strategic plan has only research or your research plan has more than research?

MR. CRONIN: The next five years -- I’ll start and I’ll let John or Peter supplement. The ITS program is a research program. So we're not an implementation program.

We're not a deployment program. With that said, we help deployment and we are trying to, with the next five years, do the research needed to get IntelliDrive ready for implementation.

CHAIRMAN SUSSMAN: Again, I think you indicated you were here at the beginning. What this committee is charged with doing is to advise on matters relating to the study, development, and implementation of ITS. So do we have implementation aspects in here that we are to comment upon, or is there some other body of work within DOT that we should be hearing about that relates to implementation of ITS?

MR. AUGUSTINE: Let me see if I can jump in. What Brian was mentioning is because the research is inherently multimodal, we work with the modes who do do deployment and who do do regulation, who do do safety oversight, et cetera. Brian is correct that this is a research program, and all of our dollars are purely research dollars according to the SAFETEA-LU legislation. So we can’t go beyond that.

But, as Brian said, because we work hand in hand with the field staff and because we can do -- we have pretty broad flexibility on how we design the research. So to Pravin’s point about could you do a DARPA grand challenge-esque project, yes. Could we do a model deployment research program? Yes. Can we do a field operational test with multiple vehicles? Yes. So we have all these flexibilities.

We're only limited in if we're going to do, let’s say, a model deployment or a research project that involves whatever is invested stays in the field and becomes operational, that’s great, but we don’t have that legislative authority to say we're designing this research to be deployed and turn into O&M. If we design the research project to say if a State DOT or a local

jurisdiction wants to apply for research funding and they choose to make deployment, you know, permanent, that's their purview.

So what I would say is we are going to be involved in some research that does end up in the field and it does get into the implementation. So if you would say from the advisory committee your perspective is we need to be doing more of that or less than that, that's totally within your purview to give us a recommendation. It's really how our research dollars are spent, and if it does lead to implementation, I think that's fair game.

CHAIRMAN SUSSMAN: Okay. So if RITA is doing it, by definition it's research is what I'm hearing.

MR. AUGUSTINE: Correct.

CHAIRMAN SUSSMAN: It might not be what an academic would characterize as research, but by virtue of the first sentence, if RITA is doing it, it is research.

MR. AUGUSTINE: I mean, an old major initiative that I think applies here is the congestion initiative. The point was it was research dollars provided by the ITS program to say could we incentivize congestion-reducing strategies in an operational environment and what works and what didn't. So there's a research component. You know, this locality did it one way, it was effective. This locality did it a different way, it wasn't effective. We evaluate that. We share it with the community. There was a research question to be asked. If it was successful and it became operational and permanent, that's great. That's a fringe benefit. We applaud that. So I guess that's the point we're making. We'd have to have a research purpose to spend the funds, but clearly there are ways that it becomes implementation.

CHAIRMAN SUSSMAN: I see. Okay. Thank you.

MR. DENARO: So help me understand how something gets implemented. We had some discussion here of one of the challenges being the handoff between research and implementation. So take IntelliDrive. Who would own the implementation of that? I mean, let’s say there's a government role for producing DSRC units and infrastructure and communications backbone, et cetera. Who would do that?

MR. AUGUSTINE: Under that assumption, that is a more difficult question because you were saying there was infrastructure and the infrastructure obviously is going to be owned by a State locality or a State DOT. So the final regulatory decision would have to factor in who maintains it. Is there funding available, and is it a regional system or is it a statewide system or a national system? So that’s different than a V2V solution. If we do the research and the someone said, well, we looked at this. We've overcome the technical barriers to say do you need infrastructure to do the security, certification, and all that. If it can be done purely V2V, then that simplifies your question because you're saying, well, now there's no infrastructure involved. There's still the network. So you say, you know, one solution may be it’s a commercial -- you know, people have to purchase a subscription or the government would provide that network. Those are policy questions that we don’t know yet, but it’s designed to be addressed in the research.

MR. DENARO: Okay. But to the extent that there is, let’s say, an infrastructure-related thing, some government agency is going to have to produce that. You have a contractor who puts out a bid or whatever the heck it is. Is that still DOT?

DR. BERTINI: The USDOT is not an implementer of transportation systems.

MR. DENARO: So it would be local is what you're saying. Right?

MR. CRONIN: Right now, the ITS program doesn't have the dollars or the authorizing legislation to implement IntelliDrive.

MR. DENARO: No, no. I understand that.

MR. CRONIN: But Federal Highway resources could be used and so could FTA resources -- so could a couple of the other agencies -- to be able to implement if it was a State DOT, you know, State-by-State evolution on some of this stuff.

MR. DENARO: So you're saying it could be Federal Highway. It could be State highway.

MR. CRONIN: It could be new legislation is needed.

DR. BERTINI: The FHWA wouldn't implement. They provide funding and guidance and oversight and so on. But it would be a local entity implementing today if we were doing it.

MR. DENARO: Forgive me for being ignorant here. So basically what would happen is through all this research, you'd basically develop the fundamental technology, the standards, and all that kind of stuff, and that's then available for local entities at the State and local level to pick up and implement if they so choose. Is that correct?

DR. BERTINI: Under current law, that's how it's done today. ITS programs and projects are implemented every day by State and local agencies, transit agencies, the private sector, and some of those use federal funds. So under the current system, we do have federal

funds that can be used to implement within the Department. Like Brian said, FHWA and FTA funding is used today to implement ITS.

MR. DENARO: So in order to incentivize the deployment, you could maybe use your funds to help States do this and that sort of thing.

MR. TOTH: Or set the table for other USDOT or Federal Highway funds. It doesn’t necessarily have to come out of your program.

CHAIRMAN SUSSMAN: Go ahead, Gen.

DR. GIULIANO: I just wanted to jump in for a second, and not that this is practical or will happen. But there's nothing to prevent a sort of next generation interstate highway type piece of legislation that says we're going to invest in a communications backbone, and we would have an allocation system and everything else. And the States would, in fact, implement but it would really be a federal program. There's nothing to prevent that.

MR. TOTH: I would suggest that’s what’s going to have to happen if this is going to get implemented. You guys go back and forth. You talk about ITS and then you talk about IntelliDrive, and sometimes it sounds like they're equal. But when you get into the active traffic financial portion of it, it may draw heavily on the IntelliDrive background, but then you're talking about it’s got to be a State DOT or a city DOT or somebody that is going to take that information and operate the signs and alternate routings and slowing down, changing the speed limits or activating or deactivating lanes, and things like that.

So I’m picking up you guys are using those words interchangeably, but they're not interchangeable. Right?

MR. CRONIN: That's right.

CHAIRMAN SUSSMAN: Yes. You're using the words "ITS strategic plan" equals "ITS strategic research plan." And you're using IntelliDrive equals ITS. And it gets, at least me, a bit confused.

DR. BERTINI: I would say the former is true, that we do sometimes talk about the ITS strategic plan and the ITS strategic research plan, but it's because SAFETEA-LU says that the JPO is overseeing a research program. There's other ITS non-research funded by the USDOT, but not by this program. However, IntelliDrive is a thread that is woven through ITS, but I think we're careful not to use it as a synonym. Even though some of you may hear it as a synonym, we don't intend it that way.

MR. CRONIN: It's also a recognition that 60 to 70 percent of our research dollars are going toward IntelliDrive. So that is the predominant piece of our research plan.

MR. APPEL: And IntelliDrive is a lot broader than V2V and V2I. There's a whole suite of solutions, including a lot of the mobility applications, that are non-DSRC, for example. So it's a broad-range thing.

CHAIRMAN SUSSMAN: We have Jack and then we'll have --

MR. LETTIERE: So just to be clear, at the end of a five-year period, the USDOT shall have completed research on certain products, I'll call for lack of a better term, that would be available for States to implement. At 75,000 feet, is that basically it? The plan, if it's all research -- you're going to be researching and validating certain aspects of ITS. Correct? And there would be known products that States would be able to use -- States, cities, whoever,

implementers would be able to take and implement because the technology through research has been demonstrated and validated. Is that --

MR. AUGUSTINE: There's a definite portion that's geared toward a State DOT entity being the recipient, the V2I, road weather management, performance management, even mobility tolling and payment and those kinds of things. So the simple answer is yes.

But then there is the potential that a V2V solution would not be for a State to own, deploy. It may be an automaker, a device manufacturer, or a consumer retrofit.

MR. DENARO: That's why I was a little confused because, let's say, legislation does happen and you mandate V2V in vehicles. Then it might work in some States and not others. Correct?

MR. AUGUSTINE: No. I think if you're talking about the pure V2V solution that does not require infrastructure, that would be interoperable across the country and we would hope across borders internationally, to the extent we can manage that.

If there was an infrastructure component that would be required -- I think I'm getting at where you're headed. If we determine that an infrastructure piece is needed to make the V2V solution work, then you immediately kick into a State DOT need to either be at the table engaged, a provider of.

Let me pause there and say we have a formal commitment from NHTSA to look at the regulatory decision on V2V in the 2013 timeframe. What we haven't gotten to a formal declaration, though we've had discussions and there's some energy behind, is what does FHWA do if that scenario comes into being. You say, well, now you need an infrastructure. Who's

going to be the owner, operator, maintainer? It's the State DOT. So, Highway, you're going to have to engage and say is this important enough to attach requirements to have an IntelliDrive solution if you're taking federal funds.

So, again, we're not there yet, but that is clearly the discussion that will take place if the determination is infrastructure is needed. We don't know that yet.

MR. BELCHER: You've also been working very closely with AASHTO and --

MR. AUGUSTINE: Oh, of course, yes. This is no secret.

DR. BERTINI: And it's not the feeling that five years from now we will come and we will start talking to you about what we found. It's iterative and the detailed road maps indicate feedback loops and decision points throughout that period.

MS. FLEMER: Then the product of the research is an implementation strategy and a set of specific actions folks would have to take to make it happen if in fact it's determined that a certain approach makes a lot of sense. So I think at that point there's a handoff to Congress or -- I mean, that's how I was envisioning it because there's no way we could say here's what we'd like to implement, you know, just the States and expect them to fit it into all the other demands on their system.

One other comment on this, though, because it is going to be so comprehensive and other administrations need to be involved. The multimodal aspect of this research is a little unclear as well as to how we're going to factor in the transit piece and the heavy rail. It's touched on very lightly here, and I'm just wondering what is the similar process going to be as is happening with AASHTO at this point with, say, APTA or with community transit or with other

major sectors, public works departments at local levels that have to deal with the signal timing issues and that.

MR. AUGUSTINE: Brian, feel free to jump in, but I would say we are looking at the broad coalitions on how to make that happen. So the IntelliDrive, VIIC, AASHTO, APTA, all those groups that you mentioned are involved in these decisions and we have to coordinate with them. We're not going to do this in a silo and keep it a secret. So we iterate these points.

I would say also that what is not visible to the advisory committee is the level of integration that RITA has with the other modes. Peter and Rob's work with the management council to get approval on this, their commitment to put their dollars, their resources, sign up to it -- I know that's invisible to this group at this moment. That's sort of behind the scenes. I think it will be more visible as we go forward. We have Sam -- thank you for coming -- from FRA. I mean, these are small things, but we haven't worked with FRA in the past and we are moving forward.

MS. FLEMER: Maybe it is just more of a kind of insight into that detail at some point. You obviously can't cover it all in one meeting.

MR. AUGUSTINE: The DOT panel session I think will really get into how is RITA involved and what are the other modes doing and how is the ITS research program fundamentally a part of the Department's overall strategy.

I can say personally that the ITS program has never been as formally interwoven with the Department as it has been now, thanks to Peter and Rob's championing of really making this multimodal and really reaching out and forcing the issue.

DR. BERTINI: I have to say that's only one piece of it. The staff who are all working on these projects together -- the other modes are not only signing these documents, but they're assigning people, literally humans, from the Department who are more than 100 percent covered on other things too. But it's the leadership at all levels, and we try to set the collaborative tone from the top down. The work gets done by the staff who are good colleagues of one another and make it a true partnership.

CHAIRMAN SUSSMAN: I want to turn to Steve who has been sitting patiently.

But I would simply ask the question about why, in fact, we are not being exposed to the relationship with the other modal administrations if it's so important. You indicated it's sort of invisible to us. Well, clearly it shouldn't be invisible to us.

DR. BERTINI: This is just our first meeting.

(Laughter.)

CHAIRMAN SUSSMAN: Yes, but it's the second half of the first meeting.

(Laughter.)

DR. BERTINI: We wanted our team in the next two presentations to illustrate actually what we have done in response to this committee's direction in the past.

So when I was walking through the cafeteria, I saw some of our colleagues from the other modes. I saw the Deputy Secretary and Ron Medford, who's the Deputy Administrator of NHTSA, walked by. So they know that you're here, I just want you to know, and they are anxious to meet you next time. But we wanted to be sure that we heard from you and didn't just do the talking heads thing.

CHAIRMAN SUSSMAN: Let me give Steve his chance. He's been very patient for a while.

MR. ALBERT: Over the last decade, the Joint Program Office has had a series of initiatives, R&Ds, demonstration projects which have predominantly been somewhat almost spot improvements, quarter initiatives, something going on in the metropolitan area.

Has JPO kind of stepped back ever and said maybe we should do fewer things and try to achieve national coverage, national deployment, national research, trying to get at more than just what is the flavor of the next three years in terms of a name and we'll continually change that name every three years, trying to accomplish generally the same thing?

I know the strategic plan is written, Brian, and all that. But at some point, we've got to step back and say, you know, we need to do something for a national system. What are those two or three things that we want to do for a national system, urban, rural, whatever, and try to start targeting that rather than 18 different names and what you see up on a slide, and you say, okay, I kind of get what that is. But if you combine some of those things, maybe you would have more.

MR. APPEL: I'll jump in and just try to address that last three points.

About four weeks after I got this job, I got the job. I came into RITA on May 4th. I went to ITS America at the beginning of June. And that was one of my first public speaking roles at RITA, and I was moderating a panel, a cross-modal panel. Sitting beside me were senior people from NHTSA, from FTA, from the Federal Highway Administration, and from the Federal Motor Carrier Safety Administration. And we had a very good dialogue about the cross-

modal nature of ITS. And I said this is great. Next year I want to see a couple more modes up here, and I want to keep looking for opportunities to be cross-modal.

I think the ITS team has really followed up on that in a great way, and we've talked to FRA, for example, about grade crossings, which is a huge opportunity in terms of safety and mobility opportunity for ITS. We talked to MARAD about flows in and out of ports which, as many in this room know, are the cause of a great deal of congestion and a great deal of opportunity for relief of congestion and better freight flows.

So in that sense, those are some examples from a thematic perspective what we're trying to move to. There are a lot of discussions, but the specific commitment I'll make -- we've talked a lot about how we've got to get those modes in front of you. There is one thing that's abundantly clear from this meeting. At the next meeting of our R&D Advisory Committee, we will have a modal focus set of sessions, and we will formally invite several different modal folks.

DR. BERTINI: The ones we haven't invited already in the cafeteria. I forgot. Karen Ray from FRA came by too.

(Laughter.)

MR. APPEL: It's not just talk. It's a commitment. You can hold me to that for the next meeting.

In terms of your point, Steve, about focus, that's another theme that I in my communication with the ITS Joint Program Office I've been about, and this, I think, tacks onto something that Ray LaHood says to me, which is we want to make big, noticeable differences, steps forward in what we're trying to achieve. So if we have X amount of investment dollars, we

want to look for the significant areas of critical mass where we can make substantive change as opposed to spreading the dollars around to try to make everybody happy everywhere. So we are, I think, gradually getting more and more focused on significant areas of critical mass to make steps forward.

It's a continuous process. This is not a situation where we had the ITS program a year ago, and you say, okay, let's have a new ITS program. It's going to be different. It's a gradual progression and it's a progression in the direction that you're talking about and also in the multimodal direction. We have more to go but we're heading in that direction.

MR. BELCHER: If I could just comment on that. One thing that I've seen from you, Peter, is in the last year is your ability to deliver. If you look at the annual meeting, he's delivering five modal administrators and two deputy administrators. So the seven major functioning administrators will be represented at the highest levels at the ITS America meeting. We've never had that before. Delivered the Secretary again. We haven't had that two years in a row ever. And then top people from the policy shop. They get how important ITS is, and that's why they're going to be there. And that's really a tribute to you and a tribute to Rob. So thank you.

So I think the thing I take out of this is if he says he's going to have representatives from the modal administrators here at our next meeting, I believe him. Whether they'll come back or not, I don't know.

(Laughter.)

MR. BELCHER: But they'll be here just once.

DR. ALBERT: My point wasn't about modal administrators. It was, you know, we have talked for how many years about having almost a national traffic management center. We've never gotten it off the ground. Some big national showcase things that would have proliferation across all States that you can point to rather than the flavor and the sound bite of the year in deploying some initiative. Just a suggestion, and it may be a little crude, but a suggestion.

MS. CHASE: Can I follow up on that? I look at this five-year and I'm going to say some of the same things I said before. But when you look at this vision and applications technology and policy and the weighting of the money spent, and I think the 77 percent going to applications, which means it's going into very specific things that are all over and the 18 percent toward technology, I feel that that needs to be reversed. If you want to get fast lift and someone said here there are smarter minds outside any room -- it doesn't matter how you define it. There are more people, smart people outside -- I just have to keep saying again and again I think we should be putting money on open data, open vehicle platform, and a communications piece.

And if you did those things -- I have these numbers here. The iPhone. You're not Apple. The iPhone in two years had 150,000 applications. Just again and again, we look at the 2.0 concept where engineers are providing the content on a common platform that's simple, low barriers to entry to get in. You will see things fast. And it's what we have provided. And all the apps that you want to have expanded -- some work, some don't work. If we had this proliferation possible, some of it will be good and some will be terrible. But you guys would have provided the platform on which this innovation can be unleashed, and I think you would have something to show for it quite quickly.

MR. CRONIN: So some of that is probably a misnomer in presentation funding. So there are a lot of very important detailed, technical things related to open data, the standard interfaces, et cetera that are in the applications area. So we can probably look at that a little bit more and cross-cut that out because there's a lot more fundamental technical issues related to the safety side on interoperability, the standards, and the data area, sort of open data or information that are in that applications area.

MR. AUGUSTINE: I think there are some partnership issues. I hear your point, and I think that's what we're driving to is a platform that other people develop on top of that is stable.

MS. CHASE: To the point of the platform, DSRC has been a platform that's been out for 15 years and no one has wanted to touch it. So we need to have a platform that people actually can and do and en masse want to participate in.

DR. DROBOT: DSRC is not a platform. It's a communications system.

MS. CHASE: It's communications, but the standards around it are such that --

DR. DROBOT: I mean, it's an iterative --

MS. CHASE: And why has no one touched it? I think that would be an interesting research question. Why, in the last 15 years, has no one -- you've talked about the roadside infrastructure piece, the chicken and the egg. And I look at it and I think, therefore, it's unsuitable. Therefore, we need to --

DR. DROBOT: Robin, it really has had no marketplace.

MS. CHASE: Precisely. How do we encourage this marketplace?

I know now in the iPhones, there's a huge number of transportation apps being put out there and vehicle apps. And maybe they're not on your specific hard safety applications, but there are these things happening in this other realm.

MR. APPEL: I think it’s the hard safety. That’s the area. The dynamics of the market in hard safety are different.

MS. CHASE: It’s true. And if you look at a five-year plan, do you think you will achieve hard safety goals in five years, or if you opened it up, would you achieve many, many soft safety goals and reduce some things in five years, reduce fatalities and mortalities in five years? And then do the next lift up to the next level. But I feel like starting at the highest place, we're not going to make any more progress in the next five years as we didn’t make in the last five.

MR. AUGUSTINE: I think we're doing some things simultaneously. We are looking at the sort of the soft safety applications that are available today while also looking at the hard safety. So we're doing both. When I say mobility, I think again you have to draw the line between what is hard safety and what is situational awareness. It’s sort of a mobility that would provide a driver or traveler with awareness that would potentially avoid a safety problem. We don’t call that safe. So if you alert someone that there's heavy snow on the road, we call that a weather application, but it has a safety element to it. So that’s I think what you're talking about, the sort of soft safety. So we are looking at those kinds of things now in conjunction with the hard safety.

DR. DROBOT: Let me ask a question because I think there's something at the

heart of this. If I were to take a look at information available over commercial devices, whether it's iPhones or tom-toms or map tech navigation systems, those are in the marketplace and the shipments are pretty hot, 20 million last year, something like that. So that's happening.

I think the hard part is when you start being able to access critical functions in the car over an air interface. So let's say access to the OBU or something of that sort.

MS. CHASE: There's a distinction between access and OBD and tampering with brakes and steering wheels.

DR. DROBOT: But I have a feeling then when you start looking at the role of the government, I think it is encouraging the use of proliferation of devices and applications. I think that's fine. There isn't anybody really dealing with that hard problem of how do you actually tamper with brakes, the accelerator, things of that sort and have an air interface in the process somewhere. To me, that's that hard problem that you're trying to deal with.

And the question is, is that amenable to the same kind of mechanism that you have in an open system, which really isn't critical?

MS. CHASE: Can I make one more comment? You know I'll make more than one more comment. Sorry.

But to your point, the hard safety is an excellent and fabulous, hard hard job. What did you call it? Wicked problems? That is for government. But then you can't tell me that 70 percent of the money -- 62 percent of the money is going into multimodal research because affecting what's happening in the vehicle in these hard safety applications is what's happening in cars. It's not this other stuff. So I feel like there's this -- the big focus on hard safety means the

big focus is on cars, and you can't say you're both being hard safety cars and it's multimodal.

MR. CRONIN: I think what we're saying is it's hard safety on cars, buses, trucks, light rail vehicles. And so there is a fundamental technology that will work, and we've done a lot of the leading research with the car companies. But other vehicles operate differently. So we're looking at that. Is it a multimodal management solution? Is it a whatever? It's not necessarily others weren't there, but we're looking at all vehicle types.

MS. CHASE: Well, it doesn't touch transit on rails. It doesn't touch pedestrians. It doesn't touch bicyclists. It doesn't touch a whole realm of transportation. It's the motorized transportation dominated by personal vehicles, and it's not doing the other piece.

MR. AUGUSTINE: Well, I think again some of that is an element of chartmanship or the amount of detail that we've shared with the committee as a read-ahead.

I can tell you the V2V work that we're pursuing did originate on the vehicles. The work we're pursuing now is inherently transit vehicles, commercial vehicles, heavy trucks, light vehicles, and then there's the component of how do we include pedestrians and bicyclists if they have a device. It's part of the research.

DR. BERTINI: I was here on time this morning because I came on my bike. But as a cyclist -- I mean, we have beautiful bike lanes here in Washington, D.C., but I still have to dodge car-door openings, and I would love to have a warning system that would warn me, number one, that a car door was being opened within my vicinity and warned someone sitting in the car that I was approaching and that they should wait a second before opening their door. So I think there are extensions. As John said, perhaps because we've tried to give a high level in this

forum and in others, the active modes have not been highlighted.

MR. AUGUSTINE: And maybe just to reiterate Brian's point, because we've proven that the technology works in a light vehicle and it could be leveraged to another vehicle doesn't mean that it's an easy case when you're talking about a large transit vehicle that has other systems on it and there is some dispatch. And the vehicle dynamics are different. You know, a bus that's so many feet long is going to be a different message when you communicate versus a smaller vehicle. So there are slight variations and refinements based on the different vehicle platforms. But I think the point we're making is we've proven it out in vehicles. It's being expanded to all platforms multimodally.

CHAIRMAN SUSSMAN: Can I sort of keep things in a sequence? People have been waving their hands. I'll get back to you, Gary, in a little while. So Gen, and then Peter, and then Gary.

DR. GIULIANO: I'm willing to give up my spot to this person. Not that I want to give it up permanently --

CHAIRMAN SUSSMAN: You will yield to the gentleman from?

DR. GIULIANO: Massachusetts. If it's on this point because I'm going to change the subject.

MR. TOTH: I just wanted to amplify what Robin was saying. Going back to my comment before, I'm also picking up a bias to vehicle to vehicle and a bias for safety. You said something that you may or may not end up trying to figure out how to implement this through the DOTs and the transit agencies and so on. So you keep saying that it's multimodal and that it

covers more than IntelliDrive, but then you go right back into -- it seems like you're going back into a rut with your whole description. So I'm just picking up the same thing, and you might want to accept that as feedback and reflect on what you're doing.

DR. GIULIANO: With that, we'll change the subject. I have a brief comment. Just take it for what it is, and that is, that I understand that us social scientists are cheap in the marketplace. We don't garner much in the way of funding, but it seems to me that your 5 percent is also a bit off on the policy side because you're not going to implement anything. That is to say, government is not going to be able to any actions if the policy problems are not solved. So you can do all the research in the world, and you're not going to get anywhere unless you have the policy part right. So that's just a comment.

I have a really simple question and that is, tell me who is doing all this research. You have a budget of $100 million a year. 75 percent of it goes to research. That's $75 million. Who does the research and how do you sort of develop your specific research agenda to actually implement your research plan?

CHAIRMAN SUSSMAN: Just piggybacking briefly on that, I was looking for this chart in the earlier part of the discussion. So unless you want your administrator to go to jail, you better change this chart that says you're only spending 75 percent of your budget on research because I was just told we're spending 100 percent of our budget on research because by definition what we do is research. So clean up the chart. Where did that guy go? You got off stage.

MR. CRONIN: So there's, first, the federal government side. So we have 15 staff

in the JPO that manage research, and then we have probably another 50 -- so there's about 43 to 50 people total in the Department that are involved in the management of the research.

So then when you go to implementation, there's a whole host of different things we do. As mentioned earlier, CAMP, which is the Cooperative Automotive Metrics Partnership -- Crash Avoidance Metrics Partnership, which is our auto industry basically. Car companies have coordinated to do precompetitive research. They do a lot of safety research. It's now up to, I think, seven or eight or nine. Once we indicated that NHTSA was going to do a regulatory decision, the number jumped from five auto OEMs up to eight or nine that are working cooperatively on that precompetitive research. So on that aspect, there's that.

We use the Volpe Center to do the evaluation of the work that's there.

There's competitive work that we do with the other contractors to support some of those things. Then we are also adding in now truck and transit elements. So we'll be reaching out to those partners to figure out how do we do that research.

We have open solicitations if there's deployments and pilot testing. So State DOTs or MPOs or transit agencies might partner with the private sector to implement and test. We have some elements of policy studies or technology studies that we have consultants that are on contracts to do. We have an exploratory solicitation that will be open. So we use a wide range of different things.

AASHTO has what they've called an IntelliDrive pool fund. They've pooled their own resources to do some research. We're looking at joining that partnership to do research on the mobility area.

MR. AUGUSTINE: Universities. We partner with a lot of universities.

DR. GIULIANO: What is that breakdown?

MR. AUGUSTINE: I don't have that breakdown off the top of my head.

We work with UMTRI a lot on the IVBS, the Integrated Vehicle Based Safety systems. We work with PATH out at Cal-Berkeley on a lot of the IntelliDrive mobility. We work with Minnesota on the CICAS, the Cooperative Intersection Collision Avoidance System.

MR. CRONIN: One thing is we're looking at the UTC program and how do we encourage use of those resources toward ITS by educating that community on what is the ITS research plan, where are we headed, what are the things that they might offer ideas on how they want to use the GTC funding in partnership with where the ITS program is headed.

And sort of the other aspect is then we do open competitions. A lot of times universities are partners in evaluations, in demonstrating. I probably don’t have a good number right now, though.

CHAIRMAN SUSSMAN: How about the national labs? Are they in this mix at all? Sandia?

MR. AUGUSTINE: Oak Ridge is involved. In the past, there may have been others. I think Oak Ridge is the only national lab we're currently working with.

DR. GIULIANO: This is really just a point of information because I just don’t know. There were several mentions of test beds, and there was one discussion of a Michigan test bed. Are there others that are part of the federal research system?

MR. AUGUSTINE: Well, it depends on what you mean by the definition of test

bed. There are lots of test facilities that the government is involved with.

DR. GIULIANO: ITS test beds.

MR. AUGUSTINE: Michigan is the main test bed. We have funded certain research projects that utilize, let's say, the university environment, which I would call a test bed. And there's a CICAS test sight in Minnesota. So there are little sites that do testing. I'm not sure if that's what you mean by full test bed. When we say test bed, that means a dedicated facility that we're going to plan to do a lot of work.

DR. GIULIANO: That's what I mean.

MR. CRONIN: So Caltrans invested in a similar one in the San Francisco Bay area, and when we did the proof-of-concept testing, we did some testing, mainly the tolling application, in the Bay Area. Predominantly right now, we are focused on upgrading sort of the equivalent -- involved with Michigan and then we're trying to determine what else we need to do beyond that.

DR. GIULIANO: Is Michigan an open, public right-of-way or is it a closed -- okay. Where is it?

MR. STEUDLE: It's southeast Michigan kind of north and west of downtown Detroit.

DR. GIULIANO: Okay, it's outside of Detroit.

MR. STEUDLE: About 40 miles.

CHAIRMAN SUSSMAN: This is different than UMTRI. This is unrelated to the Michigan test bed. Is that correct?

DR. SWEATMAN: That is correct. Yes. The IVBSS program is autonomous in the vehicle. So it's a vehicle-based system.

MR. AUGUSTINE: I would also say when I mentioned some of the mode-specific -- or you know, sometimes we partner with the modes for a certain aspect that, let's say, Motor Carrier has a wireless inspection of a roadside system. It's sort of dedicated to heavy trucks. We would partner with them. So that's really their test bed that we provide some funding for or partner with.

But I think your real question is what is the ITS JPO test bed. It's predominantly the Michigan test bed.

CHAIRMAN SUSSMAN: Somebody indicated there was a question behind me.

SPEAKER: It's not a question. It's just a comment for the multimodal situation.

We at FRA were excited when the ITS folks approached us because, for selfish reasons, the railroads cross roads. So at the crossing, it's very important especially now with the high-speed initiative. We need to extend the PTC to preempt crossings possibly, give advance warning, NCAD advance warning possibly. So all of these ideas could be implemented as an extension to the PTC system, again especially in the high speed. A multi-ton train coming at 100-plus miles an hour, you need quite a bit of advance warning for the crossing for the pedestrians.

And as far as dedicated test sites, we have 54 square miles out in Pueblo, Colorado. That is where we test our systems. And we would be open to this kind of testing.

CHAIRMAN SUSSMAN: That site in Pueblo is the Association of American Railroads, not the Federal Railroad Administration. Is that correct?

SPEAKER: It's a federal facility, but it's operated by them.

CHAIRMAN SUSSMAN: Thank you.

Kirk?

MR. STEUDLE: I just wanted to add, since we're talking about test beds -- and Brian kind of hit this -- there actually is more test beds across the country that States have put their own money in. We've got another one in Michigan that geographically is close to the same spot as the federal proof-of-concept testing that we advanced a couple years ago as an open platform and Wi-Fi and used some other technologies just to say, okay, if it's not DSRC, could we be more convinced that was the way to go? We said, well, what about this other one? California was doing the same thing. There are things going on in Minnesota. There are things going on in Florida. There are things going on in Virginia. I don't want anybody here to think that this is the only research that's happening in ITS. There's a bunch of it happening in States being paid for with State dollars to help to advance this forward as well.

And that's been the nice partnership that the States have had with RITA and the other modes is to help advance all of this because we all see this as the way to go, but we recognize we can't recreate the wheel in 50 States. So some of us are advancing different pieces.

We worked very closely with Randy when he was still in California and with Caltrans to make sure that we weren't duplicating what was already going on because that

happened about five or six years ago or seven years ago. We would do something in Michigan and Randy was doing the same thing, and then we would do something because he just did it. So we said we've got to stop this. Let's cooperate together, and that's really when the partnership really started coming together. There is a lot more going on than just this piece.

MR. AUGUSTINE: And New York is doing work also.

MR. ALBERT: This may help you. Two weeks ago, we were asked to come to a meeting of modal associate administrators to present on our test facility, which is related to cold region issues. We have our own 5.9 gigahertz backbone there, as well as fiber. We do a lot of testing. As a part of that, we presented to the associate administrators from all the different modes that were asked to come on what's going on with test facilities across the United States and kind of went through a presentation to show that we weren't redundant. That may be helpful for this group because everyone knows little pieces, but no one has been putting the pieces together to show that they are not redundant of each other. I can give you that information.

CHAIRMAN SUSSMAN: Yes. These were the associate administrators for research in each of the modal administrations?

MR. ALBERT: There's some blue ribbon committee that's trying to get people to be more -- associate administrators trying to get more collaboration going. I can't remember the name of the group.

CHAIRMAN SUSSMAN: Gary, please.

MR. TOTH: What I'm about to ask actually is not you guys. It's more Kirk and Jack and some of the other folks. It goes back to the fundamental question I had before, that ITS

is not equal to IntelliDrive, and it does include active traffic management. And the transportation industry is going to face huge challenges in the 21st century trying to figure out how to provide for mobility for 140 million new people. And we already know the DOTs and transit agencies don't have nearly the money to go do it. So I don't see any way that we could possibly not invest in all of this IntelliDrive stuff and not use it to also help mine the capacity of the system and improve mobility.

So my question then is to Jack and Kirk and whoever else knows, do you think in general -- I know there's a couple of innovative places around the country. But are the industry and all the 50 State DOTs and all the transit agencies and MPOs ready to deploy this in 2015?

MR. STEUDLE: That's a great question. I would say in some places, yes. And I look at Ann as well. There are some MPOs that would be. Ann is leading the charge. There are others that will look to her and say, yes, okay, it's a good thing to do. I can name probably a handful of State DOTs that said, yes, this is where we ought to be going and lead the way. I can do the same thing with cities, New York being a prime example.

It's going to take "show me it works." All the folks sitting in those decision seats that have to balance do I spend money filling a pothole, holding up a bridge, or invest in the ITS system are going to have to see, okay, when I spend this money, it's going to work and here's what it's going to do. Period. So that's where I think this research is so important to be able to answer those questions.

It gets a little bit to the apps. You could say the apps are just coming along, but you have to be able to provide some of the appetite for the apps so people would say yes, this is

what could happen and there will be a lot more to come from that. But you have to be able to say here's the benefit that you will get, that the public will get by investing whatever resources that you need to do with a particular State or agency.

MR. TOTH: That’s part of my worry. When I look at the 5 percent for the policy and the line says how to address public concerns, so you're dealing with public resistance to this. I fear that there's also going to be practitioner resistance to this within the establishment. If we do solve this in 2015, places that are run by people like Kirk and Jack or whatever are going to deploy it, but 40 to 50 States are going to sit there kind of like I’m going to keep filling my potholes. And we can’t let that happen.

MR. LETTIERE: I think Kirk has hit it right on the head. You're always going to be making decisions. In the immediate term, it’s going to be keeping the bridges up in the air and filling the potholes.

But since this technology is not going to be -- or the research is not going to be completed for another three, four, five years, it’s what are we doing in the meantime to get the DOTs educated on this and what its capabilities are and how it can be deployed because if you hand them the product at the end of five years, it will take them another five, six, seven years to really fully deploy it. So again, these folks have to be ready to hit the switch the minute this technology and all of this research is completed. They have to understand it. It can be it’s those research guys, you know, and we just keep them in a basement until they're done. You have to send our guys down into the basement so they can understand fully what this is all about so that it’s deployable.

MR. STEUDLE: Can I add a follow-on to that? Jack's point is right on. In fact, we're spending some of our own State resources to develop an IntelliDrive simulator. We're going to unveil it hopefully when Rob is at the Michigan ITS meeting, where you sit in a simulator that says this is what you will drive when IntelliDrive is up and running, to do exactly that, so we can take it and transport it around and say here's what it looks like. Here's what happens when you sit in a car and drive, and here's the information that you're going to get.

So that's all with our resources, not with -- well, maybe you're kicking in some now. I don't know. It was our idea. We were paying for it up front because we said we have to show what is this going to do.

MS. CHASE: When you use that word "IntelliDrive" --

MR. STEUDLE: That's specifically car.

MS. CHASE: It is and this is why this whole term "IntelliDrive" is very problematic to me because it's not inclusive.

And then to your point about how is it going to be -- what is the uptake and how long would it take, this is why I would push dramatically for the transportation sector to feel itself to be part of all the other things. So I might get this device in my car because I want to prevent my 16-year-old from being able to get in after midnight, whatever. And it is mandatory that it's opened up and it will make it feel like it's not big brother who is telling you to do it. Everyone is using this device and you're going to have 500 applications, and I might buy it for application number one and three years later, you're going to want to co-opt it -- not co-opt it. You're going to want to leverage it for these other things.

It just keeps coming back to that if you continue to focus on one thing that's going to give you this hard safety piece, it's going to be a big lift. And if instead it's a multipurpose device and I buy it for one particular reason and then the other reasons -- it's cheaper and it's less of a struggle.

MR. APPEL: We had our strategic planning session at the June ITS America meeting to talk about this. When I got up there to speak, I spoke completely about a platform. I spoke about DARPA. I spoke about Apple and the iPhone. I spoke about all those things because I agree with you. First and foremost, it gets back to what Gen was talking about earlier, standards and platform. Those two words I think more than anything define what we as USDOT see as the ITS program, standards and platform. So we're agreeing with you.

And if it needs to better communicated that that's what we're really doing, which is that we agree that a huge number of the applications folks even in this room have no idea what they're going to look like, but if we create the right standards and platform, then we can foster the kind of environment to get that development. And yes, there are going to be some applications that we think are very critical and can have the most significant impact on the safety rates among vehicles, and yes, we will focus on some of those. But we certainly want to keep the door open to that whole range of applications, which is why it comes back to standards and platforms. So I think we're actually a lot closer than you think.

MS. CHASE: I would love to see this transformed, the presentation to be transformed, to standards and platforms and then the multimodal stuff should be able to fit right in because this is a platform that can be leveraged by these other modes. And you could

highlight one or two of your favorite apps.

MR. APPEL: That is great feedback. I think it's very doable, going back to the team and looking at how we present this stuff, given that's completely consistent with where we are.

MR. LETTIERE: I think I would have felt a lot better when I picked up the book and I started looking at it, the objective is platform and standards. Okay, I got it. I get what your end game is going to be. And then all these other things start to make sense because if it's platform and standards, it would just --

MS. CHASE: That's the role of government.

MR. LETTIERE: Right. It just follows that you'll get vehicle to vehicle and vehicle to different kinds of vehicles, and all these other things can be really developed. If I pick it up and I see that, that would not only help all of us understand it, but I think it would help the users and the industry out there who will develop a lot of it understand, okay, that's what you guys are doing. Now I think we know what we have to do. The roles start to get better. So I agree.

MS. CHASE: And depending upon which platforms you're actually building and which standards you're actually building, that will let us understand whether or not you -- what you think the end game is.

CHAIRMAN SUSSMAN: Let me recognize Peter.

DR. SWEATMAN: It's interesting what Robin is saying because having been involved in safety for 45 years and so on, we usually think of safety in terms of exposure, risk,

and consequence. And for years we dealt with consequences. We tried to protect people in vehicles and so on.

Now, the hard safety applications that Robin is talking about, is a little concerned about, they're kind of helping to surgically remove part of the risk sector here. But I think what she's saying is that the exposure, which is the next big thing that we need to address -- and that incidentally is why we dropped 6,000 fatalities in the last couple of years because the exposure has been dramatically impacted. I think maybe what she's saying is that these many other softer applications are going to have a big impact on the exposure part. We don't even know. We've got no idea what might happen there. But let's think of it that way.

So, yes, we need to remove the risks, and I think NHTSA have done a good job in identifying what those risks are, but let's not lose sight of how we can affect the exposure part of the equation. It's very important. So I think that's part of what Robin is saying interpreted through the old safety lens kind of thing.

MS. CHASE: Yes.

UTC ENGAGEMENT

CHAIRMAN SUSSMAN: Well, thank you all for your comments. Brian, thank you for the presentation.

I think it's time to move on to the next item on our agenda, and I hope Mac Lister is behind me. So Mac will be talking to us about ITS engagement and the professional capacity building aspects of that.

MR. LISTER: Before I start, is Curt still here? I wanted to introduce Curt

Tompkins, who is the Director of our University Transportation Center program at RITA, and he can answer all the questions about university transportation centers.

We are planning a workshop. In the last couple of slides, we'll talk a little more in detail about that.

But before I do that, I wanted to give you just a little bit of a flavor. After the last conversation, I'm afraid it might confuse you a little bit about the professional capacity building program, which is part of the research program. What I can tell you is that we are statutorily defined in the legislation that says the Secretary shall provide a knowledgeable ITS workforce. So that's how the PCB program got developed in the Joint Program Office over the last several years.

These are the kinds of things that we've been doing, as well as developing courses that go out through delivery mechanisms that we have like the National Highway Institute, the National Transit Institute. We present training at various conferences and workshops. We presented at ITS America several times. So we've done those kinds of courses.

We've moved into webinars in the last few years. T3 is just an acronym for webinars that we do on technical ITS topics. We used to do them and we had 30 to 50 people and now we have 350 to 400 people that sign up for these webinars. And we're also trying to do things like -- we've got one coming up in April to show our knowledge resources databases that we have on lessons learned on ITS deployments, cost and benefits, and we're doing kind of an interactive demonstration with the participants in the webinar. So we're trying to get away from just straight PowerPoint presentations with question and answer feedback to make them more

interactive.

We also support a peer-to-peer program which means we try to get knowledgeable peers on ITS deployments together with people who are thinking about deploying ITS and share their information, their horror stories, their success stories.

A number of technology transfer things that we're just beginning to explore. We've been talking about that a lot today. We are going to do a study this year looking at some other industries and what they do for technology transfer. We have done technology transfer but kind of on an “as it occurs” project basis as opposed to an overall strategy. And so we're going to try and take a look at what some other industries do to work with our program management people to incorporate that in our program management procedures as well. So that’s on the plate for this year.

Multimodal programs. The site partnership. There's something called the Consortium for ITS Education housed at the University of Maryland. They do online training. They also share the training that they have with a number of other universities across the country. And I know that there are 20 or 25 examples of their sharing the ITS material that they’ve developed with other universities.

We have an internal group within USDOT called the PCB Council, which is the Office of Safety, the Office of Operations, the various offices that within their programs develop training activities. We kind of coordinate with them to make sure that ITS is properly represented and we can share marketing strategies with each other and other kinds of things.

We have a website. We're working on a new brochure.

There's also a National Transportation Training Resource database that was developed originally by our Office of Safety and the Office of -- one of the other offices. I'm sorry. I don't remember -- that houses training resources. And through TRB, the NCHRP study was done that looked at operations and ITS competencies and, as part of looking at those competencies, also developed 700 training resources that supported those competencies and identified gaps as well. So we had that from the NCHRP study that got funded through my program getting that into the NTTR database.

And we're working with other modal partners. The last bullet, coordination with the National Transportation Operations Coalition that includes ITS America, that includes ITE, that includes AASHTO. Those folks are feeding information into that database as well, and so we're working with them to make that process more efficient and to make sure that the gaps that are identified in the study someone is looking at in some kind of cohesive way.

And then I skipped by ITS standards training. When I came through the door last summer to take the job, Shelley said standards training. We really did not have any current support for our standards training efforts. Some initial work had been done by ITE several years ago, but none of that had been updated. And the focus of that initial training was what's in the standard. We're focusing the new training on it and it was like a two- or three-day course, which is very hard to sit through. Trust me. So we're developing a 90-minute module kind of approach that's focusing on what are your issues when you procure the standard and what are your issues when you deploy the standard. So it is a real shift.

Next slide, please. Okay. We've talked about the strategic planning effort, and

you’ve got the strategic planning research piece of it. Having said that, my portion of the program, the PCB program, has not done a strategic planning effort. We've been doing the kinds of activities that were on the previous slide for the last five or six years. Now we want to start and look at what should we really be focusing on in our new program. Now that we have a new research plan, what parts of the research can we support? Are there continued needs of support for ITS deployments, the kinds of things we've been doing? What's the mix of that in terms of the funding out of our program? So we're initiating a planning effort looking at workforce development, technology adoption, and deployment. Those are the kinds of things that we have looked at in the past.

Next slide. We’ll be taking up those questions, and here are some of the high-level questions that we're trying to address: seeing that the skills are present in the workforce; promote the use of ITS technologies; and promote efficient deployments.

Next slide, please. There are some key components to this. We want to look at partnerships with universities, associations, as we talked about, ITE and AASHTO and the National Transportation Operations Coalition, and new delivery mechanisms. That’s key to us. The two-day class is no longer going to work. Shorter modular simulation environments, online environments. And finally, technology transfer. When does this research that’s coming out of the program manager’s part of the office work its way into deployment and how best to support that through my program.

Next slide. So to that end, in this strategic planning process, we’ll be going out through various venues getting feedback from people, starting at the ITS America annual

meeting. Various webinars. We've talked to TRB. We'll probably be visiting a couple of the TRB meetings this summer, as well as other forums that we can find and webinars to do that. Okay, enough about that.

Let's talk about the workshop that we're doing at the end of this month. This first workshop that we're doing at the end of the month is geared strictly toward the research part of the program. We will not be getting feedback at this workshop for the PCB portion I've just been talking about. We will have our joint program managers talk about the various areas that are listed here under "content." They're looking at having a university or two give brief presentations as part of those discussions on what's going on and then mainly a facilitated discussion between the university people who are present and our program managers. The numbers here are wrong. The numbers are going way up. We're now up to 43 in-person registrants and 54 who will join us during the webinar.

DR. BERTINI: Is it an international group? At least two from Canada that I saw yesterday.

MR. LISTER: There were a couple from Canada. There was one from Australia and someone from the World Bank who was looking at the kind of global research perspective.

DR. BERTINI: I'm trying to introduce a little bit of lightness.

(Laughter.)

MR. AUGUSTINE: Mac, just looking at this, if anyone here wanted to participate or be involved, do we have that on the website? Where would someone go to say I want to participate, I want to register?

MR. LISTER: Well, anyone in this room?

MR. AUGUSTINE: Well, anyone, but there may be some folks here.

MR. LISTER: It is on the ITS JPO web page. Gen and I were just talking at one of the breaks. So we're really looking at this as an excellent kind of a first step into creating communication between the Joint Program Office and the university transportation centers, as well as other universities. We did open it up to other universities. Our initial contact gave us about 10 or 12 UTCs that were actively interested in a meeting like this. So we opened it up to other universities and we're now up to 90-some that will participate in one form or another.

The Turner-Fairbanks research facility through FHWA has done these kinds of workshops in the past. They've done a couple of them, but we never have in the Joint Program Office, and we think it's time we did. Particularly with our new research agenda, this is really an excellent time, I think, for us to try and do that.

So that's where we are. This conference will happen April 28 and 29 right down the hall if we can figure out how to get people in the building and out of the building for two days. And that's kind of where we are.

I would open it up for discussion and questions.

DR. BERTINI: I didn't say much earlier about the details of the UTC program and certainly some around the table know the details. Joe, would it be helpful for Curt to give a two-minute thumbnail?

CHAIRMAN SUSSMAN: Sure. That would be helpful. Then I have some comments about how this connects with some of our earlier deliberations here.

MR. TOMPKINS: And I would say to begin with that Steve and Gen are officers of the council of UTCs, which is made up of not only the UTC grant recipients, but those who are in larger operations like UMTRI, which under it has a UTC. So they really can give you insight from the point of view of running UTCs.

CHAIRMAN SUSSMAN: Steve mentioned he's the incoming president --

MR. TOMPKINS: President of CUTC.

So in 1987, legislation was passed, 10 regional UTCs. Joe was leader at MIT to get those going. We now have 60 UTCs with 125 universities involved, and the SAFETEA-LU legislation, as you know, was going to expire the 30th of September. And so that was the grant period that Congress keeps extending. So those 60 UTCs continue to receive their funding as we go forward until the next authorization, and with the next authorization certainly I have no idea what's that going to give us in terms of the UTC program.

There are three legs on the UTC stool: research, education, technology transfer.

The education includes masters and doctoral students doing their research, but thereby gaining an education. We've got statistics we could share with you where literally tens of thousands of students have gone through the UTC programs at the undergraduate level, and so there are a lot of people in the workforce who have had that privilege.

And we're really emphasizing more and more and more the technology transfer piece as outcomes and impacts, answering the so-what questions. So we've had this program for 22-23 years. So what? What has it done for the nation? What has it actually produced that we can point to that's reduced fatalities, improved safety, whatever it might be? And that's an

emphasis that I and Rob and Peter Appel particularly bring to it.

So I think that's at least a sketch. If you want to know more offline, I'll be glad to spend time with you individually. We've got all kinds of stuff we can share with you.

DR. BERTINI: One thing I might add, in addition to the fact that I'm a graduate of a UTC, is that the UTCs each have their own theme and a process for selecting what they fund. So by bringing UTCs together with the ITS program, it's possible that some of the UTCs could go back and that faculty members could develop research agendas that do leverage ITS JPO resources or ideas or take threads of research and develop them in more detail. So it's an opportunity to help in multiple directions. So it's not the ITS program telling the UTC research researchers do this. It's not the other way around. But the idea is to bring people together and find these interactions that we may be missing. So this is an important first step but certainly nothing is preconceived and certainly not the last step.

MS. CHASE: How does the UTC research happen? Do the faculty decide what they're going to study and they have the money that they can push out?

CHAIRMAN SUSSMAN: Let me maybe make a comment that will, I think, be responsive there as well. I think Curt told the story when he gave the statistics about the UTCs. Back in 1987 when it first began, there were 10, one in each of the national regions. MIT heads the one, then and to this day, the one in region one, which is New England. But over the years, the program has expanded extraordinarily now to have over 60 UTCs with -- what was it -- 120-something universities participating. While the first 10 were a competitive procurement, there was competition in each of the regions. Subsequently politics became an important component

of this, and a large number of these are now earmarked by Congress.

MR. TOMPKINS: Forty.

CHAIRMAN SUSSMAN: Forty centers, but a lot more universities as a part of those earmarks.

So when I was talking to Shelley over the last year or so, I had a perspective on this that I thought might be helpful, and we'll soon see whether it will be. Academics are famous for their insistence on independence. We will do what we want to do. Don't tell us what we should do. We know what to do. But with so many universities coming into this program with -- how shall I politely say it -- fairly modest histories in the field of transportation, but this money came out of the sky and hit them on the head, my argument was that some of these folks, rather than being famously independent, might be very interested in hearing how they could be relevant and would respond quite positively to here are some of the things that you could do that would be of value that would augment the research budget of the ITS program in the way that Pravin has said.

So that's the model. It will be very interesting to see whether, when people come, they are responsive to see, gee, that sounds like a great agenda, let's do some of it, and help ITS as well.

MR. ALBERT: Can I offer a context to something other than money falling from the sky?

CHAIRMAN SUSSMAN: Of course.

MR. ALBERT: There is a perceived notion out there that the university

transportation centers -- the money has fallen -- the earmarks -- into their laps -- are kind of out doing their own thing when, in fact, every university transportation center probably has a slightly different model, but in general there is a research advisory board that helps identify the themes that support their overall theme and the research that's going to be solicited which is peer-reviewed. So while faculty are somewhat like herding cats and it is difficult to work with them, there are constraints on what they're going to do that have been thought out and tied back to their strategic plan that is reviewed and approved by RITA and USDOT across all modes. So it's not faculty going out willy-nilly and kind of just doing their own thing.

That being said, there still is a need, I think, to define the framework for your event, I would suggest, is to try to get them to fill out information in advance on what research projects they already have going on. In your table that you have there saying you're going to hit these 12 themes and things, it would be very nice if you could send out through Curt potentially asking give me your project examples that you're doing relating to these things. Then you have a framework for a leave-behind that people can see who's doing what that can help leverage ITS research. Is this all making sense?

DR. BERTINI: We do have some of that already.

MR. ALBERT: I think one of the things you may want to think about in future years -- there is a general, I think, lack of awareness within USDOT on what university-based transportation centers are doing relating to research in ITS. The feds generally know who they have contracts already with and what those centers may be doing but are far less knowledgeable about the organizations that they don't have contracts with. And quite frankly, I think that's

where the opportunity is because these other universities are doing very good research, but you're just not aware of it because you are so busy. So it's being able to leverage to add value to what is going on, and then you can use that information to your advantage. I think that is where the framework document helps.

One of the things you may want to consider in the future, because I see partnerships as very important up there -- we have gone down this road in the past with university transportation centers saying we want to partner with the federal government, but because university transportation center funding has to come with a 100 percent match -- everyone realizes that. Right? But we can't use your money for a match. So when you say partnerships, you probably need to define what does that really mean because a lot of UTC directors, when they think partnerships, think about collaboration and they really think about match because match is always on the top of their mind. So maybe you ought to create -- if what you really want is partnerships and these universities to do work, creating a pool of funding and maybe they can submit ideas or collaborate with you on tapping into that pool of funding dedicated just for universities.

And then finally come to next year's meeting. If you can't make Texas this year, come the following year, and we'll have a second workshop where the 120 universities who attend come to.

CHAIRMAN SUSSMAN: Those are very helpful comments. The sense of the scale of it is what has struck me. There are so many universities who are new to the dance. It would be impossible for DOT researchers to know what all of them are doing, and in some cases,

it’s very difficult for those universities to focus in on what they think might be a good way forward in terms of building a research program.

Steve’s comments on match are quite correct, and it has the effect often of the last dollar in controlling the research agenda. You have your federal money, but you have to go typically to your State DOT and so your State DOT with a more modest amount of money in a sense calls the tune.

So there are some structural things that I think could be improved on, but the short answer is this is, I think, an enormous resource. Looking at this from the point of view of JPO, there's money out there and brains out there that I think can be turned into productivity in the ITS program.

MR. LISTER: We think so too.

DR. BERTINI: Of course, we can’t change the match requirements under SAFETEA-LU, but I think when we talk about collaboration, there are many types of collaboration. And I think having been in academia myself for the last 15 years, I think faculty members want to be relevant actually. The peer review process ensures some degree, a high degree, of relevance because if you publish something and it gets reviewed and it’s irrelevant or it’s duplicative, you're going to get nailed pretty quickly and you're not going to be able to hide too long doing irrelevant research, especially if you have students who want to go get jobs. Their work is going to be shared through the peer review process also. There is that desire to be relevant.

CHAIRMAN SUSSMAN: Gen?

DR. GIULIANO: I'll second Steve's comment but I'm going to make another suggestion, and that is, to me what is kind of absent from this is a clear statement of what you want to get out of it.

Now, you know, you talked about partnerships and revealing from your slide, you've got the audience. You have the registration status and you have the content for this research university workshop, but there's nothing that actually states what you want to get out of it. I want to find out who's doing what in the university community. I want to find out what are the opportunities for leveraging research opportunities. Pick your list. But I think it would help everybody at the meeting if you had a clearer statement of what you wanted to accomplish.

And then with your other PCB stuff, I would say it's kind of the same thing. What do you want to accomplish by bringing in the people that you're talking about bringing in? What do you think they could possibly do for you? It's not that you have all the answers, but at least you could put a straw person up there and people would have something to react to.

CHAIRMAN SUSSMAN: I think your very last slide, in fact, cited some of those.

MR. LISTER: I was going to say that the very last slide --

DR. GIULIANO: I read that.

MR. BELCHER: Joe, if I could just comment that the research situation is a little bit more complicated than just the UTCs. There are other bodies out there that are doing really relevant ITS research, private sector research organizations, the national labs. The States have research funds. And one of the things we have been seeing through ITS America virally, literally

coming from the members, is questions or concerns that there's very little cross-pollination across what the universities are doing, what the private sector guys are doing, what the labs are doing, what the States are doing and a real thirst to have a better understanding, much in the same way that we were just talking about the university sector alone.

And we've now hosted a small meeting and we will host another small meeting that kind of crosses over the sectors. And what's fascinating is just to hear people say, oh, you're doing that? Oh, we're doing a little bit of this too. Can we talk offline? And so I think you can learn a lot from this meeting. As I said, we're going to have another small meeting, and then maybe there's a way to figure out how to start to overlay all of the research that is being done across the various sectors in the ITS field. And we'd be happy to help you.

DR. BERTINI: I mentioned this earlier this morning, but to your point about what does this mean, what kind of collaboration, we do expect to have three or four faculty members, mostly in the ITS area, joining us as fellows this spring, summer, and fall on sabbaticals. So we will have, hopefully, a little funding available to support them. They will be bringing some funding to the table. I think that will allow for more cross-pollination for breaking down barriers and frankly preparing for a reauthorization framework where we can perhaps try to influence -- you know, Congress kind of gives us our constraints. In other areas of DOT, there are fewer constraints. For example, FAA's ability to work with universities is much more flexible than RITA's.

So we are making sure that we communicate that to congressional staff through our internal DOT reauthorization plan to make sure that we for -- you know, building upon the

past, taking lessons learned, but building in more flexibility, more opportunities for true partnerships.

Steve knows that I've also shared in many of his viewpoints in terms of the fact that it's difficult for universities honestly to partner with the USDOT. Even if there's a really good match and a really good bit of relevance, there's no mechanism right now that even if a university or the private sector came and said, well, we've got $100 million. We want to do your ITS program. We'll do this thing in the plan and then you go do something else. There isn't a mechanism for that right now. So there's no way that somebody could bring money to the table and do something that is an official federal program.

DR. DROBOT: But, you know, you've hit, I think, a key issue for RITA as a whole and its future, and that is, you do not have your own contracting shop. You use somebody else's in DOT.

DR. BERTINI: We use several other people's.

DR. DROBOT: Therefore, you're not a priority and you are treated like every other commodity. Research agencies in other Departments have had written into law the ability to get around the kind of rules that you're facing.

DR. BERTINI: We are small but we like to think the current Secretary values research and has decided to make research a hallmark of his administration.

DR. DROBOT: Use the opportunity to get your license.

CHAIRMAN SUSSMAN: The private sector support is, in fact, an eligible match. So if somebody has money from a research lab, General Motors research labs or

something, they can use those funds matched up against UTC funds.

DR. DROBOT: But it's not just matches. Let me put it this way. If you look at the way BAAs come out of DARPA and the way that they're adjudicated, it's very, very different than what you have --

DR. BERTINI: Yes, they have some different authorities than we have.

DR. DROBOT: The same thing, basic energy research at DOE, very, very different. You do not have the flexibility to do any of those.

DR. BERTINI: That's correct.

CHAIRMAN SUSSMAN: Steve, please.

MR. ALBERT: This may help you. In partnership but now under contract with Curt, we are currently inventorying all of the 125 universities, all of their laboratories in terms of the assets they have, the capability, the equipment, the specifications, the research that is conducted in each one of those labs, putting them into an electronic database. We prototyped this with 10 national university transportation centers and we decided to expand it to all universities with the idea that if things are inventoried, one, then maybe there's a greater opportunity to leverage private sector interest in using those laboratories, as well as potentially reducing the redundancy between the university-based transportation centers for the labs that they currently have. I don't know how much more asphalt we need to look at in the United States.

DR. BERTINI: There's a website. I couldn't get on it last night. You guys don't know this probably. But entrepreneurship.gov is a White House initiative. And so my intent is for this lab inventory to be available through that entrepreneurship.gov.

MR. LISTER: Is there a way of looking at that data that highlights the ITS capabilities?

MR. ALBERT: Yes. They will all be searchable by key names that we're going to come up with. We've already done this once before, and I think ITS is one of those. We are going to form a steering committee of like five people, I think, to kind of guide this a little bit, but we kind of know already what we're doing because we've done it for 10 universities. We want to make sure that the names which we select someone to do a search on, let’s say, ITS-related stuff, is not a name that’s going to change from year to year and administration to administration.

MR. TOMPKINS: Just to make sure everybody knows, we financially support the Transportation Research Board to keep the Research in Progress database, the RIP database, that all UTCs are required to keep up-to-date. So you can put in key words that are related to any of your interests, and it will immediately come back and tell you what the projects are that are going on currently.

And then there's the TRIS database. I never can remember what TRIS stands for, but it’s basically all the research that’s been finished. And you can do the same thing with a key word search.

We’re wanting to have an electronic database that’s searchable that you could say which universities are doing these things so it would immediately give you the names of the universities, whether they're UTCs or otherwise. And we're moving in that direction in the spirit of what Steve and Montana State are helping us with.

DR. GIULIANO: Can I add to that? Our own transportation research center has a searchable database of all the UTCs. So you can plug in any key word and get any project and where it's being done right now. So you have another resource.

DR. BERTINI: And to Scott's point about what the States are doing, States are required to use RIP and TRIS also. So States and UTCs, those two groups, will be in those two databases. Actually federal law requires both the UTCs and the State DOTs to upload their projects into RIP.

MR. STEUDLE: This is somewhat related, but from a State DOT perspective, what's the relationship to the LTAP centers? I realize it's another part of USDOT but it's still USDOT. From where we sit, the universities are still coming at us saying, hey, give us some more match money.

MR. TOMPKINS: In general, there's a very tight relationship between the LTAPs and the UTCs. But I just got back this morning from spending all day yesterday at Kansas State University. The LTAP is at the University of Kansas in Lawrence. Our UTC is in Manhattan, Kansas, and the LTAP is at one place and the UTC is at another. So we have some of those examples as well.

MR. STEUDLE: We have an example in Michigan where we have multiple UTCs doing multiple different things. One deals with the ITS part. One deals with sustainable materials, and then Peter is in a different category. And we talk about the State DOT coming up with a match. Well, the issue is there's just no money left. We've got enough people with their hands out, and I can't put enough money in Peter's hands to be able to direct where his program

goes.

MR. TOMKINS: Kirk, 80 percent of the UTCs and the LTAPs are basically under the same umbrella.

DR. BERTINI: Does everyone know what an LTAP is? Local Technical Assistance Program, funded by the Federal Highway Administration.

MR. STEUDLE: They may be a very useful source because they have connections to all of the local communities. When we start talking about implementation of ITS strategies, they're the folks that have the contacts with the county person that's in charge of the DPW.

MR. ALBERT: FHWA, through the rural roads program -- that's who they're targeting for a lot of this new safety initiative -- is going through the LTAP and the county associations, road supervisors to try to get it down to a local level.

MR. TOMKINS: What we've done in the last couple of years, since I got in this job, is basically the LTAP people and FHWA and the RITA UTC program are working very closely together.

CHAIRMAN SUSSMAN: Let me comment that we shouldn't lose sight of Mac's overall responsibility, which is professional capacity building. We would hope that the research that the universities do in ITS turns out to add value, that it adds to the intellectual capital of the program.

But another aspect of this is we're educating a lot of students, Rob Bertini aside. But a lot of people are being educated at the graduate level doing theses relating to a variety of

transportation topics, ITS among them, and these people being pumped into the professional cadre in transportation is, we hope, going to be of substantial value. So there's a long-term effect here as well.

MR. LISTER: And I will tell you I've taught evening classes at a couple of universities through personal connections and students really are hungry for firsthand kind of material.

CHAIRMAN SUSSMAN: Absolutely.

Any other questions or comments for Mac?

(No response.)

APPLICATIONS FOR THE ENVIRONMENT: REAL-TIME INFORMATION SYNTHESIS (AERIS) PROGRAM

CHAIRMAN SUSSMAN: Mac, thank you that was very helpful. Curt, I'm glad you could join us.

I glanced behind me a moment ago and saw Marcia here, and she's still here. So why don't we move her to front and center? Marcia, welcome.

MS. PINCUS: Actually it's a real true pleasure to be here. This initiative, AERIS, the ITS and the environment, has taken a while to come together.

And I will also say thank you to this committee because it was a consequence of one of the recommendations that you made that we actually made a commitment as an office to see if we could pursue this material.

So the research objective is fairly simple, but out of this simplicity is complexity.

Essentially we're investigating whether it's possible and feasible to either generate or capture environmentally relevant --

CHAIRMAN SUSSMAN: Did you skip the first three slides by accident or on purpose?

MS. PINCUS: On purpose. I was told to get through them.

There's additional information that you have with you in that handout that you might want to peruse at some point.

Okay. Generate and capture environmentally relevant, real-time transportation data and use that to create actionable information of some kind so that it can be used by system users and operators to make greener choices. That's the basic idea. At the end of the initiative, we're going to assess whether doing these things yields a good enough environmental benefit to continue with the research. So that's the nutshell.

We have three overarching questions, I guess, in big buckets. The first bucket is data. We're going to be looking at what data is available. How much is there? Is it quality data? Is it valid? What data is missing? What data do we need?

And then there are issues about information and connectivity. Once we've figured out what data we've got and what data we need and what data we can get from other sources, how do we create information that people are going to want to use? And will they find it useful once they've got it?

Which brings us to benefit. This question -- I just want to point out that it's cross-modal public sector-oriented. We're not looking to put Garmin out of business or do Garmin's

job. We're looking at most definitely cross-modal because different engines and different vehicles have different environmental profiles. So we're going to be looking at which ones are available today or could be available, given some research, and explore what their expected benefits might be.

We have six tracks in the AERIS research program. Track one we'll be spending most of the next year or two on, which is the foundational research. Essentially we're going to be creating a series of state-of-the-practice scans. I think we have about seven or eight that we're proposing from a domestic scan, to an international scan, to state-of-the-practice environmental modeling, to state of the practice for innovative evaluation techniques for ITS and the environment, and several others.

But by and large, we're going to be using the information that comes out of the foundational track to identify initial candidate applications or scenarios that we might want to look at based upon what we find in the foundational research. So we'll try to characterize them and screen them, create some measures of effectiveness or performance measures associated with them and begin a process of initial cost/benefit analysis and evaluation to see if there are a core set of applications or strategies that we would want to explore in more depth.

That brings us to the third track. Once we've found this core set of applications or technologies -- and we don't know how many there may be -- we're going to conduct much more extensive and rigorous cost/benefit analysis and evaluation. This is where we come to identifying the most appropriate evaluation tools and models, baselining them to see if they meet our research objectives, what we want to find out. We're going to build in an evaluation process

working with our stakeholders and the outside world to make sure we're being rigorous and as analytical as we should be. Part of that will include a gap analysis with respect to models and data. In some cases, it might turn out that no matter how hard we try, the data that we need to make some applications work just doesn't exist right now.

Once we conduct that in-depth evaluation and analysis, we'll be able to begin working with our stakeholders to come to some final assessment about where we need to take our research or if we need to continue at all. We may find that the applications or scenarios we're looking at in terms of bang for the buck really don't do all that much for the environment and we're willing to find out the answers to those questions. But we need to start somewhere.

We have two additional tracks I want to bring to your attention. Track five is a policy track. Both track five and track six go through the life of the initiative. So in the policy track, obviously, we're going to be answering questions that arise during the research that have to do with socioeconomic issues, legislative, regulatory, any of these questions that come up. We want to take a look at them and use the results of these analyses to feed into tracks one, two, three, and four.

Finally, track six. We have a lot of questions about track six. This is a brand new effort for the JPO. There is no preexisting stakeholder group to deal with, no preexisting way of interacting with that group, even if we had one. We have lots of questions.

What might be the role of the ITS Advisory Committee? We don't have an answer to that question. The role of ITS America and its membership? We're working with Scott to try and figure out what that would be.

If we want to convene a panel of experts or environmental people, how do we find them and what would they do?

Regular engagement with stakeholders? We want to be creative in how we do this so the stakeholders don't get burned out or otherwise discouraged. So we need ideas for doing that.

And finally, but not the "leastly," which is not a word, but we have so many international things going on. We need to be able to get access to the people who are doing those things and be able to work cooperatively with them. How that's going to happen is still as yet unknown.

So we've got the "ask" and I wanted to come to this group today and actually ask for help, not just say this is what we're doing but say this is what we would like you to do for us. We need help with our stakeholder engagement strategies. We ideas. We need input. Again, this is an opportunity to do new, good things in creative ways. We need to leverage and support existing research and activities and want to know how best to do it. If we can identify champions and not just stakeholders, we want to be able to do that. If there are challenges with bringing some stakeholders to the table, we would like ideas about how to approach them so that they're no longer a challenge, that they are a supporter. Essentially we're looking to find out how do we best identify and engage stakeholders to achieve our research objectives and ideas are needed. And that is pretty much the "ask."

With that, I'll turn it over to the group for discussion.

MR. ALBERT: I thank you for writing this up and giving the previous advisory

committee credit. It’s well thought-out.

One of the things -- I guess I have two suggestions. One is it’s well thought-out but it’s somewhat ethereal when we're trying to think of, okay, could you give me an example of what you're talking about in each one of these tasks so that I can kind of connect the dots. It would be helpful, at least for me. I may not be the sharpest tool in the shed and everyone else understands this. But if an example was given, I think I would understand this a little better.

Second, I think this would be a great one for the committee to take up charging and either form a subcommittee or become more actively involved because it does have some far-reaching things even beyond what we think of as transportation.

MS. PINCUS: That would be great. If this group would want to form a subcommittee of folks who want to be actively engaged, we would definitely welcome that.

MS. CHASE: But could you give some examples?

MS. PINCUS: Sure. For example, eco-driving is signal phasing and timing. Let’s say as part of our standard practice analysis we know that Turner-Fairbanks is going to be doing some research on phasing and timing. We think we may be able to see if there's an environmental benefit from reducing idling at intersections using vehicle to vehicle or vehicle to infrastructure communication to manage that idling and manage speed through an intersection.

DR. BERTINI: So like at 10 o’clock at night, if a vehicle was approaching a signal and there was no one else around? You weren’t here earlier, but Jack had a particular beef with that issue.

MS. PINCUS: That is not our issue. That’s not our beef.

DR. BERTINI: But the emissions and fuel savings that could come from, say, not asking a truck to stop at 10 o'clock at night if there's no reason to stop, that could be of environmental benefit.

MS. PINCUS: Right. This is the reason for doing the research. So that would be one possible application that could out of a state-of-the-practice analysis. We would do some initial cost/benefit analysis. We would see if we could work with the test bed to see what we can do with the vehicle. Can we even do an eco-driving application?

Let's say we figure out, yes, it's possible and there might be a significant environmental benefit from idling reduction, then we can do, a much more in-depth analysis using various modeling tools and see what we get. And then it's going to be a constant process of narrowing down the field based on the results of the research that we're getting.

I will also say that there are two go/no go decision points built into this research. So if we discover at some point that the available universe of options -- there's really no sense in going on based on our assessment of the likely environmental benefit. I'm not saying that that's likely to happen, but it could. We will -- pencils down.

CHAIRMAN SUSSMAN: I'll move around. Go ahead, Adam and then Gen.

DR. DROBOT: It's things like this that have pointed to a couple of opportunities. And there is a very, very good example with one of your sister agencies inside DOT, and that's the FAA. I don't know how many of you folks know, but when you look at weather prediction as an art, there are around 10,000 balloon nodules around the world every day. Those have been mostly replaced by aircraft readings with aircraft rising from airports. And that data is reduced.

It is fed back and it is a tremendous gain for folks who actually do weather modeling at this point.

And I would say in the same light, when you look at places like NCAR that have specific problems with ground clouds and stuff of that sort, actually having access to real-time data of what the sources of pollution are, where they're located, all of that has actually tremendous value. So the value may be outside the research community just in ITS.

MS. PINCUS: Most definitely. Actually we're starting to work with the road weather management folks here at DOT who are working with NCAR to get road weather information data from vehicles that are actually --

DR. DROBOT: There it’s important to understand what the quality of the data has to be, how it can actually be ingested in a meaningful way, what you should be measuring, things of that sort. And that leads to much broader research activities.

CHAIRMAN SUSSMAN: Gen is next.

DR. GIULIANO: Okay. This was a piece of reading material that I found really hard to understand and try to figure out what was going on. And I had a lot of sort of reservations about what would possibly come out of this effort. Part of my reservations has to do with the sort of “we're going to look at everything.”

And I should also just sort of warn everybody. I’m a linear thinker. So when I see stuff all over the map, I want to organize it, and for me there's a supply side. There's a demand side. There's stuff that you can do holding human behavior sort of fixed. Right?

And so when you talk about idling at intersections, what you're really talking

about is good, old traffic engineering. Right? And there's actually a huge literature that tells us what the potential of traffic engineering is. And in terms of this specific thing, there's at least one person, Matt Barth at UC-Riverside, who's done a lot of simulations and he can tell you how many percentage points worth of carbon reduction you can get if you do a better job with your signals.

So I don't see that as being terribly difficult or needing much -- you know, the research is already there. All you have to do really is collect it.

But that to me is a different question from do you have good emissions measurements in vehicles. That's a different question from what happens when vehicles are more energy efficient and all of those questions are different from how do you change people's behavior, which is also thrown in here.

It seems to me that those are different research areas. They are different types of research approaches. Behavioral research is done completely differently than engineering research.

So I'm a little nervous about what's here, and it just may be that I don't know enough about all of the previous stuff that you've done. But I would love to see kind of a separate section that was just about behavioral research. Right? Let's get serious here. If you really think you're going to get some energy benefits or carbon benefits from behavior, what is it going to be and how do you do that?

MR. AUGUSTINE: I think Marcia laid out a couple possibilities of avenues we could pursue. And then when we learn, we can go to the next step.

We have some international agreements with the Japanese, with the Europeans, and they have proposed on numerous occasions we should pursue an environmental cooperative research project. They sort of proposed it at a time when we had our investment decisions already made, and we said it's a good idea. It's a good possibility. But we're not really there yet. Now we are there.

One of the things that the Japanese have done is they have looked at some of the behavioral aspects by providing data to the drivers on green choices, green routes, optimal fuel efficiency, and they've seen, by providing that information to drivers -- and this was a study that was done in Japan. So things are a little bit different. But they've shown you could modify behavior if you give them the right data and the choices.

DR. GIULIANO: That's the eco-driving point, and that's true. That is behavioral change.

MR. AUGUSTINE: Correct. We haven't done any work there, but we have some requests to possibly partner or leverage the data and the research they've done and said should we do something similar. What did they do that's different than our system? So that's an example of a behavioral point.

But I don't think that any hard decisions have been made on --

DR. GIULIANO: But that's very different from under what circumstances, when we give people better information, will they use transit. That's a really different question from how do I adjust my driving behavior which keeps me in my car which allows me all the things a car allows and I can feel good and green too because I'm driving right or I have a hybrid or

whatever. So I just think it's really important to think about the degree of difference between these various topics.

MS. CHASE: I found this particular section relatively confounding. I couldn't figure out what environmentally sensitive, real-time information was.

In my work, there are many, many entrepreneurs right this second writing apps on iPhones and trying desperately to build their own one of in-vehicle things to get at this eco-driving. When I'm at a traffic light, they have this cool 3D maps of all the roads and the emissions and the time. So that piece is happening, and I think a lot of researchers are doing that.

So I read this, and I was trying to figure out what's new. Why do you see this as a gap? I think a lot of work is being done.

And then on the behavior piece, I just have to add that I think we need to do a lot more on modulating behavior, and I just want to say that from Zipcar's perspective, we see when people are having real-time cost decisions on driving, that dramatically reduces their willingness to drive. So that's a big thrust behind all the work I do.

Again, I think I'm almost feeling embarrassed. If my peers heard me say that I'm questioning this research piece because everything I do is environment, behavior, and real-time data. It just feels very -- I can't figure out what's going on and what you're doing that's different, novel or captured gaps in what's happening already. I'm struggling with that. You might have the answers, but I see a lot of work being done on this today.

MS. PINCUS: Yes, a lot of work is being done today. With respect to more private sector-oriented applications, certainly. And that's not the space that we're going to be in.

MS. CHASE: There's a whole bunch of like NYMTEC, New York Metropolitan Transit, a whole bunch of transit agencies that are trying to give you -- when I put in my route, it will say here's the cost, time, distance, emissions for going by car on that route, if you went by transit by that route, if you went car pooling by that route. So that's happening today.

MR. BELCHER: I think one of the issues that RITA and DOT are struggling with, though, is there are a number of applications by the private sector folks. There's been a lot of modeling that's been done by DOT. There's been a lot of modeling that's been done by the States. There's been a lot of modeling that's been done by U.S. EPA. Very few of those models line up. So as we move into an environment, which we're moving into, in which you're talking about carbon credits, you're talking about cap and trade, you're talking about the kinds of things that you talk about in California where to be a credit, it has to be quantifiable, it has to be verifiable, it has to be permanent -- I mean, all of those things --

MS. CHASE: As you described that, if you told me that, I would have said I get it, but I didn't hear that at all, that there's all these guys and different numbers and it doesn't come out.

MR. BELCHER: Well, I'm just trying to restate what I know Marcia is trying to get at because I had some conversations with both DOT and EPA, and that is where really I think the hard area is right now. They're talking totally different languages. Is that close to what you're trying to get at?

MS. PINCUS: Yes, spot-on actually.

CHAIRMAN SUSSMAN: Peter, please.

DR. SWEATMAN: I think this is great, but I think this is a huge new field, and whether we go and talk to the EPA or go and talk to the Department of Energy, we hear a lot about human behavior in vehicles. Every day in this country, you have billions of trips in vehicles. The behavior is really important. We've seen some initial studies on this kind of subject that give very different results and maybe some that weren't that believable in some ways.

So I like the way you're talking about let's see what kind of actual data we can get a hold of, but I think the interest in this probably goes way beyond the USDOT. Hopefully, those other agencies could engage in this.

Also, the other thing that strikes me, when you're talking about setting up advisors and so on, be careful what you ask for because this is really one part of sustainability, and the interest in sustainable transportation just astounds me. The University of Michigan is now very interested in transportation. We've been laboring away there for 40 years on transportation. No one at the university was all that interested, but because of sustainability and the triple bottom line, they're very interested and they want to know all about transportation. They want all the connections.

So because this is sort of part of sustainability -- and I didn't see the word "sustainability" too often here -- it's a question of how big. It's already been said this is too big, but it could be a lot bigger. So be careful what you ask for. But this is a big, new field I think and so I'm pleased to see RITA is involved in this.

CHAIRMAN SUSSMAN: Yes, Bob?

MR. DENARO: I'm a big supporter of this also. I think I said it earlier today and I certainly said it at the previous committee that across all of these things, I really feel that the Department needs to provide leadership. And that leadership can be direct involvement in conducting research or it can be at different levels. In this area, you're right. There's a lot going on in the private sector, but there are a lot of benefits. We could take the attitude of, gee, this is going on, so why bother. Let's let it happen. And then we'll wait seven or eight years, and this will finally find its way. Or we can say that every year we delay getting this technology in place, assuming that the technology is ready, we're wasting this much fuel or generating this much more CO2 and so forth.

So I think the leadership that could be provided -- there are probably many dimensions, but two that I can think of is, first of all, along the lines of incentives. And with your partner organizations of both NHTSA and EPA, we have these CAFE rules. I'm working right now with auto companies on specifically one piece of this, which is that looking forward in maps can help you with the eco-routing and the eco-driving and all that kind of stuff.

And I have a huge problem right now. First of all, you can put it as an option in a high-end car and great. We've got this small volume of very expensive cars, and people who don't care about fuel economy now have this capability.

Or we can find a way to get it into cheaper cars. To do that, I need something called a business model, and a business model means before a car company is going to put technology in there in every car, that increases the price of the car. And when I say increases the price of the car, a big deal is $15. If you want to increase the price of a car $15, that's a big deal.

So what's the business case? Well, part of the business case would be this goes toward my CAFE credits and I get credit for it. Guess what. None of this counts because it's not the way we test today. Now, NHTSA is doing some studies right now to look into this and so forth.

And there's a good argument to say, well, this is changing driver behavior. We're not sure drivers will follow this. We're not sure that they'll use it. But that's not an excuse not to get incentives in place to get the technology in there anyway. Pick a number and you can do some research to figure out what the utilization would be. If the advantage is 15 percent if you use it but only 30 percent of the drivers will use it, so it's a 5 percent credit you get, or whatever it is, but you can work something out.

So part of leadership is incentives to make this happen sooner, and I think the Department can play a role there.

And a second one is in order to help drivers use this technology is the whole promotional side. Sometimes I don't think that the Department does enough on that side.

I've seen the Europeans, for example, in their quest to get ESC adopted, have this massive campaign. I don't know how successful it is, but "choose ESC." You know, they have this big campaign for that. And that's an area also where again industry may not invest as much themselves in promo and that sort of thing, but that's an area of leadership that JPO and the Department can provide.

CHAIRMAN SUSSMAN: Joe?

MR. CALABRESE: Thank you.

I've been somewhat disappointed all day not hearing enough about how transit ties in and I thought I would definitely hear how transit tied into this, but I didn't. It seems like transit should really tie into this. If we can figure out a way through this technology to improve transit efficiency and improve transit running time and reduce the transit penalty and get more people on transit, reduce vehicle miles traveled and have a safer -- I mean, the whole thing seems to tie in. So that's got to be a big piece of this.

MS. PINCUS: It most definitely is.

MR. CALABRESE: I didn't hear any of it. I mean, silence. Silence wasn't golden in this situation.

MS. PINCUS: Okay. Then I'll make sure in subsequent presentations to make that more clear.

MR. TOTH: So you are investigating things like if you're in your car and you're on your way out to find out whether the parking space is available at the train station?

MS. PINCUS: Yes. That is part of our intent.

Again, all these ideas, either individual scenarios or applications, are a part of what we're going to be looking at. We're going to be taking advantage of the test beds, with the signal phasing and the timing research with the V2V test beds and V2I and seeing what we can do there. There must be really innovative, cutting-edge things that the private sector is not currently involved in doing that we might be able to take a leadership role in.

Our team is squarely absolutely multimodal. I want that to be very clear. Our team is committed to the understanding that without the participation of all of the modes and the

commitment of those modes, this research can't be maximally effective. I really just want to be clear about that. In the handout, we have a list of our team members and they cover the Department. We welcome any and all people who want to become part of the AERIS team. So I just want that to be very clear.

CHAIRMAN SUSSMAN: Marcia, have you thought at all about pricing? We talk a lot about congestion pricing. Some folks are starting to talk and you talk about environmental pricing. Is that on your radar screen at all?

MS. PINCUS: Sure. I mean, nothing is off the radar screen at this point. It's a matter of what makes it sort of through the initial sanity test. Can it be done? That would trigger -- for example, in track five from a socioeconomic perspective, could it even happen? So we want to think about those questions as well.

CHAIRMAN SUSSMAN: Ann?

MS. FLEMER: The research questions were really driven by research-based data, and I think what I'm hearing here is it's almost more outside of the vehicle where you're going to probably get some better understanding of what technology might allow us to do. Whether it's better signal preemption for transit for better running times, what's then the benefit of moving people to transit? Signal coordination and dynamic signal changes? When we really have a "spare the air day" in California -- it's a term we use -- and what happens then on the network to help people move to transit and if they have to drive, speed them through more directly.

Pricing would be another. It's not a vehicle-based issue. It's more of a behavioral issue.

That’s where I guess from this discussion -- I don't know where this lands for you, but when we talked earlier about what California is going through now with legislation passed that requires every metropolitan area to adopt a plan that reduces greenhouse gas X amount -- X to be filled in in a couple of months -- one of the big tests will be what's everyone going to chose to do to drive down emissions? And it might be, well, we're going to time all our signals. Well, we don’t have any evidence really, except for a few places, that says, well, that might be a good idea but does it have a scientific basis for us to be able to make that case to your community saying we really are making a difference.

So maybe the question here for research is more one of different technologies and not just vehicle-based.

MS. PINCUS: Okay.

CHAIRMAN SUSSMAN: I think that is good advice.

The question of social change -- the story that always pops into my mind is in the summer of 2007 in August, my wife and I were in Beijing for a big transportation meeting, and you could hardly walk outside it was so polluted. I asked one of our Chinese hosts how are we going to run an Olympic Games 365 days from now without athletes dropping dead all over the place. He said, don’t worry. We're going to get it cleaned up. And of course, to a great extent they did. They just told people they couldn't drive. It was really very simple.

(Laughter.)

CHAIRMAN SUSSMAN: They have rather a different political model than we do. But it shows that you can change behavior, at least in some contexts.

DR. BERTINI: One point with this topic is it's very easy to go from ITS/environment-related research to transportation policy overall. So I did want to say that we are not the policy office. Polly Trotenberg and Roy Keenitz are handling policy with the Department and we're working closely with them. And they have a research program as well in the policy area.

So we're trying to link with other work. We're very familiar with Matt Barth. In fact, we've had several long meetings with Matt and his group. There aren't that many Matt Barths out there, however, we're finding. You're lucky you have one.

But in just my personal experience in the State of Oregon, even though air quality is a problem for everyone, my colleague in Portland, Jennifer Dill, had done a lot of work in air quality. She came to Portland and no one was interested in air quality. So she had to kind of shift her research area because people in Oregon just don't talk about it because it's not the number one issue. It's an issue, but it's not the number one issue at the moment.

So it is interesting that when we're looking for the gaps, there are some pretty big gaps. Scott mentioned the emissions modeling arena. I'm not an emissions modeling expert, but Marty Wachs delivered the dean lecture at the TRB in January and he was emphasizing the fact that in terms of transportation sustainability, one thing we need to do better is the modeling and measurement of emissions because right now we do it on a regional scale in regions that have problems with exceedances.

But what if we changed the exceedances tomorrow? I mean, we'd have a lot more regions who needed to do better air quality modeling and the tools are not really there because

they haven't had to be there. And they're certainly not there at the micro level.

One of the areas with this research program is with vehicles who could generate -- and if we were at a point where we could understand from a sampling of vehicles what is the actual emissions picture, I mean, I think we could take some major steps forward in knowing what and where the emissions problems are and being able to forecast them.

So I'll shut up.

CHAIRMAN SUSSMAN: Yes, Steve, please.

MR. ALBERT: Much of what I think I heard, Marcia, was relating to congestion and environmental conditions, air quality. And I'm wondering, there are a lot of rural applications the things in rural States -- States who do a lot of -- have to deal with cold weather in terms of they have maximum daily allowances for how much salt or sand or other things that they can put on roads. And if you think in the broader context of environmental beyond just urban type stuff, something like this that would be a real-time system to collect how much application you put on the ground and at what point do you reach that ceiling so that you can shift to other type of applicators because you know it's going to hurt the stream that's just down below the road, from a rural perspective that would be very useful.

MS. PINCUS: Yes. As a matter of fact, that's something that we're looking at again with the road weather folks. They have a thing called MDSS, Maintenance Decision Support Systems. We'd like to be able to work with them to look at if you could monitor roadway conditions, the temperature, the snowfall, everything that's going on, and the location of the vehicle, timing when they go out, where they go, how much product they apply, that could be

an environmental benefit as well. So that's completely within the scope.

CHAIRMAN SUSSMAN: Excellent.

Robin?

MS. CHASE: I have something I want to respond to. But, Steve, as you said that, you're saying application. In the agricultural sector, they're using technology for pesticide application, and it feels to me this is exactly the same. This road happens to be near a stream. So this one we have to stop, but the other one is not near something else, so we can do more.

MR. ALBERT: The broader applications, to use Robin's words, that you can do with this beyond the typical congestion construct I think has far more merit to being environmentally related. I think it would be far more interesting, quite frankly, because it would be -- I think what the intent of this group was last time was to think the broader context of the environment, not just how do we reduce emissions. I think that's pretty straightforward.

MS. CHASE: The second comment I wanted to make, the real comment I wanted to make was I feel like this is the opportunity to put in a pitch again for an open in-vehicle platform that takes data up to the Internet for after-market because it is the platform for experimentation around what is the real effect of eco-driving, what's the impact of pricing, what's the real impact of alternatives. And if we had the one platform that could be used in all the vehicles in all the States, without people having to rebuild it, it's just taking the data up in the Internet where people can do something with it. And I feel like it would enable, at very low cost, all of this experimentation that we're talking about.

CHAIRMAN SUSSMAN: Thanks for your comments.

I guess we have a comment from our FTA rep.

MR. SPENCER: Real quickly, I wanted to -- I've heard some discussion about transits --

DR. BERTINI: Please introduce yourself.

MR. SPENCER: I'm Jeffrey Spencer. I'm the ITS team leader from the FTA, new to FTA, but I have a lot of background working in the State of California on ITS and transit research.

What I want to do is assure you I am working very closely with the JPO and with the other modes on the IntelliDrive initiative, as well as all ITS aspects of transit.

We are looking at what are the environmental aspects. Another part of our office in research is the TIGER grants that are going out right now, which is the greenhouse gas emission reductions. There are ITS aspects that are within that grant package that will be released, I think next week. But then there's also the larger amount of ITS that points to where livability and sustainability are.

So whether it's working with the alternative vehicles, alternative fuels, hybrid vehicles, things like that or operations improvements where we give single priority or preemption, what are the operational benefits there? We keep the vehicle on a steady pace which reduces emissions. We keep the vehicle from making unnecessary stops. These are things that help transit agencies themselves. These are things that we need to quantify because if you lower the fuel costs and lower operational costs, that's going to improve the ability for transit to meet the needs of their customers.

But I want to let you know that is my role and I am here to make sure that transit is well represented. Thank you.

CHAIRMAN SUSSMAN: Thank you, Jeff. Appreciate it.

Are there any further comments for Marcia?

(No response.)

CHAIRMAN SUSSMAN: Marcia, thanks so much. I think we've given you something to chew on and we wish you the best in advancing this.

MR. DENARO: Joe, Steve mentioned the possibility of a subcommittee. Is that something we want to address at the end maybe?

CHAIRMAN SUSSMAN: Yes, perhaps. That seems to me to be a useful idea.

Let’s see. Who is going to talk next? Someone is going to talk about the ITS annual meeting.

MR. AUGUSTINE: I was going to brief that.

CHAIRMAN SUSSMAN: That’s you. And Scott is here as well, I’m sure, to pitch in.

But your comment, Rob, about, well, there's the policy shop and there's Polly upstairs and all that I think is valid, but at the same time, as I said in my very first remarks, I think we have a lot of ambition for the ITS program. In microcosm it’s got advanced technology. It’s got policy implications. It’s got big systems implications. I think we can think more assertively about ITS as a microcosm for a broader set of issues. The fact that Polly is thinking about policy doesn’t mean we shouldn’t too.

DR. BERTINI: Right. I have found that the people in that office are interested in ITS, perhaps not deeply experienced. There are a lot of economists who work in that office who are perhaps somewhat skeptical. And so we've been working to try to form a stronger liaison with the policy office for mutual benefit.

ITS AMERICA ANNUAL MEETING

CHAIRMAN SUSSMAN: Good. That sounds good.

So now we have our presentation by John on the annual meeting.

MR. AUGUSTINE: Yes. And I just had a few quick comments. Basically the point of this was to make everyone aware of the ITS America annual meeting in Houston, Texas this year, May 3rd through the 5th.

We have the USDOT panel session on Tuesday and that’s at 8 o’clock in the morning. Peter Appel is going to moderate it. Rob Bertini is going to represent RITA on the panel, along with the administrators from highway, transit, NHTSA, motor carrier, the Deputy Administrator from FRA, MARAD. I may have missed one, but all of our partners that we’re working on with. So that’s from 8:00 to 10:00.

Following the USDOT panel session, we're inviting all of those modal administrators to attend a VIP tour of the exhibit hall that ITS America is coordinating with some of the exhibitors there. Then there's the opportunity to view, I guess, the Transtar facility later in the afternoon. So it’s sort of a lunch, exhibit hall, and then a follow-up with a tour. We wanted to make the invitation to all the ITS Advisory Committee members who would be coming to the annual meeting to participate in any aspect of that, the tour, the lunch, or the demonstration of the

Houston Transtar traffic management center.

So just a quick notification to everybody, and if you are planning to be there and would like to participate, please let us know and we'll make sure that we arrange for your participation.

CHAIRMAN SUSSMAN: Scott, is there anything you'd like to add about the annual meeting?

MR. BELCHER: Yes, I'd just make a couple of points. This is an annual meeting that's based around real solutions, transportation solutions. We've focused it in Houston because Galveston is one of the real leaders in the way that they cooperate as a region across transit, across rural, across highway, across the police. They have Transtar which is a central organization that does coordinate. They're showcasing, like I said earlier, a cutting-edge hurricane evacuation program. They're showcasing incident response by rolling over an 18-wheeler, and they'll be bringing in police helicopters and all of the various technologies, and they'll be filming it. They'll be doing it twice a day. It will be filmed.

We're doing a vehicle assist bus program in the shoulder lanes. We're bringing the University of Minnesota technology which allows basically -- we won't do it without a driver, but a driver-assisted program to be able to drive the buses in the shoulder lanes, to imagine a 10-foot shoulder and a 9-foot bus and you can operate it using GPS safely in congestion. And that's being done largely because the region of Houston has run out of space, and they've got to figure out how to optimize their infrastructure.

The first plenary will have the mayor of Houston; Sheila Jackson Lee, a

Congresswoman. And then all of the various leaders in Texas and in that region will have a panel about what works in Texas, what works in Houston, what doesn't, why it's relevant to the rest of the world.

John mentioned the plenary on Tuesday.

The plenary on Wednesday, which I'm shocked you didn't mention, focuses the Secretary of Transportation there, as well as IBM President and CEO, Sam Palmisano, talking about their visions of transportation.

Other things that will be going on there. This is really an interesting meeting. The State Senate Homeland and Security and Transportation Committee will have an open hearing on Monday talking about congestion management, tolling, pricing, distracted driving, the things we care about.

There will be meetings. The Department of Homeland Security is having a series of meetings there in conjunction with our meetings because of concerns and issues surrounding border security, petrochemical security, freight transit.

The local police chiefs association is having a meeting there.

The Texas Towing Association is having a meeting there.

We'll have over 50 training sessions or 50 educational sessions. Again, those educational sessions are far more geared than they've ever been around real problem-solving, sharing best practices. It's really trying to get on the ground about what's working and what's not working.

So we're excited. We think it's going to be really the best annual meeting we've

had.

We've learned that DOT will likely, 95 percent likely based on my last email, also host an authorization stakeholder meeting on Wednesday afternoon. The Secretary has been going around to major cities around the country inviting people to participate in a listening session, and he'll actually be there for at least the first hour of it and the rest of the policy shop and the modal administrators will be there for the rest of it.

So if you're coming to the meeting, let me know because if you are, I'd like to make sure that you're invited to the listening session with DOT. This group ought to be there. The ITS America board will be there. And so this is a real opportunity to bring before the Secretary, before the policy shop the importance of ITS in the next authorization bill.

CHAIRMAN SUSSMAN: Scott, thank you.

Any questions for either John or Scott on the Houston meeting?

(No response.)

COMMITTEE GOVERNANCE – STAYING CONNECTED

CHAIRMAN SUSSMAN: Good, okay.

That actually brings us to the last item on the agenda, which is I guess euphemistically called "committee governance - staying connected." What I envision doing here is trying to sum up and seeing how everybody feels about the day.

I must say I've been very impressed by the committee. This is a very able, a very articulate group of individuals. Of course, we don't speak with one voice. That will be an interesting challenge for Bob and me.

DR. BERTINI: As long as you get the word “apps” in there --

(Laughter.)

CHAIRMAN SUSSMAN: If ever the Obama administration needs a consultant for staying on message, I’m going to send Robin Chase up to the White House. She’s a world-class expert in that.

So I’m interested in generally hearing people’s overall reactions, briefly of course. You had some station identification at the very beginning of the discussion. But now that we've been through the day and now we're all good friends and we know each other, we can, I think, continue to hone our vision of what we as a committee can do.

As I said, I have ambitions for ITS, as this kind of microcosm idea, building from it into more general change in the transportation area, allowing us to think in broader contexts. That came up again and again during the discussion, reaching out to other industry, other research activities, understanding ITS in a broader context, demographics, the aging society, globalization, the importance of the environment, technological advances, and so on.

To me what this all cries out for is a systems approach. Adam used the word “systems engineering.” At MIT we talk about something called engineering systems, which is thinking in a broad inclusive way about complex sociotechnical systems. Certainly this one qualifies. And the notion of transformation and change with, I would hope we would see, ITS as a catalyst strikes me as a very important challenge.

At least to me, linking this all together with the classic three E’s of sustainability, the notion of economic development/mobility, environmental protection, universal access, and

the idea of social equity, and of course, safety as within the general frame of improvements to society. All these relate to that general concept of sustainability.

I sensed certainly in the morning, perhaps less so in the afternoon, a lot of impatience on the part of this committee saying, you know, we've been at this a long time and we need to really start to have a practical impact on practice, a practical impact on deployment. We have to be legitimately multimodal. We have to start moving some of these ideas out of our brains and onto the streets in a more effective way.

So I think we have to respond to that idea that certainly I would anticipate that what we would talk about in our advice memo would be a concern for the pace at which change is occurring. And I'd be very interested in hearing the views of others.

So that's kind of, at least, a very high level set of comments that I have: systems, transformational change, sustainability, impatience, and ways in which we can build a continuing program.

So, Bob, perhaps you could add your perspectives at kind of that level, and then we can get a sense from the committee at large.

MR. DENARO: Actually I jotted down -- I tried to summarize for myself what some of the common themes were. Three of the five I have were what you just mentioned, Joe. So that's good.

The only other one I had was there have been a lot of suggestions and so forth to the program, but I think I'm pleased, when we talk about IntelliDrive, with the progress you've made in moving forward from where you were and considering now, for example, more

communication networks, other type of solutions, and so forth. I think what you heard from this committee is you need to go even farther than that. Maybe I'll support Robin here. We heard certainly some things about devices and so forth. So that's going to take some creative thinking. There are immense complexities with doing that, but I guess what you're hearing is maybe moving that forward.

And the only other one I had was not only do things take longer than we would like them to come to fruition, but the penalty of that potentially is obsolete technology. Every industry has that. You develop something now. It's deployed three, five, seven years later and the technology is just that much older. We know that consumer technology is evolving on a six-month or a nine-month basis. How in the world do we create solutions that can adapt that new technology as we're going forward?

So those are the only two I would add.

CHAIRMAN SUSSMAN: Good. Bob, thank you.

The notion -- Pravin is gone. I think he was the one that talked about this 10-years-behind syndrome. The fact that we're 10 years behind right now -- and it's not going to get any better and how we move with a little more alacrity to integrate more current technologies is important. The question of IntelliDrive and whether that's a branding that's going to carry the day I think is something that's worth discussing.

MR. DENARO: You know, maybe as a partial solution to that too, we did hear and discuss and several people made comments about a little more emphasis on platform. And you said, well, that's really our intent. Okay, we believe you, but maybe articulating that better

gets us there. A platform, constructed right, potentially allows insertion of new technology as you move forward.

CHAIRMAN SUSSMAN: Well, it was interesting. As we were talking about platforms, it seemed to be being suggested that IntelliDrive was a platform, which frankly wasn't obvious to me at all all day.

MR. DENARO: It probably is. We just didn't know it.

CHAIRMAN SUSSMAN: The idea of -- what was it -- platforms and standards. So IntelliDrive is a platform? Well, maybe it is, maybe it isn't. But I don't think it was articulated in that way.

DR. BERTINI: Well, the iPad just came out, so we could have the iPlatform.

(Laughter.)

CHAIRMAN SUSSMAN: So this morning we started from the left around, and I've already started on the right around with Bob. So let's go around this way and have hopefully some relatively brief, "the most important thing you heard at this meeting" type comments from each of the members.

MR. BELCHER: I think you've hit on them.

I think part of it is a messaging issue. Again, not to beat a dead horse, we heard a lot about multimodal, but then you heard Joe express his frustration that despite saying multimodal, we never talked about transit. And I suspect if the guy from Schneider were here, he'd say despite saying multimodal, I never heard anything really about freight. You guys got beat up all morning about why aren't they here. So I think there's enough on that.

I think the other two things that I took away from it was we need to have a greater sensitivity about the rural/urban mix. And at least as we articulate it, again it may be a messaging, it may be embedded. Steve always sits there with a frown because we don't say rural enough, and he wants to make sure it's there. Again, it needs to be there, especially given the importance or given the number of deaths that occur in the rural areas.

And then my hobby horse is, again, all about getting deployment out there. Right now, while we're doing the big, important stuff, but really trying to push this. Those are the things.

CHAIRMAN SUSSMAN: Robin always surprises me, but I'll turn to her.

MS. CHASE: I'll try not to reiterate.

So I think we need to unlock innovation by creating platforms and these need to be platforms that can evolve. They have to be light platforms that can evolve over time because of the pace of things.

And something that we didn't talk about -- you all know what I had to say before -- was this issue of equity. We didn't touch on it, and for me, when I think about the equity and I think about what transportation needs to be in the next 10 and 20 years, that profoundly tells me we need to come up with alternatives to car dependence because of the cost of driving and how can ITS solve that problem.

CHAIRMAN SUSSMAN: You mentioned equity. While the committee has gotten some kudos for introducing environment into this program in the first meeting, at the second meeting, we introduced as a new goal of ITS this question of equity in terms of

accessibility to digital information and things of that nature. As near as I can tell, it was systematically ignored by our friends at DOT.

MS. CHASE: I think equity has a lot of different -- so is it a digital divide equity? Is it subpopulations around access to transportation equity? I think it's all those things, but I have to say what I was thinking of is financial equity.

CHAIRMAN SUSSMAN: Financial equity.

MS. CHASE: For poor people who can't afford to drive everywhere.

CHAIRMAN SUSSMAN: Economic equity.

MS. CHASE: Economic. The people who can't afford to drive everywhere is already a huge portion of the population, and it's about to become a larger portion when we finally get congestion pricing, road user fees, better parking price, and all that stuff.

CHAIRMAN SUSSMAN: Do I hear you saying we should reinvigorate and restate that point on equity?

MS. CHASE: I think there's a role for us to think about research goals. That's something that is a big problem.

CHAIRMAN SUSSMAN: Ann?

MS. FLEMER: I was the one who brought up equity in the beginning. So I would fully support the last comments because I do think that was somewhat missed in the discussion today.

I think another point that came out that would be good to come back around to is what is government's role in the technology development, whether it's platforms, applications,

certainly in standards, and that we don't lose sight of that as being a major piece of what this committee needs to pay attention to because that's the advice we're being asked to provide.

CHAIRMAN SUSSMAN: Ann, thank you.

Jack?

MR. LETTIERE: Yes. As a final comment, I'm going with Pravin's 10 years behind and a five-year plan and five years after that to reevaluate the time of research required to get this into place. We seem to take for granted that it has to take five years. In tapping, I would say, the intelligence and creativity of those who are doing research to do that in more of a compressed time frame. If we're 10 years behind, it exponentially -- and I hate to use that term, but it will grow even faster and we'll get farther and farther behind the curve to challenge the research community to get research into the field. It is not an impossibility.

And then the clarity of what the ITS group at USDOT is doing. There are a lot of questions and concerns about getting clarification of what things meant. And if that was only for those of us here, what does that mean to the rest of the industry and those other industries that may have some connectivity with all of this in the future? Do they know what you're doing and do they have a clear understanding in English what it is they're doing so they can proceed with their own types of development work?

CHAIRMAN SUSSMAN: Jack, thank you.

Peter?

DR. SWEATMAN: I think we heard a lot about how this subject is a lot bigger than something like IntelliDrive in the scope at the moment but also in the time span looking

forward.

I guess what concerns me a little bit is at least in the short term we are very much concerned with a decision that's going to be made by NHTSA. And I think the nature of that decision is really important because if we see it in the usual way that this is something that is going to reduce risks and if it's too specific, then I think we're going to lose the sort of thing that came up to Robin's comment, which really -- the impact we can have on the exposure out there. So I think safety is for sure, absolutely the driver of IntelliDrive and all the things around it, but I think we need to take into account that exposure thing. We've got to reduce exposure, and there are many ways to do that. And IntelliDrive must be capable of contributing to that as well.

So I think we have to get careful that IntelliDrive doesn't get framed as just another NHTSA safety decision which maybe would lose some of the other benefits. I think nature of the decision is going to be important.

CHAIRMAN SUSSMAN: Peter, thank you.

So down on the end. We're coming down the home stretch here.

MR. VONDALE: A couple of things. First, I was really pleased to see that the issues that I think are the most important issues have been pretty well identified here, and I felt pretty good about the discussion we had about those issues, and that's good.

Also, I have to say I have seen evidence that the various modes within DOT have been working well together. You've strongly confirmed for me and for the group the fact that you are continuing to work together, and that's great news as well.

As I said in my opening remarks, I think I would like to see more emphasis on the

policy side of things and also the funding issue there. I really believe that getting the policy issues right early is a key enabler to a smooth implementation.

So again, I would just like to emphasize that, again, more emphasis on global. If at the next meeting, if it's possible to add some more global flavor, it would be interesting to see if we could learn what is the five-year plan in Europe compared to our five-year plan. What's the five-year plan in Japan compared to our plan? Are we aligned? Where are we different? That would be, I think, interesting to learn.

Overall, I thought it was a great meeting, and I really appreciate the opportunity to participate.

CHAIRMAN SUSSMAN: We're going to take your comment as supportive of the next meeting in Paris.

(Laughter.)

MR. TOTH: As long as you explain it to Secretary LaHood, we'll be there.

(Laughter.)

MR. TOTH: I too am very excited about this. I think this was a great meeting and I think we're off in a very good direction.

I remain a tad concerned about the framing of the message. I proudly am a member of a transportation profession that has become very adept at putting blinders on and focusing in on what we think the mission is.

And I'm concerned about some of the early descriptions that I heard from you folks at USDOT that at the end of the five years of research in this area -- I forget the exact

wording and I'm sure he's got it in there somewhere -- but this might not result in any need for government to invest in infrastructure or operate and manage the infrastructure. I think you said that it might all be vehicle to vehicle and just handled in the private sector.

I got to tell you if we say that again, even if it's only a one-tenth of 1 percent chance, most everybody in the current transportation establishment will just tune this out and do what Jack suggested -- or not do what Jack suggested this morning, which is to begin to get ready for this. I don't know how the other people feel, but I personally see no way that in this -- we're in an era where we can't have single-purpose funding anymore, that if we develop this technology, that we're just going to have to tap it for traffic management and that's going to have to be managed by government. You can't let Google be telling people when lanes are going to get shut down on the interstate system or speed limits and so on. So I think you have to rethink that whole framing and the message and how it might tune out the very government agencies that are going to have to be prepared to hit the ground running in 2015.

CHAIRMAN SUSSMAN: Gary, thank you.

Gen?

DR. GIULIANO: Very quickly. My first point is there might be a semantic problem here, and that is that I think, from what I'm hearing, the JPO really is trying to be a systems-oriented type of organization. That is to say, there's really an intent to be multimodal. There is really an intent to figure out how things work together and so on. But somehow you came up with a term called "IntelliDrive," which is all about this. And so maybe it's just semantics and maybe the word doesn't really reflect what you want to do.

So that's just kind of out there. I'm not sure. Maybe you guys heard this when I was out of the room or whatever.

The second point is I heard over and over again about the connection of this operation throughout DOT, and I know Peter has already promised us we're going to see all those people next time. But I think as this operation or as this effort goes on, for sure there is this real concern and interest about how it interacts with all of the things that those other boxes are doing.

The other point is, going back to the government role, I think that's a really serious issue. At some point, I would like to actually have that as an agenda item in all of its complexity that we could talk through or somebody could talk through because I think it has a lot of dimensions, and we're just touching the surface in terms of what we talked about today.

And then finally, this is my own little plug. I feel like I didn't hear enough about institutional issues and implementation. I hope that doesn't get lost because, as I said at the beginning, in terms of my own research experience, technology is almost never the problem. So I think we need to spend more time thinking about that too.

CHAIRMAN SUSSMAN: Gen, thank you.

Adam?

DR. DROBOT: So let me start off with a challenge. As I listened to the discussion today, I found one element missing, and I think it would be useful to get it up front and center. And that is, when you approach a research program or a research agenda, you have to have the whole problem in front of you and know what it is, and I didn't see that displayed today.

So if I were to look at a lot of the comments here, you have a very complex ecosystem. It has everything from what the Hill will do, what educational institutions do, what technology providers are doing, what other industries are doing. How does all of this relate to IntelliDrive and what the JPO is doing? And it was hard to tell. If I were to draw a picture of that at some simplified level, I don't even know where you sit. And I have a feeling it's worthwhile understanding where this program fits in the big picture.

I would say the second comment, which -- something that I really liked that I came away with are the three missions of saving lives, sustainment or ecology and mobility. I mean, those are all real. They're very tangible. We all with the dis-economies that happen as a consequence. So I think that's on the positive side.

I think the last one is something I've got to say I'm not sure of, but in telecommunications, I did know of any standards today that are actually created by government. There are a lot of standard bodies, but they're not created by governments.

MS. CHASE: How about the Internet?

DR. DROBOT: The Internet is not run by the government. The funding for it came from the government, but the actual creation of the protocol, all of that was done by other players.

MS. CHASE: Correct, and not the private sector. I thought you were trading off government --

DR. DROBOT: No. No, it's not a tradeoff.

And I'm not aware of the government really building platforms.

And so in some sense, when you look at that role, I think the challenge is where do you take the resources that you have and focus them in such a way so the things that you want to have happen do happen? How do you engage with that inventiveness from the public at large other institutions and so you have something that will actually contribute in a very, very real way? And I would say thinking through where those influence points are is very important.

I think the last point I will make is the following. I'm sort of struck by something. I have probably spent frivolously a lot more money per year than you have allocated to this problem. And I have to tell you just getting a launch of a satellite from NASA, for example, satisfies curiosity, things of that sort. They spend more than 100 million bucks a year, I'll tell you, and it doesn't have the kind of impact that this program has to have. So when I look at the impact on the economy of the three things, saving lives, this and that, a 100 million bucks just doesn't seem like the right thing. So if you're spending that, are you leveraging it? Or are we just fooling ourselves? Because the resources are not ever capable of solving the problem we have in front of us.

If I've ever learned anything in government, by the way, when you have a real problem and you can really articulate it, you'll get the resources that it deserves. And I think we somehow have to think that one through.

CHAIRMAN SUSSMAN: Good. Thank you, Adam.

Joe?

MR. CALABRESE: Good meeting. It's my pleasure to be here.

I did talk at the beginning that I hoped that ITS would not leave transit in the dust,

and I was a little frustrated. I kind of felt that maybe it was a few times today, but I'm confident with the people here that we can get up to speed. I think everyone understands that if we can do things to promote better public transit and encourage more people to use it, that's our only way out in the future with the population growth and congestion growth and environmental issues, energy, sustainability, and all those things. So I hope we'll get there.

I want to second Gen Giuliano's comments. I think it should be IntelliTravel instead of IntelliDrive.

And my pleasure to work with you in the future.

CHAIRMAN SUSSMAN: Joe, thank you.

Last but by no means least, Steve.

MR. ALBERT: I think this group has been far better than the last group in terms of input and providing broader input, broader perspective. Thank you to that side of the room for your broader perspective. You did a great job. Be careful what you wish for, folks.

I do think a couple of things were maybe not recognized enough. I think while it's wonderful to have an ITS program, in the end it's going to be about how those institutions change and the culture of those institutions to adapt their technology and information they are being provided. And I don't see a lot of emphasis on that in the whole institutional culture side of things. Otherwise, we're going to be constantly trying to talk about technology and use of technology for people who only know construction projects year after year after year after year.

I don't think there's enough emphasis in driver behavior in the ITS program.

Sometimes it feels like the ITS program is really just morphing into the

IntelliDrive program, and I'd be careful of that.

And then finally, while the group has provided very good input, I don't know if we've necessarily been asked in terms of what we think the priorities might be, and that might be helpful as a reality check on what the Joint Program Office feels the priorities might be.

CHAIRMAN SUSSMAN: Okay, thank you.

Well, those are all thoughtful and useful comments. Bob and I will contrast them with the comments the first time around the room, and we'll see how they've changed.

Let me give the floor to our friends from JPO and RITA to respond in any way you think appropriate, and then we'll work toward seeing where we go from here.

MR. APPEL: Well, I find myself in the interesting position of having had a group of very, very smart people challenge a lot of aspects of our program, a program I strongly believe in, and finding myself agreeing much more than I am disagreeing with what I'm hearing. And I think that's completely consistent --

(Laughter.)

MR. APPEL: -- because I honestly and truly believe there's a lot more common ground in this room than might be apparent from watching.

Adam, when you were talking about the government not building platforms, not developing standards, I'm with you. I like to think about it as facilitating, facilitating standards, facilitating platforms, for example. But you can't force a standard on a stakeholder community that won't accept it, which means a huge part of the role of this JPO is to build -- well, what it does build is ties to the stakeholders, build a feedback loop to make sure that we can get the

stakeholders around a table and we can make decisions that are going to affect all of us jointly moving forward. So, yes, that's very important.

So, yes, standards and platforms. I stand by what I said, which is that they are the core of what we do, but we are not the sole builders of them. We are working with a team.

About a year ago, I had my confirmation hearing at the Senate Commerce Committee, and one of the most amusing parts of the confirmation hearing was a discussion of rural States versus non-rural States. In particular, some of the Senators there were Senator Klobuchar, Senator Udall, Senator Begich. One of them started. I think maybe it was Senator Udall talked about you've got to look at the unique transportation challenges of rural States. And then Senator Begich said, well, some States are more rural than others and you've got to look at the challenges of extreme rural States. And they were all correct.

What we live in is a society in which we have different transportation environments everywhere in the country, and as the U.S. Department of Transportation, we need to reflect that. So, yes, the folks that have talked about needing to have an ITS system that works in urban areas and an ITS system that works in rural areas and have demonstrations and tests for urban areas and rural areas -- I strongly agree with that, and that will be a huge part of what we do.

The question marks about what does this all mean for the government role moving forward -- you're absolutely right. Those are question marks. We don't claim to know all the answers. We do say that part of what we're doing is to explore those answers, and it's difficult. The question marks about how it's going to get paid for -- that's a microcosm of the same

question mark going on up the street on who is going to pay for the whole transportation system, let alone just the ITS system. It's a big question. There are a lot of people that have a lot at stake that are discussing it right now, and we are part of that discussion.

I must say this has been just a tremendous dialogue, tremendously helpful to me and to the whole ITS JPO. So from my perspective, I really, really appreciate all of your input and the time you've committed to doing this.

CHAIRMAN SUSSMAN: Peter, thanks for your comments.

Others? The gentleman here at the front table.

DR. BERTINI: As I said before this morning, thank you very much for your time and energy and thoughtfulness in preparing for today.

A lot of the remarks or the comments, I think I also found myself agreeing with. So I think it was instructive for all of us to be here with you today.

I kind of wonder can we keep the momentum going and do you all have a way to stay connected. Is there some way through a Wiki or a website or a Facebook group or, I don't know, something, email listserv so we can keep the energy up and get feedback from you moving forward?

I think that's all I'll say. It's been a long day, and again, I really appreciate your time and energy it took for you to travel here. I can't thank you enough for that.

CHAIRMAN SUSSMAN: Thank you. Thanks for your comments.

John?

MR. AUGUSTINE: Well, I just would like to say thank you for the frank and

candid discussion, and I would hope that we can continue to be frank even on areas that we disagree, or if it’s not clear, we’ll continue to try and do a better job of communicating what we're doing and try to bring the right data and the right presentations to this group to help us evolve.

I think Adam and I had a discussion on one of the breaks, and he said the challenge is continually evolving but not changing every day or month or year so there's instability in the program. You need to keep momentum on the things that are going right, but evolve and iterate the things that need to be evolved. So that’s a hard balance and we look to this group to help give the guidance on what's going well, what's not clear, what needs to be rethought. So I would just hope to continue this open dialogue going forward. So thanks again.

CHAIRMAN SUSSMAN: John, thank you.

DR. BERTINI: One last thing. Many members of our team contributed to the preparation for this meeting. So in addition to thanking them, I would especially like to thank Steven Glasscock who did the stressful -- if any of you have organized events in your life, as I have, he did the stressful part. So thank you.

(Applause.)

CHAIRMAN SUSSMAN: So the questions is where we go from here.

Certainly the idea of keeping in touch electronically is an excellent one.

As I mentioned this morning, the way we handled the process last year is that Bob Denaro and I, as Vice Chair and Chair respectively, would take a cut at an advice memo that would eventually be officially submitted. As you heard, the recipients are required to respond to

Congress on recommendations that we have made. So that's a modality that we've used in the past.

We also talked today about the notion of some subcommittees, people who would look at particular issues and perhaps provide some input explicitly on those issues presumably to be, at some point, integrated into the advice memo.

Bob, I'm kind of winging it, but I heard three possibilities for subcommittees or, in some cases, a subcommittee of one or two people that might take a crack at some of the issues that we have discussed. We talked about the environment as one such area. We talked a lot about the question of open platforms, standards, those related questions. I think I have a first order feel for what all that means, but certainly I think I could use some further education.

And the third aspect that I think might be useful to pursue on a subcommittee basis is the relationship with the university community. I think that's an untapped resource or at least a resource we haven't tapped enough with the University Transportation Centers program having expanded so substantially over the last five years or so.

Bob, chime in whenever you like. But what I am leaning toward is a process that's kind of a hybrid of what we did in earlier times, that is, that you and I take charge of trying to create a draft but at the same time specifically some inputs on at least the three areas that I had indicated.

Robin would be the obvious person to help us with a couple of pages on what she really means by open platforms and standards.

And I had my eye on Gen for perhaps helping us with the relationship with the

university community.

And environment, I'm not entirely sure. Bob you seemed interested in that yourself, but there may be others who want to chime in on that as well.

And Joe, from the transit industry, would seem to have a particular interest in that.

So why don't you chime in and give me a sense of what your views might be either in agreement or disagreement.

MR. DENARO: I heard two of those for sure, and so I think that's a good start.

But I guess I would turn back to the committee also. Do you feel that -- I don't think we want eight subcommittees, but if we were to choose three, these were my three, or at least a place to start. At our next meeting, we could generate another one and so forth.

MS. CHASE: I wonder, just speaking for Gen if she's not thinking it -- I'm wondering if the university subcommittee is really a policy. I thought that there was a whole big sector on should there be more emphasis on policy barriers and how to get over those policy barriers. It might be suitable for the university -- I'm just throwing that out as another big topic.

CHAIRMAN SUSSMAN: I see it as distinct but it's a quite reasonable amendment.

DR. GIULIANO: Tell me the three committees again.

CHAIRMAN SUSSMAN: The ones I came up with was looking at environmental issues, a second looking at this platform and standards question and what we really mean by it in this context, and third was the relationship of the ITS program to the university community. And you suggested policy as another area.

DR. GIULIANO: I think the government role/policy stuff to me is really important. I think you can accomplish university relationships without a committee. I mean, Steve and I are both on the committee. Pravin is on the committee.

CHAIRMAN SUSSMAN: I'm on the committee.

DR. GIULIANO: Peter is on the committee. I think we could handle that.

MR. APPEL: Can I ask a question about the university one? It's almost a broader question, which is if we've got a certain amount of money for research -- and we all wish it was more, but it is what it is -- how do you get the most bang for your buck to achieve the objective at hand? What combination of research providers do you use? And there's a whole list. John has a list that the Congress provided. It's worth hearing from the stakeholders from this group about what kinds of research providers and practitioners deliver the most, given our limited budget.

DR. DROBOT: It depends on what you're trying to accomplish. If you're looking for basic things, you go to universities. If you need access to real data of real manufacturing, you don't. It depends where you are, and it is a mix, and I think you have to do the mix in appropriate ways.

MS. CHASE: Kind of the higher question that was posed earlier is what's the biggest bang for the buck, not who does it, but just in general in your research.

DR. DROBOT: I think it is more important to answer that first question.

CHAIRMAN SUSSMAN: I'm sorry. Which was the first one?

DR. DROBOT: Where do you get the biggest bang for your buck in the first place as opposed to who actually does it.

MR. DENARO: Is that part of the government role?

DR. DROBOT: The government is making the investments.

DR. GIULIANO: That to me is one of the most critical questions. I guess I wouldn't route it to a subcommittee. What are the most effective things? You guys spent a whole lot of time coming up with all of this stuff, which is your vision here. That's your perceptions.

DR. BERTINI: The stakeholders were deeply involved in developing that.

DR. GIULIANO: I don't mean that you were in a room all by yourselves. But what I mean is there was a lot of work here, and that's your first cut. I think you heard a lot today about questions that we all had at this first cut.

DR. DROBOT: What were your alternatives? Why did you decide to do this and not something else? What did you leave on the cutting room floor? And I think sort of being exposed not to just the programs you're running, but what programs are you contemplating and how are you actually making your selection I think is sort of grist for the mill in this case.

CHAIRMAN SUSSMAN: You used the term of "routing to a subcommittee." I didn't mean to suggest subcommittees would be kind of offline. What I'm thinking of is a rather short-term activity producing a couple of pages that we can plunk into this advice memo, subject to the review of the rest of the committee.

DR. GIULIANO: Oh, I see. I'm sorry. I missed that part.

MR. BELCHER: Joe, do you think the committee got far enough today to be able to produce a valuable advice memo, or does it make sense to have another meeting to flesh some

of these issues out?

CHAIRMAN SUSSMAN: My own sense is we did get far enough today to write a memo. It will be a 40,000-foot memo. It may not be detailed in some cases, but I think in terms of identifying critical issues that need to be thought about by the ITS program and DOT, I think we can take a reasonable cut at that. It may be characterized more as questions than answers, but certainly I think we have got some things we can say about program structure and what's important within the overall framework.

Bob, how would you feel about that?

MR. DENARO: Yes, I agree. The test will be if we put it together and send it out and get some level of consensus, I think we can do a memo. If we can't, then we're not ready.

MR. ALBERT: Hasn't the issue of the role and responsibility of government been somewhat decided over the last 10 years since the automated highway system effort? I thought we already went down that path when we were trying to do AHS, and that was more under Christine Jones.

CHAIRMAN SUSSMAN: How so? I'm not following you. I'm sorry.

MR. ALBERT: Let me finish. There was basically some push-back by the vehicle manufacturers working with different parts of DOT to say that's really not your role. And then it was reinvigorated. You all remember that. So I would think someone has already developed somewhat of a position paper on the role of government versus vehicle manufacturers versus others.

DR. DROBOT: Times change.

MR. ALBERT: I agree. Times have changed. But someone should have a good start on that.

DR. SWEATMAN: We should have a good look at other models in other countries in relation to this university question too where they have consortia, fairly large consortia with various sectors from industry, universities, and so on, not so much with consultants. And I think the model here is, in a sense, the universities and the consultants are kind of -- where does the money go? But I think the European model of the consortia is somewhat different and it's worth looking at that I think.

MR. ALBERT: And it's over a longer period of time in terms of the amount of money put in and programmed out as opposed to most of the stuff in the United States is just RFP to RFP year to year.

DR. BERTINI: In Europe it also is focused on leveraging as opposed to the European funds being the only funds.

CHAIRMAN SUSSMAN: Well, I think we're coming to the end of the discussion. What I'd like to propose, subject to agreement, is that we, in a sense, commission three several-pagers. And Bob, if you're willing to do the environmental one and, Robin, if you're willing to do the open platform/standards one and, Gen, if you're willing to do the policy/government role one, Bob and I will take responsibility for preparing the document, plugging in those pieces and perhaps some others that we'll figure out and then get it out for review and see if people salute or not. And if they don't, then Scott's comment may well become the operable one.

But generally, we've had reasonable success with crafting something that has some legs, although I will comment that this group is not only more articulate but also broader in opinion, if you will, than the previous 20 of us that we had around the table. So I'm not quite as confident as I would have been with the earlier group, which I think was more narrowly cast.

So with that, unless there are other -- yes, Gen?

DR. GIULIANO: Is there a next meeting, and if so, what's the kind of program about the next year, let's say?

CHAIRMAN SUSSMAN: We, in principle, think about three times a year, so on four-month centers pretty much, subject to the flows around holidays and things of that nature. So we're sitting here, and what is it? April. So perhaps sometime in mid-summer would probably be good. That would certainly be good for me. When September and October comes -- and I suspect the same is true for you -- my life changes dramatically. So getting a meeting in at the end of July, beginning of August is kind of what I would be thinking about, and then another one in the fall.

Is that consistent with the expectations? That's what we've done in the past. Three times a year has been consistent with your budget too. I guess we ought to ask.

Any final comments from our hosts?

MR. DENARO: Joe, the only thing I would add about these committees is I see the committee as more than one person. So in my case at least for environment, I will be sending emails out soliciting help, please. And then I'll agree to put it together.

CHAIRMAN SUSSMAN: Well, this has been, I think, a very exciting meeting.

I’m invigorated by all the extraordinarily able people around the table and their very effective way of presenting their views. I look forward to your comments on the next iteration and to seeing you all again.

MR. SPENCER: Dr. Sussman, a couple of things. I’ve been listening all day. Two things I want to bring up, and one is on the environmental side and the equity side specifically.

We talk in terms of the economic equity, but there is also a technology equity that we have to consider, especially with aging populations. Because ITS is so focused on technology, we have to be cognizant of reaching out to the aging population.

The second one, which is more part of the business process, is the education marketing and outreach. The iPad wasn’t put on the shelf and sold 300,000 items just by putting it out there. We really have to think more like a business on the marketing and the outreach, letting people know what it is we're doing. Otherwise, this will never get off the ground.

ADJOURN

CHAIRMAN SUSSMAN: Okay, thank you.

With that, we are adjourned. Thank you all.

(Whereupon, at 4:30 p.m., the meeting was adjourned.)