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RESEARCH AND INNOVATIVE TECHNOLOGY ADMINISTRATION

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INTELLIGENT TRANSPORTATION SYSTEMS PROGRAM ADVISORY COMMITTEE
(ITS PAC)

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MEETING TRANSCRIPT

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The ITS Program Advisory Committee (ITS PAC) met in the Oklahoma City Room, 1200 New Jersey Avenue, S.E., Washington, DC, at 8:00 a.m., Dr. Joseph M. Sussman, Committee Chairman, presiding.

Participants

COMMITTEE MEMBERS:

DR. JOSEPH M. SUSSMAN, Committee Chairman, JR East Professor, Department of Civil and Environmental Engineering, Massachusetts Institute of Technology
MR. BOB DENARO, Committee Vice Chairman, Vice President, NAVTEQ
MR. STEVE ALBERT, Director, Western Transportation Institute, Montana State University
Mr. SCOTT BELCHER; President and CEO, ITS America
Mr. JOSEPH CALABRESE; Director, Greater Cleveland Regional Transit Authority
MS. ROBIN CHASE, Founder & CEO, Meadow Networks
DR. ADAM DROBOT, Managing Director and Chief Technology Officer, 2M Companies
MS. ANN FLEMER, Deputy Executive Director, San Francisco Metropolitan Transportation Commission (via telephone)
DR. GENEVIEVE GIULIANO, Senior Associate Dean, School of Policy, Planning, and Development, University of Southern California
MR. J. PETER KISSINGER, President and Chief Executive Officer, AAA Foundation for Traffic Safety
DR. PETER SWEATMAN, Director, University of Michigan Transportation Research Institute
MR. GARY TOTH, Senior Director, Transportation Initiatives; Project for Public Spaces
MR. PRAVIN VARAIYA, Nortel Networks Distinguished Professor, Department of Electrical Engineering and Computer Sciences; University of California, Berkeley
MR. JAMES VONDALE, Director, Automotive Safety Office, Sustainability, Environment, and Safety Engineering, Ford Motor Company

ALSO PRESENT:

MS. SHELLEY ROW, Director, Intelligent Transportation System Joint Program Office
DR. ROBERT BERTINI, Deputy Administrator, Research and Innovative Technology Administration

MR. GREGORY WINFREE, ESQ., Chief Counsel, Research and Innovative Technology Administration (via telephone)
MR. STEPHEN GLASSCOCK, Intelligent Transportation System Joint Program Office
Jeffrey A. Lindley, Associate Administrator for Operations, Federal Highway Administration
MR. CARLOS VELEZ, Citizant

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

8:15 a.m.

Welcome and Opening Remarks

DR. SUSSMAN: Well, let me welcome you to this Program Advisory Committee meeting here on June 17th, as scheduled back several months ago. We have a nice turnout. I'm thinking we're going to have a very good debate with our source material, the templates from the various subcommittees.

Before I do anything, I'd like to acknowledge and welcome back Shelley, Shelley Row, who returned from her year-long sabbatical in, around the world actually as it turned out, and I'll call on her for a few comments later on.

So the recent history of this Committee is back last August, we prepared a memo for JPO. The memo, in the view of the Committee and certainly in my view, had a lot of useful stuff, in terms of laying out issues, and it in effect set up the subsequent meetings.

But what it was not was an advisory memo. That is, we didn't give any or at least any substantive advice to JPO about what they were going to do. We more identified issues and explained what we were going to do.

We recognize there's an obligation to do advisory memos, and I'll say it now for the first time, and I'm sure I'll repeat it during the day, that my hope is that when we walk out of here at four o'clock, after all the discussions by the subcommittees and breakouts and what have you, that were pretty much there in terms of the substance of an advisory memo.

Now that may be hopelessly naive, but that's at least a target. So we've had two meetings already this calendar year, so this is the third in less than six months, which sort of qualifies this as a forced march of advisory committee meetings. That's a tempo that isn't usually accommodated to.

But we were anxious to get out on the hostings, and we went with Ann Flemer's hosting us to Oakland, and met at MTC, in an attempt to recognize the public transportation side of ITS. Then we went in March, I think about eight weeks after that we had a meeting in Detroit, or more accurately Ypsilanti, if I'm pronouncing that correctly, which had more of a focus on the auto side.

Those who were there will recall we missed our tour because weather was such that the demonstrations that

had been prepared were deemed unsafe. So we didn't actually have a chance to get out there and kick the tires.

MR. DENARO: That's kind of ironic.

DR. SUSSMAN: Right, exactly. What's come out of these meetings is a subcommittee structure around which we have been operating now for several months. We realize that different people are concerned about and expert in various parts of ITS.

Ultimately, we need an integrated final report, but we wanted to put our efforts into people meeting in smaller groups, where there was expertise, such that they could come back to the Committee with their perspectives on what the critical issues were, respond to questions that the Committee may have, and try to retune those points of view.

So we have our three subcommittees. We have Technology Strategy, which is headed up by Peter Sweatman; our vice chair, Bob Denaro is on that. Adam Drobot is on that, as is Robin Chase. We had the Standards and Harmonization Committee, Jim Vondale.

Adam did double duty, serving on that one as well, and Scott Belcher, and the Program Strategy and Evaluation Subcommittee, chaired by Ann Flemer. She's going

to be calling in. She's on the West coast, so it's a mere 5:20 there now. So she'll call in later. I deliberately scheduled her as the last such presentation. I serve on that, as does Peter Kissinger and Joe Calabrese.

So the emphasis on the early part of this meeting will be to focus on what those subcommittees have to say, and try to work towards something that the Committee as a whole is comfortable with, in each of those areas.

So that is where we are currently, and it's good to see so many people here today with at least one, perhaps two, calling in. So I'm hoping we'll have a very good exchange of views on the information that's before us, and that as I say, we do walk out of here with the makings of an actual advisory committee memo that JPO will find of value.

So those are my introductory remarks. I'll turn briefly to Bob, to see if there's anything he would like to add, and then I'll turn to Rob, to see what he would like to add to that pot.

MR. DENARO: Yes. I'll just give a couple of thoughts. I think in some ways this is our most important meeting because we're really going to distill down to the point now where we've got the essence of what we want to put

into our recommendations.

So I would say, and I think I speak for Joe, I appreciate the hard work of everybody up to this point in the subcommittees. I think we've got some good material to work with, and I look forward to the hard work we're going to do today as well. I just want to say in thinking about this, you know, I'll go a little bit more here to my personal opinion.

But I think we're here to make a significant contribution to the ITS initiative, and particularly the JPO, and that's what I'm hoping this memo that we produce will be. We've got potentially a very wide domain that we're looking at for ITS, and yet you know when we've had this conversation in our past meetings, we can't succeed unless we have focus.

So on one hand, we've got a broad topic; on the other hand, we need focus. All I can say about that is we just need to deal with that, okay.

We've got to find that focus. I imagine that our advice memo is not going to be a single voice. So yes, we're going to have consensus, where no one's going to disagree with what we have in there, but it's not going to be necessarily a single voice, and actually I think that's good.

We have a diversity of backgrounds and experience here, and I think if we can bring that in -- find a way to, you know, bring that into a memo that's still readable, I think that has value. So I don't think we should worry about that.

But all I just want to say I really want to help. I want to see this V2X initiative be successful. I want to see that day when we reduce 80 percent of the fatalities because we've implemented it, and I want to see us nudge you guys a little broader in considering some other things as well. So I hope, you know, from my standpoint, that's what I'm hoping to see today.

DR. SUSSMAN: Okay Bob, thank you. Of course, in emails on several occasions, I've effusively thanked the subcommittees and the chairs in particular for the efforts to pull something together in a coherent fashion. So let me now turn the program over to Rob Bertini.

You will remember that Rob served as acting head of, or acting director of JPO in Shelley's absence, and now has laid down that responsibility. So, Rob, any comments you have.

DR. BERTINI: Well, good morning and welcome, and

welcome to D.C. and to the DOT, and Peter Appel also adds his welcome. He's traveling today. But yesterday, one of our programs, the Transportation Safety Institute in Oklahoma City celebrated its 40th anniversary.

So he and others were down there with the team in Oklahoma City yesterday. But Peter also wanted me to give you his best, and express his appreciation for everything you've done. I would also want to mention how glad I am that Shelley is back, and I'm also glad that she was gone, to be honest, you know.

I had a wonderful opportunity to work much more closely with you and the staff, and I want to thank the staff, and particularly Steven Glasscock and Carlos Velez, who were wonderful in organizing these meetings, and also Valerie Briggs, in her role as a liaison to the Advisory Committee, and John Augustine, who really kept the office running with the rest of the staff.

I think we've moved the program forward, as we would have, Shelley, if you were here, but maybe with a little bit of a slightly different twist, due to some of my personal interests and personal influences, and also those influences of you and our many, many other stakeholders.

So I think it was a great year, and the program is moving forward, you know, in what we think is a wonderful way, with lots of challenges but lots of opportunities. In terms of my observations of this group, I'm just thrilled about the subcommittees. That's one thing that I think for a group of this size, with such a large charge, to use the subcommittee structure to focus, has been wonderful.

I've really seen the group. I remember the first moment you came together about two years ago or a year and a half ago, and you as a group have gelled and evolved significantly in that time. I would remind you that your terms expire on December 16th, 2011, and we are already working, knowing from the last time how long it took to rekindle this Committee.

We're already working on that, and so that was just a reminder in terms of the chair and vice chair's reminders that you need to get a product out the door. There's, you know, you have a shelf life at least coming up in December.

DR. SUSSMAN: Is there any time off for good behavior?

(Laughter.)

Dr. Bertini: No, no. But some of you may know that I've announced my departure from RITA. My last day will be July 15th, and so only four more weeks, and I'll be returning to academia, to be at my position at Portland State University, and for the next year will be on sabbatical at the Delft University of Technology.

I'm not leaving Transportation or ITS, so I'm sure our paths will continue to cross. But I'm just thankful to the Secretary and to Peter for this opportunity to serve in this role, and thankful to you. I mentioned already thankful to Shelley, for taking her sabbatical, as inspiration for mine.

MS. ROW: Any time, Steve.

Dr. Bertini: And I do want to just say a few words about, maybe take just a minute or two. There are a couple of things that I tried to champion in my time at RITA more broadly, and that's this notion of workforce development, that we all need to take a responsibility not only for the program stuff, but also the people stuff.

I've said for years, even before I came here, I was influenced by Bill Close from the City of Portland, who always used to talk about the people at ITS and the people at

Transportation. Some of you may have known Bill.

But I think it's really true, that we need to not only take care of our people that we have now and retain our great people and develop our great people in whatever organizations we're in -- I'm a little bit focused here on U.S. DOT.

But we also need to think about the next generation. Who are the next leaders, the next ITS Advisory Committee, and are we taking enough care? Are we setting aside time in our business schedules to be mentors to the next generation, and to be consciously providing opportunities and consciously working to bring people into the field.

It is an exciting field, and we need to bring people to join us. So I'd say, if I can leave a reminder with you about that, that would be one thing I'd want to say. The other thing that I've tried to do here at DOT is be the voice of cross-modalism, and you know, my counterparts, the other nine deputy administrators, who all each focus on one mode.

It's almost a bit of a joke now that, you know, they start talking about I'm doing rail research on this

girder rail, this or that, you know, in the railroad. I say well, have you talked to Transit, you know. So I've been the voice of cross-modalism, and I encourage everyone to continue to be that way.

We just, I think, thanks to some of John's efforts, we're adding the Pipeline and Hazardous Material Safety Administration to our ITS management organization, because they deal with the shipment of hazardous materials, and they are heavily -- their deputy administrator happens to be a former fire chief. So he's very engaged in the notion of emergency response and improving the linkages there.

So I think, I haven't thought of PHMSA, as we fondly refer to it, as being part of our program. But really I think we've uncovered recently that they should be at the table, and they're not. So we'll get all the modes. The St. Lawrence Seaway is the last one I think --

(Laughter.)

Dr. Bertini: So who knows? There could be an opportunity there. But in all seriousness, I'd like to say, to announce also that our chief counsel, Greg Winfree, has been named the next deputy administrator, and we're going to try to get him to call in and preview later today. If it

doesn't work, though, I know that he'll be participating actively in your next meeting.

But I have a few words that Peter used to introduce or to announce Greg's appointment.

Greg has been a key leader in a broad range of RITA initiatives in the last year and a half, from helping to ensure the robustness of GPS service for transportation users, to helping position the agency for effective deployment of cutting edge transportation research, supporting the continuing impact and effectiveness of programs ranging from this program, the ITS program, to non-punitive safety data reporting systems.

Greg has also been a true leader in bringing together the RITA family and helping make this a better place to work, from his leadership and development of what we call the RITA Choices Program, which is an employee engagement, employee resource program, that provides multiple channels for RITA employees to get key concerns addressed, to his energetic leadership of our charitable campaign, the CFC campaign.

He also serves as a mentor and sounding board for lots of our employees. He has extensive experience in the

public and federal government sectors, and so I know that he will be a wonderful advocate of the ITS program and a wonderful partner with you, moving forward, and he will be appointed effective July 15th.

So I will miss you and this program, and thank you for the chance to say a few words. Keep up the good work and just do more, is all I can say.

DR. SUSSMAN: Bob, thank you very much. I am sure the Committee joins me in wishing you the best in whatever comes next. Some of you know may not know that Bob and I go way back. I gave a talk years ago, I can't imagine how many years ago, out at Berkeley, when Rob was a graduate student, and he got the job of shepherding me around and making sure I was where I was supposed to be when I was supposed to be there.

So we struck up a friendship, and I followed his work at Portland State. I view that center as an exemplary one among the university transportation centers, and then I talked to him extensively, as well as Peter Appel, about you moving into this job. I think you've done a marvelous job in your full-time job in RITA, as well as standing in for Shelley during this period.

Dr. Bertini: It means a lot.

DR. SUSSMAN: So thank you and good luck in whatever comes next. Thank you.

(Applause.)

Dr. Bertini: Thank you, Joe.

DR. SUSSMAN: So next, I'd like to turn the program over to Shelley. Again, Shelley, welcome back. We're thrilled to have you here. It sounds as thought it was positive from any number of points of view, positive from the point of view of you having a chance to do something you wanted to do your entire life, and also in a sense indirectly led to career development opportunities for a number of staff, who didn't have Shelley to walk down in the office, to ask them, you know, could they go to the mens' room or something.

So it was -- everybody grew substantially, is my sense. So it was, I believe, truly a win-win. But I'd like to invite you to say whatever you would want to add to the greetings, and any other comments you may have.

MS. ROW: Thanks, Joe. I do just want to say, add my welcome, and tell you how excited I am to meet with you for the first time. I participated in the phone call

with many of you a few weeks ago, I suppose. I've read the draft material that you've provided, and I have to say I am very impressed.

I think you've done already an amazing amount of work. The material you've already created will be of great help to the ITS Joint Program Office and to the ITS program at large within DOT, of which we are a part.

So I thank you already for the work that you've done. I very much look forward to the conversation today. I have heard from a number of you that there are many diverse views represented around the table, and that's great. So I do look forward to hearing that discussion, hearing the conversation.

Whether a particular topic ends up being part of the consensus, it's still useful for all of us to hear the discussion and hear all the various viewpoints. That's very helpful for us. I echo what Bob said, because we struggle with the same thing. We too have a very broad mission, and yet we, in order to make best use of the resources, we believe we have to focus.

So we've made some strategic choices about that, and so we look forward to hearing your thoughts on that as

well. I would be remiss if I did not also add my thanks to Rob for the tremendous work that he has done. It was a joy to -- let me rephrase. I was going to say it was a joy to come back. Let me rephrase that.

It was wonderful to see how the program and the staff had grown when I got back, and that's all very true. The program has never been in as good a position, I think, and a lot of that has to do with Rob's leadership. He means what he says about the multimodalism and the leadership he's provided in that direction.

I also have to say John Augustine, who's sitting back here, and he always is very quiet and very unassuming, and yet he does an amazing amount of work in the office, and connecting people and things and programs and all of that, and he has -- he's rocked the program. Then the staff too have really, they've just grown and flourished, and I couldn't be more pleased, and I think a lot of that has to do with the leadership. So, Rob, thank you.

And so, Joe, I don't think I have anything else, other than I really look forward to the conversation. I think we're going to get a lot out of it.

DR. SUSSMAN: Thanks, Shelley. It's great to

have you back.

MS. ROW: Thank you.

DR. SUSSMAN: And as Bob Denaro said, this is a particularly vital meeting. I'm glad the timing worked out.

MS. ROW: It worked perfectly.

Meeting Purpose / Agenda Review

DR. SUSSMAN: So on the agenda, we have at this point, we'll have the first of three subcommittee reports. We've allocated 45 minutes to each of those three subcommittee reports.

What I've said to the chairs, Jim Vondale, Peter Sweatman and Ann Flemer, is that we would imagine that you'd speak on the order of 20 minutes, and leave in the order of half the time for debate and discussion on the particular issues that you've raised, and in particular the recommendations, to get some sense of what people think, if these are on point.

We're going to have, when we finish, at about a quarter past eleven, we have a break in between the second and third, the subcommittees will meet in breakout. I don't know whether we were successful in finding different rooms that people can go to. If not, this room is pretty big, and

we can spread to the four corners.

The subcommittees will then have an opportunity, in their executive session, to talk about what they've heard and how that might in some sense change any of their findings one way or the other. I'm sure it will give the subcommittees a chance to meet face to face discussing these issues as well, because much of this work, if not all of this work, was done via telephone and email or what have you.

During lunch, we'll have some informal reports, as the agenda indicates. Then there will be a second round of subcommittee discussions reflecting, we hope, the breakouts that were held in the late morning.

Then finally from 3:00 to 4:00, we hope to just pull this together, with Bob Denaro and I trying to understand what needs to be done, to make this an advisory memo that will reflect the views of all of us, or at least as many of us as we possibly can, without making it so plain vanilla that it's not of particular help to JPO.

I'm sure we can do a plain vanilla consensus advisory document, but I'm not sure it would have the bite that we need. So we need to have some substance, push the envelope a bit, but at the same time try to keep us on board

as best we can.

So we're actually amazingly right on schedule. I was told we ran out of coffee somewhere. So it's now in its urn. Okay. After all these kudos to your staff, I was going to be a little upset if we ran out of coffee.

MS. ROW: Coffee's the hardest thing that we do. It's very difficult.

Global Harmonization of Standards Subcommittee Report

DR. SUSSMAN: So with no further ado, unless there are any questions or comments, I will turn it over to Jim Vondale, who is the subcommittee chair of Standards and Harmonization. Jim, the floor is yours. Thank you.

MR. VONDALE: Thank you, and I want to start by first acknowledging that it is our objective to offer as much time for discussion as possible here. You've all received a copy of our draft memo, presumably had a chance to read it. We'll try and highlight some of the key elements, maybe update you.

But I think the important part is to give as much of the 45 minutes back to the group to discuss. I don't have a presentation as such, and I'm going to invite Scott and Adam to participate as much as possible.

I want to start by thanking the committee members, Scott and Adam. We had a very fruitful and lively discussion throughout, in preparation for the memo. We also had some help from some outside folks. We expanded our committee. Scott brought in Dick Schnake and Tom Kern, and I also brought in some additional Ford people, Bern Konsalik, Mike Shulman and Mary Wroten, for some technical assistance.

So we were successful, in some respects, in expanding the organization a bit. I thought when I -- we haven't really talked about how we're going to present this, but I thought what I would do is break this into several parts.

First, and consistent with what the memo is, let's talk a little bit about the background, which I think includes a couple of points. Why is this important and why is this so challenging, and then maybe we can stop after we get done with that and have some discussion there, and then the recommendations to how to address this.

I want to say up front, you know, these are recommendations to the DOT JPO. I think from my perspective, it's important to keep in mind that they have an important role to play, and they can be very helpful in moving towards

standards harmonization. They already have been very active and very helpful.

But they are just, and I'll explain this, they're just one player, and they can wave a magic wand. They can do all they want, and there are some, as I'll get into, some very challenging other players here that they can't control. So we need to keep that in mind, in terms of our recommendations, and I think they're somewhat reflected in the recommendations. So we need to be realistic.

Starting out with why is this important? I always start out talking about the E-ZPass, I-Pass example here in the U.S., and I understand in Europe, it's even more complicated, that if someone is moving in transit, moving goods, they're going to have to have maybe five or six different boxes to get through.

So it doesn't make sense to me, and I don't think it should make sense to any of us that we would have to have different systems when we go from Michigan to Indiana, or the United States to Europe or to Japan and so on. We should have a connected vehicle system that works and is integrated, no matter where you go.

Now we have to be realistic. We can't harmonize

everything, and it's not essential that we harmonize everything. So it is important to clearly define what it is that needs to be harmonized, and that work is still underway.

So from an important standpoint, it really is -- it's a cost issue, it's a resource issue. If we have to build -- just from a selfish standpoint, at Ford Motor Company, if we have to build different vehicles for different regions for different markets, that adds cost, and it's going to delay and complicate the introduction.

I think we're all about advocating a quicker introduction. As you'll see, that quick introduction is also a challenge too. In terms of why is this challenging, I've been in the harmonization business for a lot of years. I've worked on standards harmonization for safety regulations, and we've had some success.

But I can tell you that that is also a very challenging undertaking, and it's actually less complicated than what we're dealing with. Maybe there's a difference, because we have more -- we're more forward-looking, and that's an opportunity. It's always difficult to harmonize once you've put standards in place and you've put -- so looking forward, we have more opportunities.

But as you saw from the memo, timing is critical here because things are moving so quickly. So we really, in this instance, we have more players, in my view, than we have in the safety standards organization, and we don't have a natural forum, I would say, for harmonization.

In the safety standards area, we have what's known as Working Party 29 in Geneva. So there is a natural forum, where everybody goes and the governments in particular work. In that case, there are a lot of different players. But the governments are largely in control of whether there's standards harmonization or not.

But clearly, whether industry is able to support that in a consistent and coordinated way is important as well. Here, you know, are some of major players. Clearly, we have governments, regional governments, Europe, U.S. and Japan, and the Asia Pacific region.

We have industry, business, a wide range of telecommunications industries and so on, and then we have standards organizations also involved very actively in this. Each entity within, for example, in the business community and even within the auto industry, there are differences of opinion about how we need to go and so on.

So that's part of the challenge is the number of players here. So when I said that DOT RITA has a very important role to play here, they are just one player that has influence, but not control.

Let's see. There are -- one of the other key challenges that I think you should have picked up from the memos, that there are differences in the regions, in terms of what the emphasis or purpose going forward.

I think we know here in the U.S., our effort is there's a significant focus on safety. We also are working on mobility and the environment. I view those as sort of the three elements of what we're after. But in Europe, for example, the major focus is on mobility. There's a safety element to it, and in Japan and the Asia Pacific area, I think it's also more of an emphasis on mobility.

In one sense, I view that as a strength, because I think it's great that we're working more focused on safety, they're more focused on mobility, because what they learn and what they do there can be applied here. What we learn and do here, we can apply there.

The important thing is that we all end up at the same place. So that if they're working on mobility and

design a system that is incompatible with our system, I think we're going to have some real problems at the end. So the important thing here to, you know, to recognize is that these differences create challenges, but they also can be a strength, in terms of how we're proceeding.

It's really kind of up to all of us, as to whether they remain a challenge, or whether they end up to be a strength and actually help propel us in a better situation.

Let's see. Then finally, I guess I'd just mention the standards organizations. There are a number of standards organizations that are working in this arena. I'm not going to profess that I'm an expert on the various standards organizations, but what I have learned so far is that that is a very challenging situation because of the fact that different standards organizations, like vehicle manufacturers, compete.

When you're competing, sometimes being first to the finish line is viewed as a strength. So when we're looking at this, we really have to try to, you know, put aside some of these natural competing differences that drive us generally, and see. Whether it's the U.S. and U.S. businesses, or the U.S., the vehicle manufacturers from other

regions, each of us has to try to work together.

I have to say, in terms of, you know, there are tremendous challenges ahead. I'm just continuing to hear that I think we've done a pretty good job of raising the issue. I think that's always the starting point. People are starting to really get the message that this is important, and if we can, you know, keep the pressure on, keep the volume up, I think that is -- that's going to be really helpful.

That's part of what our recommendations are all about. Clearly, DOT and JPO have been very involved in this, and we all, not just the governments, but we all need to try to continue to turn up the volume and start moving in the same direction.

So I guess I'll stop there and maybe ask Adam and Scott if they want to add anything, and then maybe we can have kind of a quick discussion on what I just said.

DR. SUSSMAN: Scott?

DR. DROBOT: So let me do two things. You know, the first one is, I think, to echo what you have said already. It's a global market, and typically if you have any electronic components in that market, there is something

called an electronics learning curve.

Usually, it's expressed as, you know, some coefficient up front, 100 divided by the number of items you're going to manufacture, with an exponent. That exponent is usually around .8, .7, something like that. That's the learning curve. That ends up being the eventual cost of goods, you know, to the folks that are going to buy that item or are going to participate in that.

It's a tremendous difference in today's world whether you have 100 million people or a billion people that end up buying something. You know, the penalty with that exponent, if you fracture the market, is actually incredible, okay. That's why at the end, this whole issue of harmonization is so important, okay.

So I would say that's one item, because I think you can actually reduce this to an economic statement. I think it would take a little bit more homework than was done, but I think there is a statement like that that can be made, okay.

The second thing that Jim alluded to is it's a very, very complex standards environment. Everything from regions vying for supremacy as being manufacturers of certain

items, of being first to deploy are very fractious, and the thing I would say is it takes a lot of resources to really play in that bath, okay.

I would say, you know, from my point of view, if I look at what the U.S. is doing at this stage, between the participation of the auto manufacturers, the equipment manufacturers and the government entities, okay, I think we're sort of turning into a minority voice in the game, and that concerns me, okay.

So you know, to me what it turns into is sort of plea to take a real, hard look at it, and make sure that the issue is elevated, understood at the highest levels, and that the right resources are really thrown at it. That's what I would say.

MR. BELCHER: You know, Adam's made an important point, because it is -- it's not just areas of focus or industries that are competing here, but it's actually governments. It's parts of the world that are competing for supremacy. When you talk about investing resources, it's not only the companies that do the technical work, but it's also the governments that are investing resources to do that, and I think that's an important distinction.

DR. DROBOT: Yes.

MR. BELCHER: I'd just make three quick points. First of all, when Jim went through the list of people who participated, we forgot Steve Sill. We recruited Steve to participate, and Steve is the primary staff person in this space for DOT, and is the tone really on the front line.

So he participated with us and did give us some really good advice and good input and a reality check occasionally, which I thought was really helpful. I have to admit, I think he was happy because somebody was listening, you know, and that's always a good thing.

The second thing I think that's important to realize about this is that the standards harmonization issue is a very broad one. It's not only -- we focused around connected vehicles, and that's largely driven by RITA's focus on connected vehicles.

But this issue is going on in the transit area, it's going on in the telematics area, it's going on in the commercial vehicle space, it's going on. I mean and it's going on in the infrastructure space. It's going on as the same issues and the same battles are going on.

So it's important to realize these issues area

going on across the entire ITS spectrum. We focused on one place largely driven by the RITA focus. But I think it's important to realize, and it's been an ongoing discussion in this group. That is, should we focus on connected vehicles or should we focus on deployment and all the rest of the stuff that B- and so we made an intentional decision, but I don't want to lose the fact that these debates are very important in their going on. Again, I would -- the final thing I would echo is the final point that Jim raised, and this issue is being elevated, and the profile is being raised.

But it's fairly remarkable. I mean even in the few months that we've been at this. It's fairly remarkable how uninformed many of the key players are. So you know, for example, if you talk to my counterpart organization, or you talk to Shelley's counterpart organization, you know, global harmonization, everybody nods their head and says that's great.

But none of them have gone deep enough to understand the competition that's going on right now. I mean, you know, and just one example in the vehicle space is you've got a couple of automobile manufacturers that have

made strategic decisions to go a different way, from a business standpoint.

So trying to get them to move to a harmonized platform, where vehicles will all talk to each other, goes against their business investment and their business interests. So that's really, you know, where a lot the tension is, and so they can drive certain standards organizations.

But you know, a lot of the key decision-makers and a lot of the key partners haven't gotten to the level that they understand those issues. So again, efforts like this, and you know, continuing to elevate it at places like the World Congress, elevate it where we can get to people, will make a difference. So that would be my discussion.

DR. SUSSMAN: Thank you. So we've heard from all members of that subcommittee, and now the floor is open with questions, comments, suggestions, brickbats, roses, whatever you think is appropriate.

MR. KISSINGER: I may be getting ahead of myself, because I know we're going to move into recommendations. But given the importance that you seem to place on the lack of an equivalent body to Working Party 29, I'm just curious as to

whether your Recommendation 4 is sort of responsive to that, or should we be considering a recommendation to sort of push it, meaning more towards an equivalent of WP 29.

MR. VONDALE: I don't know that I have a good answer to the forum issue yet. Maybe someone else smarter than I has one. That is a challenge, and I think 4 does help address it. But I think at least for now, we're going to have to work it at various levels and at various -- in various activities.

Right now, I think we're sort of working it in the standards organizations, through the vehicle manufacturers. I've been talking to some of the vehicle manufacturers that, you know, there are meetings scheduled. I talked to Shelley.

There are key meetings scheduled here or with governments, governments talking, industries talking, standards organizations are talking. Maybe they need to talk more. So I don't have a good answer for that. Maybe Scott does.

MR. BELCHER: No, I mean --

MR. VONDALE: It's a good question.

MR. BELCHER: It's a great question. You know,

you do have kind of a logical, no you don't have a logical standard-setting. Part of the problem is that you've got a number of standard-setting verticals, and that typically work in a certain area.

And you know, so you've got the folks who work on vehicles and the folks who work on telematics, and they typically work like that. There isn't kind of a place where they go like that. It might be ISO, but it's not right now. That might -- but in that setting, you don't have what Jim had suggested and what Adam alluded to, which is a place where the governments actually have a much more substantive role.

All of these standard-setting verticals are supported by, at least in the United States, supported by the government, but really are driven by and the work is done primarily at the private sector level. So I think what you were talking about in the safety standards is a much more formalized place where all of the verticals come together, and the governments have a much more formal role. I don't think there is anything like that in this arena.

MS. CHASE: Scott, as I understand it, you're suggesting that the players, some of the players themselves

don't realize the cost of their going down separate and different paths? It appears when I look at Recommendation No. 3, it feels like you were suggesting that so that people will see that there's a cost.

So I'm just wondering, I'm thinking of U.S. DOT as a convener. I mean can we envision a conference or a meeting space where those parties all come together and realize I had no idea that this was a bigger issue?

MR. BELCHER: Yes, I mean I think so, but I would defer to DOT.

MS. CHASE: I actually think they understand this is a big issue. I think it was what Jim alluded to before. We have some standards organizations to whom this is a big money stream. So there is a competition that is set up.

I don't think any of us that are working in this area doubt or question the value of the work or misunderstand what it means to the industry.

But the competition between the streams is I was just reflecting on, that yes, they do see it and do they see it, and do they recognize it? I'm --

MR. VONDALE: It may be a short-term versus a long-term issue, because some companies, for example, are

deploying technology now, and they're saying -- the response I got, I had a discussion with a company two days ago, and they said well, we're in the process of deploying some technology, and we don't want to have to spend the money to change it.

I said yes, but we're constantly changing our systems. That's a part of doing business, and we don't have -- you know, my view is maybe you can deploy your technology now. Let's look at the longer term and say this is where we need to get to. This is not something that's going to happen, in terms of a solution, overnight, in the next two or three years.

Maybe that ultimate solution is something that's a little bit longer. You can still deploy, because one of the responses is well, you're going to slow me down. I want to get out there, and if I can't do this, I'm not going to learn and you're not going to learn.

So maybe we can talk about how we all get the benefits deployed quickly, but you're going to have to be flexible, to be able to work on standards that ultimately come together for the broader enterprise at some point, and then we all move to those designs later on.

So I understand. It's not that these companies or organizations -- I mean some of it, there are some financial benefits and so on. I can't say that that's not the case. But for other groups, they do want to move quickly. They don't want to spend the money to change, but I think there has to be some flexibility, not just in Europe but in the U.S. and other areas.

We can't be designing standards ourselves that aren't going to be contemplating what's going on around the globe too. So there's, it's, and that's what makes it so complex.

DR. SUSSMAN: Well, Robin talked about, if I understood you correctly, correct me if I misunderstood, that here in the United States, that presumably U.S. DOT being kind of a super-convener of this entire debate. Does that --

MS. CHASE: I'm just wondering if that --

DR. SUSSMAN: Does that make sense?

MS. CHASE: So somehow position that you're not the expert at all, that you're just offering up the space. Yes. So I would be, even though we're the super-convener, it suddenly makes other people seem less good? But so I have no idea. It seems like a really complicated problem.

The other piece, as I hear you, is there a method, on a smaller scale, to be thinking to the U.S. bodies over which you might have more influence over people who are doing it, is to think about this issue of flexibility, and just to keep beating on the flexibility piece. Deploy whatever you need, but make sure that you're deploying in such a fashion that it's easier to change out, you know, just to build more flexibility.

MR. VONDALE: And that's a good point, because one of the things -- I use the term flexible stability when we're talking about the technology for deploying for this. It has to be flexible, but it also has to be stable in how you balance that is tough.

MR. DENARO: The one theme I'm hearing in here is that maybe we haven't defined yet, of this very complex system, what needs a standard and what doesn't. It sounds to me like as a convener or whatever, that would be a place to start.

Nothing is going to work well if certain things aren't standardized. On the other hand, you want to foster innovation and so forth. So there are certain things you want to have open. Where you draw that line sounds to me

like a very important decision.

MR. BELCHER: Well, actually there's been a lot of work done towards that. I mean that has been kind of -- I think lots of people have figured that we've got to kind of figure out the priorities and do that, and that work's ongoing and pretty close.

Actually, I think the standard-setting bodies have done some of that work, as has the automobile manufacturers, and we'll be kind of trying to come to some consensus over the next couple of months on that.

MR. VONDALE: Yes. There's kind of a summit in July between the vehicle manufacturers. Steve Sill will be there. So we're trying to -- we'll know more in mid-July whether we're on the same page.

DR. DROBOT: Let me add one which is, you know, sort of not coming from the industry itself, but having one other view. You know, if you look at much of what is common in ITS, I'm giving a very concrete example. Let's say the position of the vehicle, and how you report it to another vehicle essentially, okay.

So there's a way that that may be done in automotive. There are other verticals that will be

addressing exactly the same issue. If I look at public safety, and I look at, you know, location on a mobile device, there's a standard for that, okay. To end up with a worldwide standard for something of that sort really takes somebody who can look across a number of vehicles, a number of verticals, and really work the problem very systematically understanding what the impact is on more than just automotive essentially, okay.

My feeling is that, you know, sort of reaching out and making sure that in commerce, in state, that's elevated, and there is a forum, okay, where in the least there is a U.S. position on this, I think, does make a tremendous difference.

MS. CHASE: I'm with that.

DR. DROBOT: Okay.

MS. CHASE: Value seems to be a really critical piece, and that's what I'm constantly worried in the Transportation sector, is that --

DR. DROBOT: Yes. You can't block off the technology curve that goes behind these devices essentially.

MS. CHASE: Yes, exactly.

DR. SUSSMAN: So I have a couple of comments.

I'm sorry.

(Simultaneous speaking.)

DR. GUILIANO: Actually, some of the points have already been made. My first reaction to this is, oh my God, you know. There are so many moving parts here. What do you do with it?

So my questions were mostly about, you know, can we sort of figure out what might be the most important to pursue? Should we figure out what exactly the U.S. government could or could not do, and so on. You know, I'm sort of struck by, you know, the challenge of global harmonization, when, as you brought up, you know, there's EZ Pass and there's XYZ Pass in the United States right now.

So I guess one question is what can we do kind of domestically? I mean never mind global. What can the United States at least do domestically to at least push harmonization in this country? So that's a question that I don't know the answer to.

The other thing is I was going to pick my cell phone, and does the history of what's going on with cell phones around the world help to inform? In other words, could you use that example as a way of, you know, as sort of

costs that were incurred because of incompatibilities or the lack of interoperability, and the way that industry has sort of going about dealing with it, and either hints there as to, you know, gee if we had done things differently ten years ago, what would have been the sort of cost savings, and how -- would be even more advanced in these guys than we are now, had we not had all these competing technologies around the world? I don't -- you guys, you're the experts.

DR. DROBOT: Well no. I mean I will tell you that if you look at Europe, they built out the GSM system, and it's universal in Europe. We ended up actually building out six different systems, and ended up with a very weak wireless infrastructure, that actually performs worse than does the European one at this point.

DR. GUILIANO: So is that something -- is that a story that we could use as to incentivize different actions in this case?

DR. DROBOT: Well certainly. I mean for example, for somebody who's an automotive producer, whether you put in a CDMA system or you put in a GSM system or interoperable one, it has a cost impact essentially. It locks you into a particular technology without much flexibility.

MR. TOTH: I wonder if I could jump in. Perhaps my weakness in this area, which is I don't know much about ITS could be my strength. What I think has not been spoken about yet here, just like the drunken uncle at Thanksgiving that we all leave in the corner and don’t talk about, is this is similar to a discussion I saw the other night at NYU on climate change.

Folks came up and said that in order to really change the behavior of all the various players in the market, who are behaving in the way that fosters their individual interest, people have to come in and change the market itself.

I know that that's something that U.S. DOT, from my experience working in government with U.S. DOT for 38 years, has been very reluctant to do. Mostly it's passing out information and things like telling people the harm of harmonization and so on.

I know it's very difficult right now in this anti-government environment. But it does seem to me that a lot of this is not going to be solved, unless the U.S. government and some of the other governments intervene, and change the game, so that Ford Motor Company and other folks,

who are allowed, and you know, if I were a stockholder, would be disappointed if they didn't foster their own independent interests.

But to change the market, so that we can take all those millions of different players, and get them more aligned towards a common goal. I haven't seen any discussion of that, and I know it's like we don't want to talk about that uncle sitting in the corner, drinking all our cabernet. But I don't know. Am I wrong, for you guys that are --

MR. BELCHER: No. I think maybe a little bit, because I do think we -- I mean I think when we talk about elevating it within DOT, making sure that the appropriate people at the White House and other organizations are aware of it, maybe that's code for doing what you just said.

Because I do think -- I think the Committee at least really did feel that this is an issue that wasn't going to get resolved in the same way that we've been doing standards in the past, and it was only going to get resolved when Shelley has the help of the Secretary, the bully pulpit of the Secretary, of the White House, of State or Commerce, and can go to Europe and say to her European counterparts, that you can't continue to fund ETSI, if ETSI's going to go

counter to what you say you're trying to accomplish.

I mean that's a very concrete and specific example. We have one standard-setting body that said, you know, we're not really all that interested in all of this, because we're funded by certain members and they don't want to do this.

But they're also funded in large part by the European Union. So that's the kind of -- those are -- so you know, it's interesting that you observe that, because maybe one of the things we should be is more direct and more specific about that.

At least I think, you know, Adam and Jim, please correct me if I'm wrong, I think those were things we were thinking, and maybe we didn't say it as directly as we should.

MS. ROW: Joe?

DR. SUSSMAN: Yes.

MS. ROW: We had a very important meeting last week on this very subject, and at some point in the discussion, I think that you all should know what happens at these meetings, that bears directly. But your draft report influenced that meeting greatly. But you tell me when you

want --

DR. SUSSMAN: This is a perfectly good time for it.

MS. ROW: Okay, and it highlights some of the things in the report, too, that have not yet been talked about specifically. Just to lay the framework a little bit more, one of the things that Scott's alluding to is that about a year and a half ago, the European Union issued a mandate, M/453, and that mandate requires their standard-setting organization, specifically ETSI and CEN are the ones who are participating, to develop standards by a certain time date, in what they call a cooperative vehicle space.

So they have a mandate to develop these standards. So they are rushing like mad to meet that mandate. Now added to that is that there is some belief that being the first to market with a standard is a financial benefit to that standard-setting body, because they sell their standards, okay.

So you have these two standards organizations rushing to get these standards done. At the same time, we signed an agreement with the European Union, and one of the points in that agreement was to harmonize standards

internationally.

There has been some rumors, it's alluded to in this report, that when we go, we the U.S. and its industries go to those meetings, that we're told by those European organizations "So sorry, we'd love to harmonize, but we've got this mandate. We're on a time frame."

Okay. So we had a meeting last week, and you should know in the two months I've been back, this issue, among all others, has been the one that's risen to the surface from every part of the community. But your draft report was significant in these meetings, so you've already had an impact.

So we had a meeting last week in Lyon with me and my counterpart in Europe, and we laid these issues squarely on the table. I think they too have heard some of the things, but they have not heard them with as much rigor as we communicated them.

When we set up our agreement to work together, we set up working groups, and there is a Standards Working Group, of which Steve Sill is our government representative, and they have a government representative as well from the EU side.

That group, that working group, which many people -- big -- has been excessively ineffective. Stunningly ineffective. They put together a plan on how to have a plan to work together, and it's gone nowhere. So that's not acceptable. So what we agreed to last week is that they will reach agreement on the plan of how to harmonize, before a meeting in Vienna at the end of this month.

So there are two watershed meetings coming up, one in Vienna at the end of June, and another in Germany in the middle of July. So before we walk in the door in June, they're going to have agreement on that plan. In the meeting in June, they are going to agree on the short list of standards that need to be harmonized internationally for connected vehicles.

Then they're going to pick one to start work on, and that's the agreement that we left with. In addition, my European counterpart has agreed to write a letter to CEN and ETSI, stating their support for international harmonization, because to try to help mediate some of this directive problem.

Then, in the fall meeting in Germany, they will take the outcome of the standards discussion, because as many

of you know better than I know, you could identify a core set of standards, and Scott is right. The U.S. industry has already developed their draft list of core standards that they wanted harmonized.

We're going to take a look at that one more time, and then that's what we will take in, and there will be more than just Steve Sill there. We will have industry representatives for the automotive industry; Dick Schnake will be there in those meetings. But those standards are pretty broad. So it's like saying okay, we've got this that we want to harmonize, and there are actually pieces inside that that are really the crux of the issue. So when they go to the Germany meeting, they'll take this and then identify what are the specific pieces that have to be harmonized.

One of the goals that we hope to set is that we're going to agree to not only harmonize whatever that crux is, but also then to demonstrate it at the World Congress in Vienna in 2012. So set yet another goal that will help supersede the mandate goal that is specific to harmonization.

Now that's the plan. I have no idea if this plan is going to work. However, the other thing that we did,

again, with the support of what you already had done, is that we made sure that the European Union understands that this is very important to the U.S. DOT.

Not just me. My boss talks about Peter Appel. He talks about it in every single presentation he ever gives. I've never heard him not include this in his discussion. He doesn't yet know the difficulties that we're encountering. If it doesn't go well in Vienna, he will know the difficulties that we're encountering.

The boss of my counterpart knows the difficulties that we're encountering. We talked about in Lyon last week. His boss knows the difficulties that we're encountering, that there's likely to have to be a memo written from the European Union to their standards organizations. So it's been raised politically two levels up in the European side.

It is also one of two priorities that the Joint Program Office reports to the Secretary on. So it's one of the Secretary's top priority items, and we report every six weeks, every six months, something like that, John. I don't clearly -- I don't know what the cycle is, on how we're progressing on this.

So we have an avenue built in, that should the

time come to raise it to that level, we have a mechanism to do so. Please appreciate we will do that, but you don't get to do that every day. So we have to be very strategic in how we use that particular avenue. So if there's any way to work it out now, that's the better approach.

So we're intending to see how it goes in Vienna, see how it goes in Germany. We'll circle back with the two governmental bodies, and then determine if there needs to be more that has to be elevated at that point. So that's where we stand at this point on these particular issues.

MR. TOTH: I wonder if I can -- let me react to that as a layman. You have to operate in a very political world, but this Committee doesn't. And maybe we can be -- I think of the scene in Malcolm X, when he's in there negotiating with the people in the hospital, and all those angry people are outside. The person inside the hospital doing the negotiations has got to be calm and professional, but could be pointing to a committee that's getting increasingly angry.

As a layman, as I read those three reports, they were kind of muted. I didn't understand all the code. So you know, I'm reading it saying I think they might be saying

this, but they're not, you know. So the public is -- I may be more representative of the public, and it's like we need, this Committee needs to come clear out and say bang, bang, bang, and we could be, we don't have to be as political as those guys could, and just lay it right out.

So that's my observation about those three reports, and maybe what I learned from listening to you, too.

DR. DROBOT: So you know, Shelley, there is, and I'm not quite sure how to articulate it, but there is one more dimension to all of this, okay. I think what you just articulated is an approach for how does one get cooperation with the Europeans, okay. So I'd say that's one issue.

I'd say the second issue, which I find probably more alarming, okay, is actually the following. If you watch how standards bodies function and work, when they have a deadline, they really do rush to complete documents, not necessarily thorough content, and you don't end up with long-lived standards which are dependable, which are really the basis of how costs eventually work their way out, okay.

You also sort of don't end up with standards that have a good testing regime, certification regime, lots of other things that go along with this, okay. I'm sort of

wondering, you know, from an overall umbrella, let's say you do get European cooperation, how does DOT go about determining whether the standards are really the right standards, okay?

What are you doing in your research, what are you doing in your testing, what we would call plugfests, interoperability tests, okay, that say this is really satisfactory? Or, as the spokesman for the U.S., you can say hey, these standard bodies are really not turning out the quality of material that we need. Because I think that's a danger that we face.

MS. ROW: I think it's very real.

DR. SUSSMAN: That's an excellent point, and let me chime in, because I think it's right on that subject.

DR. GUILIANO: I have a question about --

DR. DROBOT: So I don't know, Jim, whether you agree with that or not.

(Simultaneous speaking.)

DR. GUILIANO: This is completely -- it's my lack of knowledge. You said that standards organizations make money off of this?

MS. ROW: Yes, they do.

DR. GUILIANO: Standards organizations are private?

DR. DROBOT: They're non-profit, but non-profits have ambitions, okay.

(Simultaneous speaking.)

DR. DROBOT: Well, it's -- let me --

DR. GUILIANO: Do we have a real market issue there?

MR. BELCHER: Yes, we do.

(Simultaneous speaking.)

DR. GUILIANO: And so do we have the same situation in the United States, with dueling standards organizations?

DR. DROBOT: Let me put it this way. So I sit on the IEEE boards for all kinds of stuff. IEEE, which is a 401(c)(3) all of that, makes a lot of money on standards.

DR. GUILIANO: Yes.

DR. DROBOT: It's a source of income.

MS. ROW: Even ITE makes money on standards. Not a lot of money, but they make money on standards as well.

DR. SUSSMAN: In Recommendation 1, Jim, the comment about four lines down, talking about a statement that

the DOT Secretary should be writing in. It says "The statement should also make clear that the quality of standards is going to be important."

So I guess I was groping for how one in fact measures the quality of the standard. Is there some normative model of what a good standard is or what a bad standard is? Could you look at a standard and say this is terrific or this is lousy?

DR. DROBOT: If you have to change it all the time, it's lousy. Long-lived interfaces are really what makes good standards.

(Simultaneous speaking.)

DR. SUSSMAN: But it's just something on a piece of paper. I mean I want to look at that piece of paper and say "this is a good standard."

DR. DROBOT: There is a way of analyzing it. It's testing, understanding completeness. But let me go to a form, because this is really again, you know, sort of a key issue. I don't see, you know, even a very knowledgeable body of people getting together, working on a standard, without somewhere in the back of their heads saying this particular issue actually requires experimentation, requires data to

come back, okay, before you really freeze everything out.

So usually there is at least a road map that you're going to do a version, another version, and another version somewhere down the stream. But somewhere you have to have that, you know, that gut feeling that the core, in the least, is going to survive all these versions.

Again, in this setting, yes, there are aspects of connected vehicle where I would say I feel comfortable. There are aspects where there isn't enough evidence, there isn't enough research, okay, there isn't enough meat on the bones at this point, okay.

In fact, you know, when I start looking at national programs, at what the JPO's doing, what the Seventh Framework was doing. This is the information that has to come back and sort of be iterative with where these standards are going.

MR. BELCHER: And do you think in the way -- I mean I think you're right. I agree with you. But I do think, at least what I'm hearing from the approach that Shelley laid out, kind of is going to do that. I mean I don't think they're going to take one of those ones where, I mean at least I hope not.

I mean if you're going to take the easiest one and start there, it's going to be one that's based on the research that's already been done, wouldn't you think?

DR. DROBOT: Well, let me do the following thing, and again, you know, somebody like Jim is probably in a much stronger position to say something on this. You know, when I look at let's say the progression of the two major things that were done in safety, seat belts and then air bags, okay, the first set of seat belts, when data came back from their usage, did require that, you know, you end up with, I think, a three point connection instead of something that just goes across your lap, okay. That was learned because there was real data coming back.

If I take a look at something like air bags, you know, you have propellant in there. The first propellant smelled like fire, which made people panic. That had to be modified, you know.

Things like this happen along the way, and the lesson learned is you really have to start thinking about what experimentation gets done, and ends up in programs as early as possible, so you end up with good standards essentially, okay.

You know, my worry is having the European mandate with the deadline, okay, forces you. It says let's forego all of this, and let's put in what I'm going to call little stubs in there. Okay, we will deal with this when it comes along. That doesn't produce good standards.

MR. BELCHER: I think we're all in agreement about that.

DR. DROBOT: Sorry to be so long-winded on it, but I mean that's --

(Simultaneous speaking.)

MR. BELCHER: You're totally right.

DR. SUSSMAN: Joe Calabrese's been trying to get my attention for about a half an hour.

MR. CALABRESE: Very simple. Now that Rob's here, I can say this and now have somebody support me with this. It's not always about automobiles; let's also look at public transit.

I was at the AFTAC Rail Conference last weekend, and at seven in the morning on Sunday, we have a group of people talking about standards and safety.

I mean there's a whole group focused on there, and you've got heavy DOT involvement, in terms of things like

positive train control. There's a mandate to develop the standard for safety, but there's no standard and there's no system. So let's be sure they're at the table on these discussions.

Dr. Bertini: And in fact, the NTSB chair wrote an op-ed, I think, in the Washington Post this morning, Deborah Hersman, about intercity buses needing forward collision warning and safety technology.

MS. ROW: I believe the standard is it doesn't matter what the vehicle type is, but it's the communication standard that we're talking about, so we communicate the same way.

MR. CALABRESE: Yes, but we need to be at the table.

MS. ROW: Yes, absolutely.

MR. KISSINGER: Joe, one of the things that -- I mean it seems to be a theme that's being discussed in the last half hour here, which I guess it was something that was behind my questions with Jim about the Working Party 29.

I mean I've been supportive of all these recommendations, but they all kind of leave me a little flat. I mean, you know, making statements, you know, trying to

provide emphasis, and it seems like it is -- and picking up on Gary's point, I mean given the unique nature of this advisory group, it seems like we have an opportunity to maybe be a little bolder than these recommendations are.

I'm not sure what that is. I mean I don't know if that's, you know, the U.S., at the highest level, convening a special meeting to really focus worldwide attention on this, or whether it's, picking up on Genevieve's comment, maybe it's just U.S.

In the U.S., if there's some special meeting that brings all of the parties together at least, to sort of do something different, I mean to kind of shake up the atmosphere here. Because otherwise, I feel we're all in agreement this is a terrible problem. We've got to, you know, we should have worked on it yesterday, you don't have the time.

I kind of read these recommendations as sort of same-old, same-old in some sense. I say that with all deference to the Committee, because I'm not an expert in this area. But I feel like if there is an opportunity for us to be a little bolder, I for one would be very supportive of it.

MR. DENARO: Well, our report, you know, really

essentially was economists. So Shelley mentioned that both the Administrator and the Secretary have this on their agenda at some point. I think this will help, the fact that we raised this issue at that level.

So however we articulate it, and I agree with what you're saying, Peter, we need to carefully consider, maybe in our breakout, how we want to maybe beef up what we chose to say. Let's make this an important issue, and I think this is exactly the venue that maybe we could have some influence, in helping the JPO get this elevated to become a bigger issue.

MR. KISSINGER: Yes. I think we even talked about maybe a separate letter to sort of make the point. This was a really high priority of the Advisory Committee.

(Simultaneous speaking.)

DR. SUSSMAN: Jim, we'll take your question and then we're going to try to wrap this up. We're a little bit over the time line for the subcommittee.

MR. VONDALE: Part of the issue, I think, for the committee too, and I have -- I mean, I take your comments very -- I think they're very appropriate, because I struggle with the strength and so on, because I want to make this a

positive comment.

Sometimes I worry if you get too strong, you get people digging in, and I don't want to do that. The other point I would make is this is such a dynamic situation. I mean, what Shelley just brought to the table is, to me, good news.

I might write the recommendations a little differently now than I would have three weeks ago. So my question, I guess, is what's our timing in terms of final recommendations? I don't want to wait too long, but there are some meetings in June and July. We can write them more generically, we can write them strongly.

I mean, I'm really looking for Committee advice on this, because I'm quite torn in terms of how strong we want to be. You know, the timing's important, because if I write them today, it may be different than what I write in a month, after these meetings take place.

So I guess if I had my choice, I would wait to finalize these until we've had these additional meetings, because Shelley's about to report either a success or no success or -- you know, and our recommendations may change, depending on how some of these meetings in June and July

occur.

So, to me, the optimal time to release this would be more in the August timeframe or late July. After we've had just a few more meetings, then we could be much crisper in our recommendations than we are today.

DR. SUSSMAN: One could -- well-stated. One could argue -- and certainly I'd be interested in Shelley's point of view. One could argue that having strong recommendations in hand before that June and July meeting would be a nice cudgel for her to walk into that debate.

MS. ROW: To be completely selfish, what you've already done got us into where we are right now. So if you could wait until after that June and July meeting, see how those go, and then we will know more, if we need more horsepower.

MR. VONDALE: Okay. I don't want to bludgeon people when these delicate discussions are going on. That's just my sense.

MS. ROW: Yes. But it could -- you could play a really major role, depending on the outcome of those meetings. Either we -- like you said, either we're successful and we need to go to the next level, and then I

think Adam's comment about testing and making sure that the quality is there is very relevant.

But if it doesn't go well, then you've really got to ramp it up, and this becomes the political way that we have, because it's like -- it's just like Gary said. The new guys become the chorus. We can say things that we aren't able to say.

I've already used you, by the way. So you've already been very successful already.

DR. SUSSMAN: I prefer "utilized."

MS. ROW: Utilized, utilized. I've already utilized. I understand that's not really a word.

DR. SUSSMAN: Yes, you're right.

MS. ROW: Yes, yes. So selfishly, I would wait until after the July meeting, take a read on what happened then, and then tweak what you say and beef up different sections, based on the outcome of those meetings.

DR. SUSSMAN: Are you participating personally in those June and July meetings?

MS. ROW: I am not, I am not.

DR. SUSSMAN: So who is representing --

MS. ROW: Steve Sill will be at both. Mike

Schagrin will be at the one in Germany, and then we have quite a strong NHTSA contingent at the meeting in Germany as well, because there's also -- there's a similar issue with the applications that are to be jointly developed.

It's not quite as critical as the standards situation. Yes, so no, all of those folks will be there. And quite frankly, other than bringing a title, I don't really have anything to offer in those meetings; those are technical meetings. So I'm not planning to attend.

Dr. Bertini: Shelley, did you mention while I stepped out, that OMB is going to be looking at this, the Secretary's strategic plan?

MS. ROW: Oh, I did. I did, yes. That's another avenue that we will have, and I've already mentioned that to the EU folks, yes.

DR. SUSSMAN: If there are no burning comments, this has been very useful discussion. I learned a lot, and I think the Committee got a lot of reasonable input that they can think about. It is a dynamic, fast-moving system at this point, given the artificial deadlines that have been set.

So we need to think about exactly when we weigh in and what we weigh in about. Okay. So we've moved through

the first subcommittee -- the debate went on longer than we had planned, but only because we were being so fruitful.

Let's see how we move through now the second report, Subcommittee 1 on Technology Strategy, and Peter Sweatman will report. I'm guessing his committee members all have some stuff to say as well.

Technology Strategy Subcommittee Report

DR. SWEATMAN: Thank you, Joe. So back in January at TRB, I was approached at one of the receptions there, by both Joe and Bob, and they were both together, and they said, would I take on this role of chairing the subcommittee? And in the hubbub, I must have heard yes. So this is what I've been --

(Simultaneous speaking.)

DR. SWEATMAN Yes, probably.

MR. DENARO: It took about three glasses of Joe's wine to get that.

DR. SUSSMAN: We heard a distinct yes.

(Laughter.)

DR. SWEATMAN: So what you see before you is the result of what we've been able to pull together over the last few months. So I want to recognize, first of all, we had the

advantage that our vice chair here, co-chair. Bob Denaro was on the subcommittee, so that was great, Robin and Adam, and we also called on Scott Belcher as well.

So the first thing we did was to really broaden out the charge of the subcommittee. As originally expressed, it was very much about V2X X, very much about connected vehicles, cooperative systems, whatever we would like to call it.

And we were very, very conscious that in having a transportation-specific communication platform, we need to have a very active developer community, that's going to want to engage with this. You'll see quite a bit of mention, as we go through this, about the nature, particularly of DSRC, and the limitations of that, potentially as something that a very large developer community would want to develop around.

So we've broadened this out, and we talk in our charge there about delivering national benefits in safety, mobility, energy and the environment. I think probably the question of energy is an interesting one, in the context of the DOT.

But the more we think about it and the more we see alternative energy vehicles being deployed, I think we're

going to realize that connectivity is going to be very critical from the energy perspective as well.

So we've kind of got a two-speed charge that we developed there, one pretty broad and then we still retained our strong interest in V2V, V2I, and so on, with that very important aspect of having a very active developer community.

I guess there's been also kind of a two-speed discussion we've had. One has been about the issues taking ITS forward nationally, and delivering these national benefits, and particularly accelerating deployment, and the other one was the kind of intriguing opportunity that we think we have, to do a White House meeting with Aneesh Chopra.

So this Subcommittee has also been thinking about how that might be done, and the nature of that. I guess that's a somewhat different issue for this Advisory Committee, because I think in that case, we're very dependent on how the DOT actually wants to engage with the White House and so on, and existing channels and models that might already be in place. So we need to take that into account.

So in terms of our broad thinking about technology strategy for the national ITS Initiative, the

ability to engage the broad developer community is absolutely critical. Just the ability to have value-added services added on to the platform. So we've started, obviously, the very clear safety focus, and I think one of the reasons we are where we are today, with some very deep programs in V2V and V2I, is because we have focused clearly on safety, and I think that's been a very good thing.

But we need value-added services. We need also to take account of commercial transportation and the multimodal aspect is absolutely critical. So when we think back to the very beginnings of ITS, commercial vehicles were kind of the first cab off the rank, to use a mixed metaphor, back in those days, but the full potential hasn't really been realized there. So that's an area we absolutely need to include.

So we think that the engagement by the developer communities, the broader developer communities, is absolutely critical. Somehow, we need to have an architecture for this communication system, that's going to be robust over a long period, that we won't need to change all the time, and really will be agnostic when it comes to the actual technologies used for communication.

So we want to have -- and obviously standards are an important part of this, and we've just had a great discussion on that. But also a long-lived application program interface is APIs, that aren't going to create a hurdle for experimentation, because we see experimentation activity by the developer community and entrepreneurs as being absolutely critical.

So we have talked. Obviously, I already mentioned it and I think Bob mentioned it right at the start of the meeting, that we have DSRC and we have some very deep developments in that, and the current Safety Pilot is a great example of that, where a lot of deep development has gone into the point that we're at the moment, and we really want to take advantage of that and get the benefits.

But we also discussed the long-term evolution, the LTE architecture, and maybe that's got a potential for doing some of the hard safety applications as we go forward. We very much liked what we heard from Walt Fair in Ypsilanti, at the Ypsilanti meeting, where he really put forward the view that the government system needs to be agnostic with respect to the physical communications system. So that's a very important point.

So I guess another issue, kind of a broad issue that pops out of this discussion is: what is the appropriate and most effective role for the federal government in ITS? Certainly, when we talk about a transportation-specific communication platform, then security and authentication of the players in that system is a critical role for the government, as is the safety aspect of -- particularly related to driver distraction.

Really, these applications are going to have to be -- there's an overlay of safety considerations that needs to be added by the government. We're very keen that the systems that are deployed obviously cut across state boundaries, but also are equally useful in rural areas, as distinct from the more populated areas as well.

We've already, everyone seems to be pulling out their smartphones and saying this is very important. So the after-market devices are critical in this and how they're going to work into this. One of the very interesting aspects of this is the data that's being generated continuously, either through these vehicle-based systems or through personal devices.

At the end of the day, that data belongs to the

owners, and they should be in a position to make that data available, to create solutions that are really going to suit them and their driving habits.

So in this broad aspect of a broad developer community, we think it's very important that owners and participants, they may be drivers, they may be passengers, they're operating in a multimodal system, that they have ownership of their own data, and they're able to use that data to their benefit.

We also noted, I guess, the importance of the federal government's safety-oriented relationship with the auto industry, which is long, established over a long time, and the rush of technology that's involved in the automotive industry.

We're going to see more of that, particularly with electrified vehicles coming into the market, which are more likely to have advanced telematics, more complicated driver interfaces and so on, and potentially, we hear quite often, connections to the so-called Smart Grid, which is actually probably a better term. There's a modernizing national electricity grid, where there's going to be two-way communication there as well.

So obviously, the technological path that's being followed by automakers and their suppliers is an important influence, and also the behavior of automotive consumers as to what they want to see. This is kind of a very interesting time, I think, in terms of technology coming into vehicles, and the federal government role in ensuring that the cumulative effect of more technology, potentially more distraction and so on, and then ways of overcoming that, actually have a cumulative effect in reducing crashes and serious injuries.

We've talked about some gaps, some important gaps. One that we identify is between the federal DOT research role, basically a research role, whereas we're really also looking for state and local implementation and deployment, and how do we bridge the gap between those?

From the private sector point of view, we need to have a large, profitable and growing market. So that's important. So they were kind of the big issues, I guess, that we discussed, and we have drawn some -- we're getting to a point of having some recommendations based on some of those considerations.

But as you can see, they're pretty broad. I

might just pause and ask if the Subcommittee members would like to add anything to that before we change gears into the White House Summit.

MR. VONDALE: I just had one comment. On page two, near the bottom, "Any ITS solution must include a combination," and then at the very bottom, not in bold, it says "and driver distraction must be prevented for any in-vehicle solution."

My comment, and I could spend the rest of the day talking about driver distraction, because I've spent quite a bit of time on it, and it's a very important topic that we all need to be concerned about. But I just thought that that statement is, to me, given all the data and studies that have gone on, is a bit too strong.

Because to say that "and driver distraction must be prevented for any new vehicles," "prevented" is a very strong word, because there's no way to prevent driver distraction. I think the data shows that there is distraction. If you do that, then you're just going to have a steering wheel, an accelerator pedal and brakes, and even then, you're not going to prevent distraction, because people, you know, think. They do all sorts of things with

their brain.

I think there's general agreement on visual-manual. I think the debate is on cognitive distraction at this point. My suggestion is, what I thought it would be is maybe you'd say something like "and driver distraction must be an important consideration" or "must be addressed for any in-vehicle solution," as opposed to prevented. So I just think that's --

MS. CHASE: Well, when I look at that sentence, I think that that sentence doesn't even belong in that paragraph, because we address safety in a later paragraph. So I would even strike it.

DR. SUSSMAN: Any comments from Peter's Subcommittee members?

MR. DENARO: Well, I like Jim's comment about being considered. I think you're probably right, that "prevented" is a little strong. But we have this collision path between -- where it talks about it all the time, that bringing technology into the vehicle versus driver distractions. That's something we as an industry are familiar with.

MR. VONDALE: So it's an important topic. I'm

not trying to downplay it. I mean, I just think "prevented" is unrealistic. "Must be addressed" or something like that --

MR. DENARO: No, I agree.

MR. VONDALE: -- is probably more realistic, in what's actually going on.

MR. DENARO: And you're exactly right. I mean, I agree with what you said about it. It's really the cognitive issue.

DR. SUSSMAN: Do I understand that when you finish this, you're going to continue with the recommendations?

MR. DENARO: Yes.

DR. SUSSMAN: Okay. Got it. Scott.

MR. BELCHER: My question actually for the Committee is, so this is the logical place where we address -- where we should be addressing non-vehicle-related technology. So this is the place where we should be talking about commercial vehicles and transit, and smart cars and cell phone applications. It's the place where we should be talking about that interface between research and deployment.

I just want to make sure that the Committee feels

that these issues are elevated enough, because it really is -- it's the logical report for that to occur.

MR. VARAIYA: Can I add to this comment? I think non-vehicle -- I'm concerned about pedestrians, who are not vehicles?

MR. BELCHER: Yes, yes.

MR. VARAIYA: Who are engaged in safety actions, bicyclists, parked vehicles. Generally, the more infrastructure-related things, where the cars are getting smarter and the infrastructure is getting relatively more dumb over time. It's just not keeping up with it. So the emphasis totally on the vehicle and vehicle communications and V2X, really X is normally V, and it's not a pedestrian, it is not a bicyclist and it's not a parked vehicle. It's not an intersection.

I'm just concerned about that relative imbalance, and it seems to me if you read NHTSA reports on safety and so on, V2V is not the real issue, right, frequently. It's at the intersections, it's pedestrians, bicyclists, and those are not addressed in here.

DR. SUSSMAN: Yes, Steve.

MR. ALBERT: Peter, I don't know if it belongs in

here or in other sections, but it was previously brought up, the idea of trying to have a bigger punch. It seems to me the idea that if you can put wording in here that kind of elicits the idea of national pride, of making America this great place that it once was, with smarter grids and the next generation of infrastructure, that might be a good kind of hook that might grab some attention.

DR. SWEATMAN: Yes.

MR. ALBERT: It seems like this part of the recommendations should be where to do it.

DR. SUSSMAN: Peter, why don't you move things in the recommendations? This would be good. Thank you, Steve.

DR. SWEATMAN: All right. So at this point, we've been pretty inclusive, and you know, I take, I think the comments earlier about being stronger and picking our targets a little more will probably apply here as well.

But we've kind of split up our recommendations a little bit. Firstly, we're trying to speed the engagement of the private sector and innovators. So that was our first piece that we looked at, and clearly, the need for open systems. A transportation-specific communication system is going to have to have security, authentication and APR

standards, which is very critical

Overall, a communications architecture that can be used across all sectors, and it comes back to, I think, some comments Adam made earlier, that may not just be used within the transportation sector. So the broader this can be, the bigger the developer community, the lower the costs and so on, and the more technology we can actually deploy.

A second group there really refers to adoption by states, by state and local jurisdictions, of technologies that meet safety goals. What can the federal government actually do about that? Certainly, leverage and incentives over an extended period of years and, you know, coming back to the auto industry, we have a long history of regulation of the automotive industry for safety, fuel efficiency, emissions and so on.

We haven't taken actions in other sectors, in other industries, you know. We think about the decision that's going to be made in 2013 about requiring a V2V capability in vehicles and certain applications. But what about other sectors, in terms of actually incentivizing and encouraging and even requiring some deployment?

So also accelerating deployment by state and

local jurisdictions, particularly related to the commercial freight sector, transit, public transportation. I think we've already had some comments on that. And then also the importance of -- in order to support a multi-year long-term deployment, having sufficient data being collected to show the benefits along the way, and to keep the pressure on, to keep working on this. So that also is an important aspect.

And now I guess coming back to some of the gaps that we talked about, in our discussions we thought there was quite a gap between the federal government and the private sector, in terms of if we build it, will they come? So how could we close that gap, and that was certainly something that we felt ought to be focused on at the White House Summit.

So how are we going to deliver these solutions to state and local governments, in a way that's going to reduce the investment that they need to put into this. So that, a very broad communications platform is going to be important for that. The potential for model deployments, that are going to help encourage local governments to deploy ITS, we haven't looked at that enough.

I think we've already had a great discussion on

standards, and I think that came out clearly, that we need to prioritize where those standards are required. But clearly, that's going to be an important part of bridging this gap between federal research and state and local deployments.

Finally, we mentioned the unique needs of the electric and hybrid vehicles, and I think we're going to see, as we deploy alternative energy, particularly electric vehicles and fuel cell vehicles, that connectivity is going to be a critical element in the success of those vehicles as a mainstream market.

So just to summarize at the end there, we've really broadened this to include energy considerations being -- along with safety mobility and emissions, and also the important contributions that this communications platform, this very broad communications platform, can bring to U.S. DOT's broad objectives in livability and improving urban form and so on, and of course, local economic development.

So they were a little bit off the technological path that we mainly concentrated on, but we were very aware of that. So Joe, I think our intention was that we would want to distill these recommendations down a lot more before we present them, and we, I guess deliberately, are being

pretty inclusive in the way we put this forward.

DR. SUSSMAN: So a recurring theme that was put out three or four times by various members and chairs, that sharpening these up, making them somewhat less bland, more actionable is probably what we're all aiming toward.

DR. SWEATMAN: Yes.

DR. SUSSMAN: What struck me, if I might start, sorry, what struck me about the recommendations, as I read them, that the letters JPO appear nowhere in them. Well, I shouldn't quite say that. There's probably a J, a P and an O in there. But they're not contiguous, and rather you use the term "the federal government," once you use the term "RITA."

It raises the question about whether this Committee really sees -- in fact, your subcommittee, the whole Committee, sees it advising really on the federal ITS program, rather than simply JPO as one of the players in the federal ITS program. So what was your sense, as you wrote those words?

DR. SWEATMAN: Yes, I think that is a very good question. I don't think we -- we didn't try to limit our considerations to specifically just to what JPO's looking for. So I guess we couched this pretty broadly in terms of

all of the ITS activities by the U.S. DOT.

I guess, including energy in this, then of course we're kind of going beyond U.S. DOT. So yes.

DR. SWEATMAN: Yes.

DR. SUSSMAN: So that's explicit, and I think that's an important point at some stage, for us to have to make in the advisory report, that we've really gone beyond simply considering the 18 or 20 people in JPO, which bounds how much work they can possibly get done. I'm now thinking more broadly about the ITS program in DOT, or maybe even the federal government.

MR. ALBERT: If what we're recognizing, you know, is that the group is really looking at what needs to be done with ITS, not necessarily who's going to carry it out. Does that mean that at some point, one of these groups should be addressing kind of the institutional side of things? How is all this going to take place, or who's going to take on the charge?

Because I think we're saying it's broader than JPO, but not necessarily identifying who else beyond JPO.

DR. SUSSMAN: We will have a report out next on program strategy and evaluation. I think there are at least

--

(Simultaneous speaking.)

MR. ALBERT: Maybe that's a good place for it.

DR. SUSSMAN: -- statements on that. But it's a very valid point.

MR. DENARO: I view how we got to where we are, in terms of being that broad, really goes back to something that I think Robin was saying earlier. When you look at communications in vehicles, and obviously that includes individuals, there's just a lot going on in many more industries. I mean, we're all talking about reforms and so forth. But I think our fear is that if we have too isolated an approach to just narrowly, vehicles talking to vehicles and that sort of thing, that there might be this other activity over here that's much more relevant and vibrant in gaining traction, and it makes, you know, what goes on between vehicles kind of like an irrelevant sideshow to some extent.

I mean, obviously if you're going to have a dedicated system for vehicle safety, that's going to survive and that will be fine. But the point is how do you connect to these other things that are going on? I don't think we

understand the answer to that. But that's what we're trying to address in here. It's one way I look at it.

MS. CHASE: Exactly following on that point, and I think it's been great that actually this discussion is following the earlier discussion, because now I have a different kind of framing.

So we -- one of the points was, if we build it, will they come, and I think there's a little bit of hubris in that thought, and going to harmonization, I would say I'd like to see the, and I'm going to -- I'm now acting in a concessionary fashion, I'm taking safety off the table.

I think one of the primary goals of the ITS or the transportation should be to harmonize with other mobile devices. There's a lot more than nav in cars, that are more advanced in deployment and therefore volumes of devices.

So we should be harmonizing with them, rather than us thinking that they're going to harmonize us. In particular, as we've been talking about this, communications standards, architectures, geolocalization and API.

So if those things exist elsewhere, we should be harmonizing to them. They've got the volumes, they've got the deployment, and I think that is putting on its head the

approach that has been in the past, which is: we're transportation; we're doing our stuff our way.

I think if we do that, we manage to get at all this developer community, multimodal, V to nothing, humans, because now we've taken the locus away from the transportation part of saying it's gone way beyond us. Let's look to them, and see what we can bring.

DR. SUSSMAN: Ann, is that you?

MS. FLEMER: Yes, I'm on.

DR. SUSSMAN: Ann, good morning. How are you? Thank you for joining us. We're working right now on the second report-out, which is from Subcommittee 1. We'll keep moving through that, then we'll take a break. We're perhaps running a little bit behind, not substantially. So we're pleased to have you here with us.

MS. FLEMER: Well, thank you. Good to be here.

MR. BELCHER: Joe and Bob, just a clarifying question, based on Peter's response and Robin's comment. Are we in a position to give an advice memo to -- I mean, we're an advisory group to the ITS Joint Program Office. So is it appropriate for us to be giving advice that goes beyond the Joint Program Office?

And if we think the answer is yes, you know, I'm all for it, I mean, because again, you know, one of the challenges we always are playing with, and it's a very real challenge, is what's the role and scope and mission and limitations of what JPO can do, vis-a-vis what we, you know, what NHTSA can do, what Federal Highways can do, what Federal Transit can do, and what EPA and Energy and the like?

So I'm all for addressing these other important issues, because I am one of those people who believe firmly that it's not just about the vehicles, but it's more about getting safety out there, getting the stuff deployed in a very real way.

That's not going to happen at the JPO. That's going to happen in these other modes and in these other places. So I just want to make sure that, as we think about this, are we going down the right path?

Or are we going -- not the right path. Are we going down an acceptable path that's within our mandate?

DR. SUSSMAN: Well, it would seem to me we've already walked a considerable distance down that pathway, not only in this meeting but in earlier meetings as well. I'm not sure what the legality of it all is, but I would hope

that the advice can be more broadly cast on that. No one is going to put us in jail or anything like that.

MS. ROW: We won't fire you.

(Laughter.)

MR. DENARO: Well, let me make one comment. First of all, we are -- we're not Advisory Committee to the JPO. We're Advisory Committee to the Secretary of Transportation, just reading from the charge. Through the JPO, we make recommendations to the Secretary.

Now we haven't seen the Secretary lately, but, you know, so clearly we're doing a lot of work with the JPO. So I think our consideration is broader, but I think Robin's point is right on. I mean, if you're going to talk about the safety mission, okay, there are certain things that are happening. JPO's really focused on that, for a lot of good reasons and so forth, you know.

Peter Appel says, you know, "Read my lips, safety is it. It's number one." He said that in the Aneesh Chopra meeting, very, very clearly. That's fine. But when we start -- the JPO themselves have said the design of the system is going to be open. We're going to include other kinds of communications, other kinds of devices and so forth.

Once you step over that line, in my opinion, you have now stepped into these other realms that very easily go beyond certainly the JPO and maybe even the Department. Is the JPO going to put energy into solving problems in consumer devices? Probably not.

But the point that I think we're saying is, if you're going to design the system whose primary function is safety, but it is open to these other things, okay, that's fine. But then in order to be open to the other things, we're making statements about those other industries, and you know, Robin's point, I think, is right on.

You're not going to dictate standards on the cellular communication industry. You're going to do quite the opposite, when it comes to other kinds of information that travelers and people will use. So that's my opinion.

MS. CHASE: So if I -- and I'm wanting Shelley to say yes or no -- Joint Program Office, theoretically, is all of the things, activities that are happening. I feel we have had this discussion a thousand times, but one would think that Joint Program Office means it's not just vehicle, car safety. It's all of the parts.

So I don't see, as I listen to the discussion, I

think safety's interesting, and that's one thing. Then there's the whole other parts. So JPO, in my erroneous view, because I'm sure I'm wrong, has had a history of saying, we're just doing this one piece. I think we've been spending the last few years, this last discussion saying whether or not that was the case, that was the perception, and we need to come back out.

So I'm sad to hear that Peter told Aneesh we're all safety, because I think --

DR. SWEATMAN: It's number one.

MR. DENARO: He just said it's number one.

MS. ROW: Do you want me to --

DR. SUSSMAN: Please.

MS. ROW: And I'd be happy to have other -- where to start? I think at the highest level of your conversation, we would welcome your input across the ITS program. It does, Bob is right, it comes through the JPO. But I think it is indicative of where ITS exists today.

Years ago, when the ITS program was begun, years ago, kind of everything that was going on came out of the Joint Program Office, because almost everything that was going on was early research.

We're not there anymore, and today ITS is in all the modes. NHTSA; Jeff Lindley just walked in from Federal Highway Administration. His office is very involved, particularly in the deployment end of ITS. Federal Transit, we've got real-time stuff on most of the transit properties now, so they're very engaged.

So I think for you all to speak only to the Joint Program Office does a disservice to what you have to say. So I think it's appropriate for you to speak through us, but to the broader pieces of it. And even to the point about energy, we've engaged a little bit with the Department of Energy, frankly not enough.

So you can speak to us about that as well, and that's just additional leverage to say let's go do more in that arena. Just to address a minute though, Robin, the point that you specifically made, even with the budget that we have, for which we are very grateful, you can spend $100 million quite quickly. So years ago, when the Joint Program Office first started, we did a little bit of a whole lot of things, and it was a little bit of money across a lot of things.

In more recent years, we have chosen the path of

focusing the majority of our effort and money in a particular area, and that has been connected vehicles in safety, but also connected vehicles in mobility and environment.

But even in that, there are other activities and other programs in the office, professional capacity-building, all those other things, that go beyond even that piece of it. So we have consciously chosen a focus, but the focus is still pretty broad.

Dr. Bertini: I think, you know, we've talked many, many times with this group about the role that JPO played within the larger, let's call it ITS effort within the U.S. DOT, but within the larger, even larger effort, if you consider the public or private activities, and academic activities just in the U.S., and then you go beyond in the global entity where you are a small piece.

But what we've been trying to do with our strategic plan that we're very clear in public about needs to be a catalyst, and not -- so yes, safety is the Secretary's number one priority.

I mean it is the driver of some of what we're doing because, you know, this agency is made up of some regulatory functions, including NHTSA, who is looking very

significantly at the 2013 and 2014 decision points.

But there are many, many other things that flow from the research, and that we've talked about, that include mobility and sustainability. So you know, that's sort of a repeat of stuff that we've gone over before. But the idea is to look at what the role the federal government is, and not try to do stuff that we're not good at, but to try to catalyze, through things that we do have the authority to do, and you know, the safety track has advantages for us, because it's a fit with the federal role, and it's a fit with the regulatory authorities that exist within this agency.

But we've been, I think, very clear in talking with our stakeholders and also among ourselves, that there's a lot that's going to, that is and will flow from, for example, the Safety Pilot. But there's a lot of other data that will flow from that, that will inform all the other things that are enabled through greater connectivity.

So we know that by providing a framework and a forum for others to get access to this data generated with that pilot, there will be other non-safety things, if you will, that will result.

DR. GULIANO: Joe?

DR. SUSSMAN: Yes, Gen.

DR. GULIANO: I would like to change the subject a little bit. Just in reading this, I wasn't -- it would help me to more of what is the problem. I really enjoyed Jim's presentation, because it started out with what is it and why is it important.

I'm not clear exactly here on what's the problem. Is it getting V2X out there faster? Is it not hampering what is happening outside of government? Is it -- so I'm just not real clear. It would help me if I knew more about what problem we were trying to solve here.

DR. SWEATMAN: I guess the way I would characterize it, Gen, would be to say a lot of us talked about two big gaps. One big gap is between what the federal government role and what industry and the developer community might want to do in this space.

The other gap is between the federal research role and the state and local deployment role. So I think a lot of our -- the way we think about the technology going forward is how do we bridge those two gaps. So I guess that's the closest I could come to expressing it, as what is the problem.

DR. SUSSMAN: I might just insert another point and would be interested to see how the Committee reacts. It seems to me that we've spent a fair amount of time in earlier meetings on technology strategy from the perspective of open platforms, of the relative role of DSRC and other technologies.

Could we in fact effectively engage this developer community, that I know, in talking about technology, that I think dominated everything that we're talking about. So are we have closure now within the, at least the Subcommittee on that topic? Do people feel comfortable? I look meaningfully at Robin, with what we've said so far on this?

MS. CHASE: I like Gen's question, and I also like this idea that we have to be more overt about what happens in these recommendations. I feel like what we've written is politically careful to avoid that question.

I would say what is the problem, and when Peter says the gap between the federal government and the private sector, I think the problem is a fundamental problem that, and I want Adam and others to weigh in here.

It feels to me that the problem is that the

expressed, the approach to safety, which is a federal -- which is a federal thing that they should be doing, that the current approach to safety is choosing a path that no one wants to adopt.

So the question is how do we -- so there are two questions. One is that the right path, or if that's the right path, how do we get people to adopt it? I think for me, that's a fundamental question.

DR. GULIANO: What evidence do we have that people don't want to adopt it?

DR. DROBOT: Well, let me --

DR. GULIANO: I mean because if we're going to make the case, when we should show --

DR. DROBOT: Let me view it in a little different way, okay, and that is the following. You know, if I look at, let's say, an issue like safety, it can consist of everything from having active devices that actually intervene with the way you drive your car, to things that are purely informational, that tell you that there's a hazardous condition in a given area.

So when I take a look at, you know, common devices that are all over the place, and I take an Android,

an iPhone, a BlackBerry today, each of them will show me a weather map. Each of them will show me traffic patterns, actually information. Didn't come out of the transportation industry, this spontaneously got created somewhere else.

The first thing I'll submit is those devices are in the hands of a lot more people than devices installed in cars today. So that's number one.

Number two, when you take a look at an issue like safety, and you look at something where communications is an underlying basis, you know, the first thing that comes to mind is sort of a scalability issue, okay, and V2V says, you know, this goes very slowly because every, you know, I could only interact with a car that has a device goes by the scale of stuff.

An informational device that's brought in on the other hand scales linearly with a number of devices. The job then goes a lot faster --

DR. GULIANO: Say that again?

MS. ROW: The fleet takes a lot longer to turn over than mobile devices.

DR. GULIANO: Thank you.

DR. DROBOT: Okay. Sorry about that. I thought

I was obscure. So when you look at it, you know, you can say okay, how do I affect the largest number of vehicles, and the first line is hey, those are legacy vehicles.

It's very expensive to go and touch one and install something in it. It's likely to be brought in devices. They come from a different industry's action, okay.

DR. GULIANO: Yes.

DR. DROBOT: And I think that's what Robin was saying essentially. You have to -- and you're not going to tell that industry how it does things. You really have to adopt the path that they're on.

DR. DROBOT: I think the concern for me, then, would be from a safety point of view, how do I safely bring in those devices, so that they're not a distraction, they don't cause a problem? How do I do the research that backs that up, okay, and you know, I think there's a whole trend of things to follow, okay.

So I think there's a way of presenting this in the positive, but it is adopting what's going on in the rest of the technological world.

DR. DENARO: Well, and I think what we're talking about is a matter of compatibility. I think, you know, it

may still -- my personal opinion is it is a good goal to move forward with vehicle-installed communication, vehicle to vehicle, mandated, if you will, standardized --

DR. DROBOT: All worthwhile doing.

DR. DENARO: But how do you, in compatible, how do you then be compatible also with what you're having in parallel, which is consumer devices that can do parts of that, not only in new vehicles, but also the installed base. So that in fact it's finding the compatibility between those two, so that the system that's implemented accommodates both.

DR. DROBOT: Well, no. But Bob, okay. So there are -- I want to branch it two ways, okay. What you find with the communications industry, the guys who build cell phones, things of that sort, is that that world is moving on six month centers.

DR. DENARO: Sure.

DR. DROBOT: Very, very rapidly, and it's got volume, and the costs are coming down incredibly, okay. If I were to take a look at a V2V solution today, it's on a much slower path. It doesn't have the volume. The initial costs are very high, okay, and it's got that, you know, sort of square law deployment curve, which is very shallow, okay.

You have to go down that path. But what it begs is how do you stay on the technology curve while you do that?

DR. DENARO: I agree with that.

DR. DROBOT: And that's the hard issue.

DR. DENARO: That's always been a challenge for the automotive industry, because well, once that equipment gets in the vehicle it may be --

DR. DROBOT: Yes, and you know --

(Simultaneous speaking.)

DR. DROBOT: Yes, look. When I look at the age of vehicles, that's increasing over time. They're better-built, they're sturdier, they survive longer, okay. The flip side is all their electronics is obsolete a lot faster, you know. I keep my cars. I still have tape drives in them that don't do me any good, okay.

DR. DENARO: You keep your cars a long time.

MR. VARAIYA: The linear versus square law, and the linear law, which about all the maps, that comes from infrastructure measurements. It doesn't come from either of these right? So I think in the safety arena as well, there may be a lot of linearity possible if you can get things like the infrastructure providing information to all vehicles,

instead of just one vehicle providing information to another equipped vehicle, because then you are stuck with this V square business, right?

But the red lights on the intersection affect all vehicles. That goes linearly with vehicles. So I think we should -- that whole idea has been sort of dropped in the focus on V2V, but the V2X, where the X could be --

DR. DROBOT: Yes, may be much faster.

MR. VARAIYA: --linear, could be much, much faster than the V2V.

DR. DROBOT: Absolutely. That's why maintenance -- they have to be compatible. We've got to find a way to --

MR. VARAIYA: Right, that's possible, and it may be applicable to vehicles that are not particularly equipped, you know, because you put a sign up on the side of the street.

DR. SUSSMAN: Gen, did you have a comment?

DR. GULIANO: Yes. I kind of want to push this a little further, and that is that I can imagine hand-held devices doing all kinds of things, right? But as I understand, you know, this sort of great ideal of the safety idea in V2I, I guess it is, or V2V, is that we're going to

keep people from crashing into each other.

That's kind of the -- that's where we really want to go. So do we see a world in which hand-held devices would allow us not to crash into each other? In other words, is there any reason, kind of looking out there, that vehicles have to be equipped?

DR. DROBOT: No. The answer is they do not.

Dr. Bertini: As far as our research is concerned, we are going to be examining that, as part of the Safety Pilot. So we can't stand up as a government agency and say no, but we have a research program that's going to be studying this definitively. So I mean --

DR. DROBOT: But I mean you can bring this down to a very concrete example, okay. Two people have cell phones, which is very likely, okay, and I have an infrastructure device that can talk to both those cell phones. It can just as easily pass a safety message. The only question is will the latency be, you know, be right for doing that.

MS. CHASE: It can pass a safety message, but it's not --

DR. DROBOT: And security and all those other

things.

(Simultaneous speaking.)

MS. CHASE: The piece that -- there is a distinction once drawn, and I grabbed onto it and I don't --

DR. DROBOT: I don't have control.

MS. CHASE: -- and it's soft safety versus hard safety. Soft safety is all these other things. It does appear that hard safety requires vehicles. So it's one of the things that when we talk about safety, that I keep harping back, that we can deliver a lot of safety without doing hard safety. I feel that there's also been a fixation on the hard safety, to the exemption and exclusion of soft safety. I think it's two different technology paths.

DR. GULIANO: So that to me would be helpful to bring out in this discussion, right, because it then implies different possible recommendations.

MS. CHASE: Yes.

MR. KISSINGER: Well, it also raises -- I mean to me, I'm not sure that the federal government has an adequate institution right now to regulate the safety of mobile devices, do we?

DR. DENARO: No, but that's why we're saying, the

soft safety versus hard safety. You need less regulation on the soft safety.

MR. KISSINGER: Well, the problem arguably, I mean assuming you're on the hard safety side you actually apply it. But I mean we don't have a mechanism like that, do we? All we can do is, you know, LaHood can jawbone the industry, trying to get them to change things, or we jawbone people to try and turn their cell phones off when they're in the car.

But I mean if we're really broadening, I mean shouldn't we be speaking to that then in this, in one of these subcommittees?

DR. DENARO: My opinion is, I'm sorry. I'm going to stick to my opinion. I think we need both. I think we need both. I think we need hard safety and soft safety.

MR. KISSINGER: Well, and even more so. If you need -- it's relevant. I mean I think, I feel like you'd better start talking about a mechanism to oversee and regulate it.

DR. DENARO: I mean I'd like to hear Jim's point of view, because --

(Laughter.)

DR. DENARO: But I don't think is going to let me put my cell phone in my car and have it put on the brakes.

MR. CALABRESE: Isn't there an app for that?

(Laughter.)

DR. DENARO: And but Jim and others like him are now, there are cars on the road right now that put on the brakes, and at the very least pump up the brakes before you have an accident, and studies show that reduces 30 percent of the impact --

MR. VARAIYA: But soft safety may not be that easy either. That's --

DR. DENARO: But the soft safety is fine.

MR. VARAIYA: If it does affect driver decisions, and there may be false alarms, you may give false information, and you may have poorer safety. So there isn't -- soft safety simply means that it's congestion going on here, fine. That's not --

DR. DENARO: A great example of the soft safety that I think we've all seen and realize that these huge accidents that you have in the foul-up in Pennsylvania or whatever, where 120 cars pile up. Certainly, you know, consumer devices could be a huge help for that, something

like that. So that's just one example.

MS. CHASE: Another example of soft safety is my favorite is getting people out of their car and into other modes, and so it's something we also, that keeps getting thrown off the table when we go to hard safety. Soft safety is to have them not go in car.

MR. KISSINGER: Well, I mean I think it's in this week's news there's a great story, and it basically draws the point between, you know, like an in-vehicle navigation app in a car probably costs $1,200, and you can buy them on the street in a mobile device for -- well, you guys almost give them away now, you know.

It discusses that trend. The market forces are such that, you know, the gizmo manufacturers are winning out; the car manufacturers are losing out. That's what I think you're talking about. I mean that's a trend which I think is going to continue unless somebody regulates it.

DR. SUSSMAN: Jim, you have your hand up.

MR. VONDALE: Yes. I guess I'll start by saying it really is too bad that we kind of missed an opportunity earlier, and I think weather played a role in that. This Committee's kind of operating in a position of not having

seen a lot of the technology.

We had the opportunity when we were in Detroit, and the weather didn't cooperate. Because I think it would be really helpful, not only to have a presentation on what the JPO program is delivering so far, as well as looking globally, because there is a lot going on globally.

As I mentioned, I really am excited about the fact that we're working -- we're focusing on safety here. We are broader than safety, but there's a focus on safety here, and there's mobility focus in other areas. I think ultimately, those can all come together.

I really view the JPO program as integrated and supplementary on a number of different levels. Globally, like I just said, because it is, in essence, in my view, integrated or should be, will be. That's what we're -- the harmonization's going to help that. That's what we need to do.

Then on the safety level, I think a lot of this is going to come naturally anyway, because when you look at, say, a vehicle manufacturer, there are many types of information that we're already delivering, and we're going to be wanting to deliver, and we need to make sure that all of

the safety, whether it's hard safety and or soft safety, is integrated and supplementary to all of the other information that's going on.

So I think there's going to be sort of a natural tendency, getting back -- as long as we harmonize and we get our standards right and so on, it all can be integrated. So I think that's really important. And just, you know, for example, it was mentioned there's a lot of safety technology going into vehicles right now, and we just were demonstrating a lot of it over at the ESV this week here in Maryland.

There are sensor-based systems that we're starting to become exposed to now, where you can get warnings and even some vehicles will actually intervene to some extent in the vehicle operation. But sensor-based systems have radar systems and so on, have limitations.

The nice thing about V2V and V2X is that that can then, I call it fusing the sensor-based systems with the wireless systems that we're all starting to work on here. Those will come together, and they offer even greater opportunities when you fuse those two systems together, and there are lots of --

So my view is the real challenge here is more

technical and policy things like harmonization and so on. There is going to be a tremendous -- if anything, I've actually told NHTSA they need to put their policeman hat on, because the stuff that's going on -- there is a competitive race to put all of this stuff into vehicles.

You know, the real challenge is going beyond vehicles and into other parts of the infrastructure. There is a clear want, need and research going on to expand beyond OEM introduction of these systems, into what we call me-too systems, so that others can put boxes after-market into their vehicles.

They won't have all the functionality, but they will have some of the functionality, and allow the opportunity to provide these safety benefits more broadly. Ultimately, I think many of us believe that the infrastructure element will have to come in.

It's a huge, you know, it's a big cost issue, but the security element of all of this, particularly if we go wireless in anyway, whether it's a DSRC-based system, which we all think at this point is going to have to be installed for the car safety part of this, or if we -- and we are looking at other options beyond DSRC for other types of

potential safety and non-safety applications.

But we think that ultimately, we're going to have to get some infrastructure in order to issue the certificates for vehicles, to make sure that hackers and other problems don't occur, to disrupt what we're trying to do.

So I guess I'm always -- maybe I'm overly-optimistic, but I am optimistic with many of the things that we're talking about here, that the JPO is designed appropriately to lead us in that direction, and whether it's global auto manufacturers. I see the JPO folks working globally too. So there's wide spread going on, and people are really keeping -- you know, the main problem is just keeping your hands on all the things that are going on, and making sure they stay integrated.

MR. BELCHER: Joe, if I could --

DR. SUSSMAN: Yes, and then we'll go to break.

MR. BELCHER: Okay. So first of all, a lot of what we missed will be at the world conference. We'll have -- the CAMP will be showcasing the technology that they've been working on there. But a number of the automobile manufacturers will also be showcasing their connected vehicle technology.

So if you want to see that, you can see it real time there.

The second piece is on the infrastructure side, it's really interesting. The states are, you know, I think that we're all quite aware of their financial situation, and how much they're struggling. But they're also very well aware that connected vehicles are coming, and they're --

I mean one thing we might put in the memo is they're looking for advice and counsel about how to prepare. I was just in New Jersey yesterday, and that was a big question, you know. What should we be doing, you know?

The question is, you know, ideas about as we upgrade our tolling system, as we upgrade our traffic light infrastructure, should we be looking at multi-protocol readers at this point? We ought to be getting that information out there, so that when this technology comes, there is an infrastructure base that can accommodate not only DSRC, but other things.

I mean that's why we can't -- and I mean but right now, the states don't think that way. They think -- they're thinking about I'm going to replace my tolling system or I'm going to replace my traffic light system with the same readers that I had before.

So that's something we can and should be doing right now. I think, I just want to push back a little bit, Robin, because I do think a lot of what you're asking for and what you're calling for is in fact happening in real time, and in fact it's happening both on the private side, but also the public side.

So let me just give you, you know, three quick examples. I mean so if you think about getting people out of their cars, and you look at what's available in Google Transit, or you look at what's available on many of the transit sites or the 511 sites.

Those can give you, I mean if we can educate people and they would go to Google Transit, or they would go to 511 or they would go to the transit site, they can see what their alternatives are. They may not be as robust as we want, but those things are coming.

And similarly on some of the soft safety stuff, you know, there are some exciting things that are happening, both on the private and public sector side. I mean what you're starting to see in the travel information programs that are there are giving some really good information, and really good safety information.

What you're starting to see on some of the more progressive 511 systems is they're pushing data out about traffic, about safety information, and they're pushing it out through your cell phone verbally, based on where you're located.

So you talk about the Oregon pile-ups. You know, you've got a system in New Jersey, you've got a system in Kansas City that will, based on GPS, tell you in advance what's coming down the pike. So those kinds of -- I guess when we get in this session, we kind of all --

Our job is to give advice, and we all kind of gravitate to, you know, where the problems are. But as Jim was kind of framing, there's a lot going on that's positive. There's a lot going on that's positive in other ways. I think we are moving in the right direction, and we need to continue to think of ways to facilitate it, which I think is what you're saying.

I'm not disagreeing. I just don't want us to be all gloom and doom, because I am seeing really some cool things going on.

DR. SUSSMAN: That's well-said and on that note, why don't we go to break.

DR. GULIANO: Joe? I just, there's one thing. I'm sorry. But I just, I should be reporting on this at some point, and that is there's an NCHRP project, which is on implementation, that has just gotten started. It's probably somewhat relevant to this. So I just wanted to mention that.

DR. SUSSMAN: Who's doing that work?

DR. GULIANO: It's an NCHRP project, and Ray Derr is the kind of manager of it.

MS. CHASE: What's the title of it?

DR. GULIANO: I was trying to pull it up, but I can't get online. So I'll report later.

DR. SUSSMAN: Okay, thank you.

DR. SWEATMAN: Joe, can I say something?

(Laughter.)

DR. SWEATMAN: Sorry. I wrote down --

(Simultaneous speaking.)

DR. SUSSMAN: I see the chairman has slowed for logical reasons.

(Laughter.)

DR. SWEATMAN: I think Adam told us -- understand, you know, we talk about having developed communities on this platform and so on, but I think Adam used

the term spontaneous creation. That's going to scare the heck out of us as we go along, because a good example of that is autonomous vehicles.

People out there are developing autonomous vehicles, and they're going to say -- well, maybe they're not even going to ask how they fit into this system. What kind of communication might they need? We need to have a system that's broad enough and mature enough that we can say thank you very much. We can plug that in, and we're not anywhere near that.

So spontaneous creation is going to be very interesting for us Adam, I think. We need to bear that in mind and autonomous vehicles would be first cab off the rank.

DR. SUSSMAN: Thank you.

(Laughter.)

DR. SUSSMAN: We stand adjourned. We'll resume at about five past eleven by that clock. Thank you everybody.

(Whereupon, the above-entitled matter went off the record at 10:47 a.m. and resumed at 11:10 a.m.)

Program Evaluation and Strategy Subcommittee Report

DR. SUSSMAN: Okay, folks. We've moved now into

the third and last of the subcommittees, the Subcommittee on Program Evaluation Strategy. Ann Flemer chaired that. I served on it as well, Joe Calabrese and Peter Kissinger were the other members. Ann is on the phone, and Ann, we've been going for about, shooting for about 20 minutes or so for presentation, and then trying to leave as much time as we can for deliberations, questions, comments and the like. So please guide yourself accordingly.

MS. FLEMER: Okay, thanks Joe, and good morning everyone. Sorry I cannot be there in person today, but it's interesting to listen in to the discussion up to now, because I think where you're headed is going to have a big influence on what our subcommittee is going to have to turn around and back to this larger group, relative to program evaluation and strategy.

A couple of things that I'm hearing, maybe just as a context of where will need to go with this group, we were charged with looking at the program and performance direction and the like of the overall ITS program, and our focus was primarily on JPO's activities.

I can tell from the discussion so far today that one question for us will be how broadly do we deal with ITS

within the U.S. DOT, versus within the JPO program specifically, and even more broadly, in the fact that there are so many deployers of technology today that we need to really catch up quite a bit in terms of the challenge of measuring performance and being realistic about what can be measured, and what can be accountable, from the point of view of the JPO and the DOT's ITS program.

So our subcommittee really took the point of view that we need to be as specific as we can when talking about measuring performance, and that's going to be a big challenge for us. So what we've developed so far is just a series of recommendations that we feel will at least get us going, in terms of input from this group today, and then we turn around, and especially with the input of the other two subcommittees and their final recommendations, really put the final touches on this proposal, to reflect what it is that we really do at the end of the day, and what we would consider success, in terms of the federal programs for ITS.

So I want to just leave that as an open question for the group, so that you have a sense of what we are putting together here still needs quite a bit of massaging based on the completion of the work, which I know Joe and Bob

are anxious to be able to write up, a consensus from this full Committee, and that will then have to be reflected in the final version of our recommendations.

So let me send that. I think what is important for us at this point when we started was to go back to the initial charter, the existing charter for the JPO. We did do that, and I wanted to call your attention to what we considered the three primary points, from a high level, what was important to the JPO's work.

The first, of course, is performing, managing and advocating for research and development. The second was creating an environment in which ITS can advance as a critical and emphasis on deployable element of a contemporary transportation system.

In listening to the discussion earlier, I think the term, catalyst, was a good one to use here. That's the JPO's role in being a catalyst for the work of others, and to be supportive of the work of others is key. That's something we need to pay attention to.

Then finally, positioning ITS as a response to policy challenges that the U.S. transportation faces. So that the relevance of the work in technology is to address

policy implications for transportation. Of course, that suggests that it's a very evolving and ever-changing set of priorities.

I know the discussion earlier today, talking about, you know, is it safety, is it soft safety, hard safety, is it safety plus all the other ancillary benefits of the safety focus. That, again, is a reflection of how the policy challenges do change over time, and how the JPO or the ITS program can position itself well in that changing environment is something we need to pay attention to.

So we did add, looking at those three high level focuses for the JPO, we then considered two caveats, and this will be something certainly for discussion. But that we wanted to be clear that we want to conduct program evaluation, and define a strategy that reflects the program as a whole, and not a project-level focus.

The overall program outcomes need to be determined and evaluated, and we did have a bit of a discussion in the preliminary meeting prior to this one, about whether there's some decent examples out there of other larger programs that are evaluated, and not just project by project evaluation.

I think we need to look to a few other examples, if this committee can suggest some, that would be very helpful for us to use as models.

The basic consideration too is that the program itself is going to potentially be modified or our attention is going to be modified, based on the work of the other two subcommittees of this Committee. So we do know that the desired outcomes of that work will also have to be incorporated and added into this summary of the program.

The second is, as far as a caveat, that we were concerned that we just recognize, not necessarily have to accept, but recognize going in that the resources required to address all the ideas that are brought forward to the JPO, and what the JPO can actually have access to, in meeting expectations, that those resources are limited.

We should recognize that as the situation for today. But it does not necessarily mean that we should be satisfied with the level of resource. We just need to know that if we're going to measure performance, we need to be clear about what we can truly expect in terms of performance relative to the resources invested.

So that may have a limitation on what outcomes we

will be looking for, and what we consider measurable.

So finally, the outline of the recommendations. I'm not going to take them in too much detail here, because I know you've all had a chance to read them, but maybe just to mention a couple of themes. The recommendations are really noted to reflect what is the appropriate role of the JPO, and again, we can look at it more broadly than the JPO, but our focus with the JPO as integral in efforts to support the deployment by others, again as a catalyst.

We think that's a very important role. We do believe that there are many approaches that the JPO has undertaken to serve as a catalyst, and those are listed in our recommendations here.

We should really pay attention to how much time and effort is really able to be invested in those, whether it's a prototype development itself, demonstrations and pilots, evaluations and the like, and that we should get a good idea about how the resources are allocated among those, and whether or not we think those are appropriate, since the fact is that we know that deployment is being conducted by many, many others outside of the JPO.

But the JPO's efforts to catalyze those

activities is really an important function for us to evaluate.

Secondly, we just want to note that their institutional transformation, as part of the -- is an important ingredient to accelerating and facilitating the deployment of ITS, and that we need to pay attention to that.

We did get some feedback that this role is transformational not only within the U.S. DOT, but the interactions among different modes, whether it's within either the transit community, within the highway community and the like, that we need to understand better the private and public sector institutional relationship, and we should be really clear about what role the JPO might be able to play there, and again, what would be a measurable outcome of success.

We do know that Item 3, of course is being addressed by the Technology Strategy Subcommittee. I note that of course, we have the Global Harmonization of Standards Subcommittee as well, and we're going to need to really address, at the end of the day, what are the specific outcomes from those recommendations that we really should be measuring.

So we note that that's something that we're going to have to incorporate in the future. We wanted to also note, I was going to jump down to number four, where had a good discussion about the fact that priorities and investments of the JPO into the various activities should give us a good indication of where, through the recognition of where all the budget priorities are, should give us a good idea as to where we should expect the best and most comprehensive outcomes relative to the JPO's work.

We don't really have a good handle on that right now, but that is one way to measure outcomes, is to, you know, the return on investment on the various specific modal priorities and the like. We do need to look at that and incorporate that into any measure of performance by the JPO.

Number five is a little difficult to quantify, and this gets back to whether maybe, if it is possible, for us to measure performance when it comes to the whole issue of sustainability, with environmental and social equity and economic development.

I for one believe that's a very broad charge, and may not be measurable relative to all the other expectations of the JPO. But it is something that has been a concern to

this broader committee, and so we have included it there.

The issue of how, what data needs to be collected to measure performance in such a broad statement of expectation is of concern. Then finally, I guess, I would just add that we do need to recognize that if we are to extend beyond the performance of the JPO, and I know it's a theme for some on the Committee, that we need to be very clear about what can be affected by the U.S. DOT's efforts in technology, relative to what is being invested in by so many others outside of government.

If we are going to be good stewards of this program, with respect to measuring outcomes, that we need to have a clear identification of responsibility among the different sectors, and that's going to be a real challenge and we move forward from the Subcommittee.

What our goal is to get some feedback from you all today on these sets of ideas, to basically be able to hear, at the end of today, what the other subcommittees are interested in achieving, relative to their topics. We would then come back with some specific ideas, again for program evaluation, and not necessarily project by project evaluation, and then have this Committee endorse a set of

specific metrics, that we would then work.

MS. ROW: We lost you.

MS. FLEMER: So I will stop there and Joe, I know it would be helpful if you could manage the discussion today, with me not there to recognize who's wanting to speak, and maybe ask if Peter or Joe Calabrese have any other comments to make before we open it up.

DR. SUSSMAN: I asked Bob Denaro to chair this part of the session, so he can direct it at his --

MS. FLEMER: Okay.

DR. DENARO: Just to make sure Joe doesn't get all the time here. Just kidding. So --

MS. FLEMER: But one other thing, just if I could. I know that it's difficult with the phone system. I'm hearing maybe half of the conversation, depending on how far people are from the phone. So if folks could speak up, or Bob, if you could maybe repeat any, you know, the gist of some comments, that would be helpful.

DR. DENARO: All right, we'll try that. We could also consider passing the microphone around.

DR. SUSSMAN: Yes. There were several around the table.

MR. VONDALE: Two.

DR. DENARO: Okay. Yes, we'll try to -- oh, wait a minute. Is there one over by you, Jim?

MR. VONDALE: There are only two, and they're sort of stuck to the table.

DR. DENARO: Oh are they? Okay, all right, all right. Okay. So anyway, Joe. Peter, do you want --

MR. KISSINGER: I've got nothing to add. I think Ann, you did a great job summarizing the work of the subcommittee. I would at one point, I'm not sure what, you know, it sounds like we're going to go into breakouts and I'm assuming, perhaps, there will be a JPO rep the need to break out.

Because I would just mostly be interested in some JPO feedbacks, and in particular, our subcommittee has a lot of sort of suggestions that we're going to kind of interact with JPO on. So but if we're going to do that in the breakout, that's fine.

DR. SUSSMAN: No I -- the intent is to have some JPO staff in each of the subcommittees, to help guide that.

DR. DENARO: Any other committee members?

MR. CALABRESE: No. I just want to thank Ann and

the committee for the job they've done. I think, you know, this is a great outline. This outline is very dynamic. It's going to change based on the other two committee recommendations, and I think we're prepared to do that.

DR. SUSSMAN: So I served on this committee. This is Joe Sussman. I think Ann raises a very good question about whether, given the earlier debate on the other subcommittees, whether we ought to make it more explicit that we're talking about the federal ITS program, rather than simply JPO, where JPO is a moving force.

But you've got FHWA and FTA and beyond, that might be included in this report. DR. DENARO: Well, it seems to me that if we're going to mention that, this would be the area where we mention it. Other questions or comments?

MR. KISSINGER: Couldn't that last point be handled as sort of the introductory kind of framing to the whole letter, rather than having to repeat it?

MS. CHASE: As I read some of her points, the points in this, of this group, I feel like they are nicely -- they do dovetail into the other things. So again, one would hope and it's harder, of course, to write a recommendation

that does have this stuff up front.

So I'm looking at point number three and point number four. These are things that we've been talking about. So those are kind of general recommendations of preamble.

MR. DENARO: Thank you. Good point.

MS. FLEMER: Could you repeat that briefly? I didn't quite catch that.

MS. CHASE: Sorry. Just that points three and four are general ones that feel to me are applicable across all of our recommendations from each committee. So therefore they should go in a preamble at the front end of our letter.

DR. SUSSMAN: Did you hear that all right Ann?

MS. FLEMER: I think so, yes.

DR. SUSSMAN: Robin's a bit further away than I am from the mic.

MR. DENARO: And a little softer spoken. Shelly.

MS. ROW: I was going to ask for maybe some additional information from this Committee. When I read the italicized sections in particular, most of them focus on some analysis that was being requested.

What is not clear to me is what is the outcome, the desired outcome what's being sought? And these are, in

fact by the way, extremely difficult, time-consuming and money-consuming to do. So if we were going to undertake any of these, then it's not clear to me where we're going with it.

So maybe a little more discussion from the Committee, either in the breakouts or later. That would be helpful for us to make it actionable. We could analyze all day, but to understand what to do with it or what is the outcome that's sought would be more helpful.

MR. DENARO: Did you hear that, Ann?

MS. FLEMER: Yes, I did. I completely agree with that. Part of the struggle we have is basically trying to figure out what it is that would be, you know, the primary outcome for again, is it JPO or is it the federal ITS program overall.

But this was a way for us to start looking to see where it is that we -- if we were going to identify specific outcomes, which is very key, then the analysis of it is intended to be through the JPO itself, and not a separate independent review.

That's a subject too that I think we need to talk about, because I think you're right, Shelley. A lot of this

needs to have some very clear expectation of what we would do with the information once analyzed.

MR. DENARO: Jim.

MR. VONDALE: Yes, and I wanted to follow up, because I think those are important discussion points. You know, our recommendations were all to the ITS and JPO, and we were sort of assuming I thought we were called the ITS/JPO Advisory Committee.

So we thought we were advising the ITS/JPO, as opposed to the broader program. If we broaden this, to me it creates a lot of issues, not the least of which -- when I look at number four and five in particular, you know, when you look at the, sort of the understanding of where this, the ITS/JPO has been going, the discussion we heard earlier that ITS/JPO has made the decision, DOT has made the decision to focus, because of limited resources, on instead of spreading everything out, focusing on a more focused approach.

I look at four and five and see that as kind of pushing us in a much broader direction. I think that's sort of a fundamental discussion we have to have here about -- and I agree with Shelly. From my own perspective, these kinds of requests, if I got them, I would go whoa.

It's going to be a lot of work and it's probably going to take them in an opposite direction to where they're headed right now. So I think it's important that we talk about this.

MS. ROW: I'm going to offer just one comment about --

DR. SUSSMAN: Speak up.

MS. ROW: --the expanded piece of this. I think, from my perspective, and yes, Jeff is still here, when you look at the full range of ITS, when you go from research through testing, through near-term deployment and then into deployment, that's a long life cycle, and it's an important one to get all the way through that.

If you talk to just the joint program office, we don't go that whole way. It would do a disservice, quite frankly I think, to the work that is done like in FHWA, who works very hard at taking, you know, where we leave off with model deployments and those sorts of things, and then works with state DOTs and local governments to go that last bit, to try to get it deployed.

They arguably have the most difficult job of any of us, because it is an extremely difficult. So that's why I

feel like that if the Committee thinks about it in those terms, the Joint Program Office can get us part of the way, but then we need our partner organizations to really get all the way through that whole process.

Anything that you all can help us understand, can help us with that, I think it would be appreciated not only by the Joint Program Office, but also by Federal Highway Administration, Federal Transit and the other modal agencies.

DR. SUSSMAN: So you're arguing on, as we were saying before, on looking more broadly at the federal ITS program, not the JPO role in the ITS program?

MS. ROW: Yes, particularly, particularly when you're talking about the challenges that we face in kind of the near term research into deployment. That's where I think you really need to go beyond just the Joint Program Office, and pop all of us with those thoughts.

MR. CALABRESE: I think our goal is not to have the best JPO, but have the best program.

MS. ROW: Yes, yes. Thank you. That's a good way to phrase it.

MR. CALABRESE: We can do great work, you do great work here, but if it's never of benefit because it

never gets to the street, it's not going to be of benefit.

DR. SUSSMAN: It was, this is Joe Sussman again. In number four, I think this, perhaps there should be some further discussion and clarification, where the request for a budget breakdown by mode is made.

I think what's going on there is that there's been a subtext at several of our meetings, that the program has or has been in the past, heavily biased toward highway research, when in fact many of us have been for us to go beyond it. That certainly Joe Calabrese, in his work in Cleveland, has made that point clear, as have others.

So the question is if that is a concern, how do we allay that fear, without putting folks through an extraordinary fire drill to develop those budget breakdowns? Is there -- concern continues, and the question is is there another way of answering that question, so that the program advisory committee can say yes, this is a multimodal program?

MR. DENARO: Didn't we get that information once before, in Bay, you know, in Oakland?

MS. ROW: We did. Yes.

Dr. Bertini: We asked the question, but never got the answer.

MS. ROW: Well, and just so you know too quite honestly, we used to provide a breakout of dollars by mode, and quite honestly it was destructive, because people began to try to measure themselves, based on the financial approach.

It ended up fragmenting our modal relationships rather than uniting them. So most recently, we have gone away from trying to, you know, segment by dollar value, and do multimodalism by design. So every program that we have is multimodal by definition, and what that means is that all of the programs that we run have charters, which are literally signed off of by all the modes who are involved, and they articulate by person, by name, the staff that will be engaged, and the amount of time that they will be devoting to that work.

They all have meetings, some once a week, some every other week, depending on the needs of the program, in which all the modal staff participate. We use multimodal programs. Like right now, we're going through a process to select the test conductor for our Safety Pilot.

That's a multimodal team that has been engaged in all of that activity. We, and the last person that we hired

in the Joint Program Office, the panel that did the interviewing and the review was a multimodal panel.

So we try to build into the structure of the organization that feeling of multimodalism. In my view, that has been much more successful in bringing out real action, in terms of multimodalism, than in parsing it by dollar. So if we didn't give you the answer, that's probably why. I don't think, I don't even measure it that way that more.

So my question back to the Committee would be are there some other ways that you could evaluate the multimodal engagement, because we take that so seriously. We are trying to walk that talk. If it is not coming through to you, we want to know why it's not coming through and how we could articulate that better, so you could assess it better.

MR. TOTH: If I can jump in from the perspective that I do know about, is the history of how all the other programs, U.S. DOT, FTA and FHWA have been operating over the last 40 or 50 years. This perception that the program has been highway-oriented is something that's a thread that goes across all the programs. It's not just here with this ITS stuff.

What has happened is that there's a culture out

there. I think people are going to be looking at this within that lens of the 30 and 40 year history, in which frankly I agree with, even though I was in the highway agency, that the scales were tilted towards high speed highway capacity and investment in it.

So a lot of people are going to be looking at that with a lens, and they're going to be nitpicking you. They're going to start out with the premise that here we go again. So it's going to be a very difficult challenge. I personally, when I advocate for how the other programs need to be addressed, do the same thing as you, these silos that have been out there, which a lot of folks try to advocate with the other programs, to solve the problem.

Far more divisive. Places like, for instance, Chicago probably should have a much higher percentage of money invested in biking and walking and transit and in highways, whereas in New Mexico and South Dakota, the percentage may be different. So these categories and percentages aren't the solution.

The answer that I have for how we're trying to solve it in other areas probably won't work here. But it's based on performance measures. It's based on an integrated

strategy where the amount of money -- it shouldn't be predetermined. You can't. How can we sit here and predetermine how much of this money should be put aside for transit versus highways and cars or bikes or whatever.

So some other thing has to happen, some other, based on performance measures and biggest bang for the buck is the way to go.

MS. CHASE: I like a lot what you said, and I was -- Shelley, I appreciate what you said, and that was confidence-building, because my response, my reflexive response is just what Gary said, that as we've been here for the last year and a half at different meetings, I feel like we have seen things called multimodal that weren't multimodal, and that it was just -- it was --

So coming to, so therefore how could you get to a metric that isn't this divisive thing, because I think that's a really good point, that if we want multimodal, well then you can't measure them in single modes. Doesn't make any sense.

So I'm wondering, you know, one of the things I'm suggesting is I don't have a solution option, would be the way in which any of the programs are ones that truly are open

and adaptable to other modes. When I say that, I was very discouraged to hear DSRC classifying something that was really multimodal, because I don't see it is.

So while I'm suggesting, I think we could have -- I'd love to see. I think you could, without dissembling, say yes, this project, this program would be useful in these specific modes, so it would be considered multimodal. Can we do that in a way where there is a level of confidence, and not hiding? This is, it's a challenge.

MS. ROW: You know, it's unfortunate. Like Jim said earlier, that you guys didn't get to see some of the technology in Detroit. The Safety Pilot that we'll be launching before too long will include like vehicles, heavy vehicles and buses.

So that's an example of where we're really trying to walk the talk on it. We have a track. There's a transit vehicle track, we have a heavy vehicle track in the V2V safety program. I believe that's true in V2I and on V2I as well.

Dr. Bertini: It might be worth noting that, you know, one thing that wasn't clear to me two years ago, when I joined DOT, you know, was that this is really the only --

even though the funds for ITS come through the FHWA to us at RITA, and of course when RITA was formed six years ago, as a cross-modal agency, the ITS/JPO was created, was moved into that.

This program is really the only cross-modal research program we have. All the other research comes through the stovepipe. So you know, we have been breaking new ground for the past six years within the ITS/JPO. So I'd just ask you to remember that.

But we are different than all the other research that's going on at DOT. There's a lot of it, but we are, in our way, the breaking new ground every day in the way that we are, I would say again, catalyzing cooperation among the modal administrations.

We still don't have a lot of incentives to work together. This is one program where it really is happening. You know, if you visit our building, you see these teams of people working together. It really is happening, and it's an example that I think is being used in some ways across other parts of the DOT, where they're trying to change the culture.

MR. TOTH: Isn't part of the answer that transit, particularly the fixed Guideway Transit, is already light

years ahead of cars? It may be that the playing field was tilted. But when we went to BART, those folks knew where every car was in the system, and they already have collision-avoidance stuff, right? They've already got mechanisms in there that says that if stuff gets too close to each other, that it takes it out of the hands of the operator and shuts down the thing.

So it's hard, if the program, as you've chosen to focus it in on, crash avoidance, what you're really doing, I think, is trying to get the cars to catch up with the trains. So yes. Maybe it's because the problem is almost -- well, this is an overstatement. But it's more solved for the trains and transit, the fixed Guideway stuff, than it is for the cars.

So that's where the discussion of the other stuff, of how if you're in your car and you want to make a decision to get on a train, and knowing whether the train is late or whether or not there's parking spaces and all that other kind of type of stuff, it comes more into play with creating the sense, within the transit world and the multimodal world, that you're being fair.

DR. SUSSMAN: Joe, did you have a comment?

MR. CALABRESE: Well, just a couple of things, and now I have more comments.

(Laughter.)

MR. CALABRESE: You know, I think that some of it's perception, some of it's reality. I think that we're still moving, you know, 65 percent of our public transit patronage is by bus and not by train. You know, this morning, a car ran into the back of one of my buses at eight o'clock this morning. 19 people were taken off in stretchers.

No skid marks at all, so it was a distracted driver or not. But I mean there are certainly those incidents that we have to address. I think our overall goal is not what percentage of this group's budget, but what percentage of investment goes into what mode. So we've got to look at this a little more broadly as well. It's really not your budget. It's really that we need to be sure that --

Maybe after, you know, being not at the table for 40 years, we're a little self-conscious. But I think that there are some important things there, and what's more important is because we don't have the volume and numbers and profitability. We need the automotive technology integrated

into what we're doing.

So we need that to go first, but we need it to happen in a way where someone's thinking now how do I integrate this, to avoid, to have that car stop before it ran into my bus this morning, you know. So I think we need to work together, but we can't forget that this is a part of the movement, and as in the next 40 years, as we have more population and more population in urban areas, the urban area transit-wise is going to be more important. That's really going to put a greater burden on the public transit side.

DR. SUSSMAN: I was curious at Robin's characterization of DSRC as highway. So if a bus can talk to DSRC, does that make it multimodal in your view?

MS. CHASE: I know that that was the attempt, to say no, these are vehicles and vehicles can be all sorts of things.

But if we look at the number of vehicles in the United States, the reason -- and the number of deaths, we're doing it to make cars not crash into each other. That's the goal. It's not to make the Bus A not bump into Bus B.

Dr. Bertini: You know, the Secretary makes the policy for the U.S. DOT, and if we had him here, he would say

it's for everything. So he, if you had looked at his blog recently with regard to these inner city bus crashes, and the heartbreak that has been occurring in that realm, of course we're talking about all kinds of vehicles.

We're talking, if you listen to the NTSB chair, we're talking about motorcycles. So I mean there are -- we're more about Ann here, you know, at DOT. So I think we've also made it clear that we think that fleets, transit and commercial vehicle fleets, are places where a lot of this technology can be.

MS. CHASE: Just one sentence.

Dr. Bertini: As I have only a few more weeks as being, having the ability to speak a little bit about policy, I just want to make it clear that from a policy perspective, we have been very clear that it's cars, but it's also everything else.

We know that we have a multimodal system, and look at our priorities. We're not all about, only about cars.

MS. FLEMER: If I could suggest something, this discussion has been really helpful, because I think our subcommittee really brought to our first round of this the

concerns that, you know, individual modes were still to be treated as individually, from the point of view of investment.

But I completely understand and would agree that, and recommend to the group that what we -- if we really want to fast forward this to catch up with what is actually happening in the policy realm, as well as the intentions of the JPO and all the modes to work more together and to leverage investments for maybe primarily for one mode, but that it actually will have -- that investment can have major benefit to multiple modes, that we need to capture that in a way, in this performance concept.

You know, what, to define what are the outcomes that are desired from that improved collaboration, and whether there is a way to measure whether progress is being made. Because I don't think anything here is intended to take us backwards, or to assume that each dollar invested in each mode is really reflecting truly what the overall accomplishment is for the JPO or even for all the modes separately, as a modal administration.

And as I should say, to also invest heavily and what their investments are, and how they are leveraging for

other modes that are not their primary purpose, is something we ought to pay attention to, to be part of this evaluation committee's work.

So I would just like to throw that out there as maybe a repackaging of this, in a way that's going to be reflecting what is attempting to be done today, as Shelley has noted and Rob has noted, and whether or not really what a good program evaluation will do will be to shed light on that, and then also put a little emphasis on showing progress in that direction, that is more transparent to the Committee.

MR. DENARO: So I think what we said earlier is maybe in the breakout, we can flesh out that request a little bit, to redefine the metrics, to get at the answer we really want.

MR. TOTH: Something else that I haven't seen in any of this, and maybe it doesn't belong in this, but five-ten years from now, as the ITS technology for safety and mobility gets to be deployed, when it trickles down through the MPOs and the DOTs, it's going to be in competition with funding for hard infrastructure, for bridges and roads and the culture in the DOTs.

I know. I was there. I'm not blaming them or

myself, but it's been designed, I think, that we can solve safety by flattening curves and increasing clear zones and so on. So are we thinking or do we need to be thinking about five or ten years from now, when we're ready to deploy a lot of this technology how, what are the performance measures?

How do MPOs and DOTs decide whether, how much of this money to put into ITS, versus how much of this money to go in there, to put into flattening curves and moving trees from the clear zone? Are we --

MR. DENARO: That's a great question. But I think it gets at this question of the gap between deployment, you know, research and technology is ready, it's all available, but what's going to really happen implementation-wise?

MS. ROW: and I know Steve's trying to get in here, but I can't resist just a quick follow-on. That's a perfect example of why I think this Committee needs to think more than just the Joint Program Office, because there is a planning rule that requires a congestion management system, and that's from the FHWA Office of Planning, who works directly with the MPOs.

It requires them to think about congestion

management, and how are they going to alleviate that. Clearly, ITS technologies could have a role in that, and it's a hook that we, the big we, U.S. DOT, think is a way to help with the deployment question.

Working with the state DOTs in all those activities, that's going through Jeff and Gloria Shepherd's Office of Planning.

MR. LINDLEY: And MTA. That's a joint FHWA-MTA process.

MS. ROW: Okay. That's right, that's right. So it's a very good point, and that's exactly why these folks are engaged in it.

MR. TOTH: And just to amplify that, hopefully not to be too dominating of the conversation here, on other committees I'm involved in, other venues, the ITS folks, for the nascent technology that's out there now that could be used for congestion, are complaining vociferously that people aren't, and the DOT's is investing in this, that there's a lot of things that they could be doing in congestion management, for getting a much greater return on the investment, and it's not happening. So it's already there. It's embedded in the culture.

DR. SUSSMAN: Let's go to Steve. I know he's been wanting to.

MR. ALBERT: I guess I had two quick thoughts. One, much of what we're proposing is very infrastructure-based, in solving problems through technology. I'm wondering if we should be even mentioning things like how can technology be an enabler to changing culture.

The culture of -- the driving culture of safety, culture of modal transfer, whatever it might be, may be important, and maybe that's something that comes under Ann, or maybe it comes under another group.

The second thought I had is that we have wonderful chapters, but how are we going to -- and this is really for Bob and Joe maybe more than anyone else. How are we going to integrate this to maybe tell a better story, than just chapters, and how can we think about it, maybe in terms of a reader who might be thinking of scalability, in terms of do this, then do this, then do that?

I think it was over on the other end of the table, where they were talking about scalable and flexible, or maybe it was a couple of other words, but I really like that.

MR. DENARO: Stable and flexible.

MR. ALBERT: Stable and flexible, as kind of a model to accelerate and leverage, which seems to be the other two words. But starting to think through what is this final document going to look like, because ultimately, if we have breakout groups, we're going to be trying to say not just how do we improve one section, but what more do we need to do?

MR. DENARO: That might be a good topic for the last section, the last session today, where we talk about how to pull this together. But that's really a very important comment. I'm worried about that too. We've got riches of input now. So we have a monumental task of figuring out how to communicate this so it makes sense.

DR. SUSSMAN: Right. The whole subcommittee idea was kind of divide and conquer, and now that we've quote-unquote "conquered," now we try to reintegrate this.

MR. ALBERT: And we have complete confidence in the both of you.

MR. DENARO: I think he just gave us an action item.

MS. CHASE: Following on Steve's comment, and I'm representing people who aren't here, on a rhetorical and

hopefully not rhetorical question. So what is technology doing for pedestrians and bicyclists and people who aren't vehicle-associated transportation, and that's a cultural question as well?

MR. ALBERT: I know -- Robin, can I just say something, because I was trying to butt in earlier? I know we have been doing a lot of work, where the vehicle -- a bike, so they know, the bicyclist knows what's around him in terms of kind of an all-hazards approach to this, and we've deployed that.

So I mean there are kind of DSRC applications or vehicle to bike applications I know that we have done, that are more than just highway kind of stuff.

Dr. Bertini: I don't want this to sound humorous, because it's not. But you know, you guys have been doing a lot with vehicle animal issues.

MR. ALBERT: That's not humorous.

Dr. Bertini: It's not humorous. I mean it's serious. I mean it's a huge problem in a lot of rural areas. So I mean that, I think, should be on the table too.

MR. DENARO: Europe is doing a tremendous amount of pedestrian and biker safety and that sort of thing.

They're doing some very interesting, could be questionable things.

MR. TOTH: Yes, I just wanted to follow up. There is a lot of technology devoted to that. It's not V2V at this point, but it's sensor-based in particular.

So there actually are systems on the road in Europe in particular that, using radars, that will identify and outline pedestrians. So and there's even more focus going in that direction.

So there are going to be different types of technologies that may be better solutions than V to V, but obviously if there's some sort of wireless communications that can work to that. You now, you may just give people, pedestrians can buy a little swatch that they can put on their pocket, that communicates with the vehicle. Everyone's thinking about these types of solutions.

DR. SUSSMAN: Okay, Gen.

DR. GIULIANO: And I have the last word to throw all this up into the air, right? I think it would be really helpful if somebody could answer the question, and I know we're supposed to be broad here.

But in this case, I think it might be useful not

to be so broad, and to ask how would JPO know it was successful? How would you know? If you know, since we were thinking about, you know, sort of developing metrics, evaluation, et cetera, how would you know that you've been a success?

MS. ROW: We ask ourselves that all the time. James Pol leads our evaluation part of the program, and I think it's in your number six, that Recommendation No. 6.

We agree completely, and what we have discovered, because that cycle from research through initial development, the redevelopment and then launching is so long, and you get in there in the middle.

We try to do open research, so that the results, the data, everything is openly available, the intent being that it sees others, and if they're successful, we frequently don't know what we have seated and what's come from it.

That's okay, but it makes it very difficult to quantify. So we did a couple of things that we're trying, and we would love anyone's ideas on this. We looked at technology transfer options, to see what was the state-of-the-art between research organizations, as they try to transfer technology out.

We looked at those, and we're going to be, continue to look at it and see if there's some more that we can do. We're doing some things differently now than we did in the past, and we're optimistic that that will help. I still don't know that answers the metric thing.

The program level metrics is another activity that we've just started looking at. There's been some engagement. We looked around the building at different things, and went into the Secretary's office to see what they used, what they thought about, because there are a lot of folks there that ask this question.

What we have now determined is that there is no one else in this building that is doing this, and we are struggling, in fact find anybody else that can look across a program, particularly a research program, and determine what are the metrics to determine the success, particularly the end game.

So we're all ears. We'd love to be able to do this, and we are finding it to be stunningly difficult. If you know of some avenues, some examples, we would love to know it, because we are actively engaged in trying to unravel this, and then trying to figure out how to measure it.

I don't know how to track how a piece of software that we've developed has now made its way into people's products.

DR. GIULIANO: Yes. You know, in the valuation world --

DR. DROBOT: Put a GPU license on it.

MS. ROW: Actually --

DR. DROBOT: It's very simple.

MS. ROW: A lot of places, a lot of universities, they do -- they track something through licenses and patents.

DR. DROBOT: Well, there is, I think Yochai Beckler at Harvard has actually put out a whole book on this, Internet law, and it's actually fairly simple to do.

What you take is the software, you make it open source with a GPU license, that which there's an obligation for the user to actually provide recognition and visibility into where it was created. It's fairly easy to track from that point on.

MR. DENARO: I want to go to Peter. I think you had your hand up.

DR. SWEATMAN: Thanks, Bob. So when pressed, the technology subcommittee kind of said well, we're interested

in two gaps. One is between the federal research and the state and local deployment, and I think we talked a little bit about this in the context of evaluation.

The other one was the gap between the federal program and the industry, and the interest on the part of the industry in engaging and developing technologies around the platforms.

So I think that one's not really represented in this program evaluation slot. So I just wanted to mention that.

DR. SUSSMAN: Peter, I beg to disagree. If you look at Recommendation 2, JPO should facilitate and accelerate information transformation, public-private partnerships, federal-state interactions and so on. So we've explicitly identified that as important, and ask JPO to indicate what they're actually doing to bridge those gaps.

DR. SWEATMAN: Now as I read that, it mainly applies to one gap, the gap between the federal research and the state and local deployment. Whereas the other one involves industry.

DR. SUSSMAN: Well, we mention public-private partnerships, but I agree. There's emphasis on that.

DR. SWEATMAN: Okay.

DR. SUSSMAN: So the question that we're proposing asking JPO is you talked about --technology has talked about these gaps, and we're asking what are you doing in practical terms to bridge those gaps within the JPO program?

DR. DROBOT: You know, I'll talk about it later during lunch, I think. But the Aneesh Chopra meeting that I attended, I did some surveying of various people, to get some comments to bring to that. One comment I heard was that, and I don't know how pure this is, but it was feedback, that the opinion that many of the model deployments and that the federal government or DOT has done, have not been successful in terms of persisting after the big show was over.

So I don't know if that -- to what extent that's true, but one answer to coming up with metrics here, if you go back and look at past performance and say what -- if something didn't go the way we had hoped it, then what were the barriers? Why didn't that happen?

Was there something local that happened? Was there some rejection of this? Was there lack of maintenance and support afterwards? What were those, and then that

becomes a formula for what you need for success going forward potentially.

MR. KISSINGER: You know, I think I pointed this out before. I mean a perfect, I think a perfect example is the TRB Sharp programs, because it was a major R&D program, and quite frankly they got to the end and it realized they hadn't even thought about tech transfer.

MR. BELCHER: Right.

MR. KISSINGER: And there were a lot of committee and there were a lot of evaluations of that program as it was going along, and in retrospect, and now we're into a Sharp II, and there was a lot of study of what did we learn? What were the lessons learned from the original Sharp program that we don't want to, you know, we want to take advantage of the good stuff and not duplicate the bad staff?

DR. DROBOT: Well, let me do the following, because this is an argument and a discussion you hear over and over and over again, and there's a problem with it.

You know, to actually have one successful outcome, my position is I would have to have maybe ten things that I start, that I learn about, and I learned enough about them to figure out what to kill off and what goes forward.

That happens at many, many stages.

See now to go from a notion to an idea, you kill off nine notions to have one good idea. You kill of nine good ideas to have one good pilot, and eventually it's a weaning process, with the number of things that don't succeed as large. If you don't do that, nothing comes out the other end of the pipe.

MR. KISSINGER: So the sample's too small?

DR. DROBOT: The sample is too small. This notion that you're going to have this all-knowing program that's going to be perfect and fully virtuous, you know, at the end of a budget cycle, is nonsense. It doesn't happen that way, okay.

I think, you know, for RITA, which is a research organization, I think its job is to make sure that there are enough options in the pot, okay, that they broadly cover the subject matter that's of importance and safety in this case, and that you don't end up on a single path, okay, which just may not be viable, okay.

Part of technology, you know, transfer, is figuring out how do you mature the stuff to a point where it can be handed over, and as you do that, it doesn't happen,

and I think Bob Frosch used to run GM Labs, that it doesn't happen without the movement of people.

Somebody from the JPO goes somewhere to the next organization, and it ends up being part of the corporate memory of what this whole program is about and what it means.

MR. KISSINGER: Albert Einstein said if we knew what we were doing, we wouldn't call it research.

DR. DROBOT: That's correct. This is hard stuff and the yield is limited. I think it's sort of happy talk to say it otherwise, unfortunately, okay.

MR. VONDALE: Obviously, there are a lot of challenges that I've mentioned. But one of the things that's different, I think, about the way the program's working is the way that it's bringing in so many different partners that I haven't seen before.

I mean typical research is, you know, the government goes out and finds a university. It goes and finds someone, and they do research and then what happens. Here, you have an integration of a whole range of partners from the government, to suppliers, to academics, to vehicle manufacturers.

There are certainly many -- I'm not saying, you

know, I'm guaranteeing success, but the formula that's being used is a lot different and a lot better than I've seen in the past, and I think that tends to suggest that there's going to be, you know, with momentum and with proper funding and with proper, you know, focus and with all the things we're talking about, the chances for success of, you know, making iterations, when we come to a hard point and finding a way around those hard points, is a lot better when you have all of this participation as opposed to just a more one-dimensional kind of a research program.

DR. SUSSMAN: Just to comment on Jim's comment, that seems to me -- your characterization seems to me to be at variance with Peter's. Peter is saying we have this public-private gap. We have this fed-public, state-public gap, and you're saying, Jim, that gee, they're doing quite well building these partnerships. So I'm trying to get an idea of what we collectively think.

MR. TOTH: Did you say that?

MR. VONDALE: That's what I said. It doesn't mean there's not gaps, though, right.

MR. VONDALE: No, there -- yes. I mean let me just -- one of my concerns is it's still research, and one of

my concerns, and I've been trying to work within, for example, the CAMP organization, in saying I always find the jump from research to implementation is always bumpy, and it can be, you know, the difference between success and failure.

We need to get more people, at least, into the CAMP organization from an auto industry perspective, to add more of an implementation attitude. Because if you don't do that, and we haven't caught all the implementation-related issues, I'm not saying you can solve all of them.

But that's gap, you know, but that's something that's sort of more of a fine-tuning than redoing the whole program. But the overall from my perspective, from the overall design of the program, it's different than the typical research program that I've been familiar with in the past.

MR. TOTH: And what I hear you talking about is how we're operating and how the JPO is using us. What I heard Peter talk about is how the world that we're trying to influence is operating. So I don't see those two things as being inconsistent.

MS. ROW: Might I help maybe define some of this as well? We had the same conversation with ourselves, and I

appreciate the comments from Jim. I think we're doing a better job with some of our research in the V2V and V2I world, mostly the V2V. I think we're doing a better job there than we have done in the past in some places.

But the other part, where we continue to struggle, is anything that has to do with state and local governments, transit properties and those. When we're in a position where we can leverage the natural energy and innovation that happens in the private sector, that goes better.

But it's when you're trying to work with those local governments, I mean and state governments, who are so financially constrained, and they have so many challenges that they face every day, just keeping trains running, buses on the road, infrastructure fixed, potholes repaired.

MS. CHASE: Lights on.

MS. ROW: What?

MS. CHASE: Lights on.

MS. ROW: Lights on, signals functioning, not even to begin to think about loop detectors functioning, that's where we continue to have such a struggle. That's a very difficult thing. It's the same as it was -- I think

we've been talking about the same stuff that we've been doing for years, and it's extremely difficult.

Jeff and I talked about it the other day. You can go back and look at things that we've tried. Model deployment. We've done model deployment after model deployment after model deployment. They work for the moment, and then people have to maintain them, and there's no money. There's no money.

So it's very difficult, and so any thoughts? Again, it's a very difficult thing to do, and we don't get to give unlimited money.

MS. CHASE: Now I'm laughing. It never crossed my mind that maybe research programs should be around road-pricing technologies that would be open and interoperable, which is something we're trying to get the government to finance for a long time. So that would finance your future initiatives.

MR. BELCHER: You need to talk to the White House about that.

MR. DENARO: You know, in each of our meetings, I believe we've rediscovered this elephant in the corner of the room, and it's the money question again, you know.

DR. GIULIANO: I want to actually add to that. I agree, you're absolutely right, and I just want to kind of kick it up one more notch, which is back to the elephant that Gary brought up very early in our meeting today. That is that, you know, the reason the money's not there is that there's not enough commitment or whatever you want to call it, to give the government enough money to do it.

So it's actually not -- to me, the money is the symptom, it's not the disease. So one of the things I feel like we can use this Committee for is to be much more up-front about what government should do and the value of government doing it.

You know, I know we have -- you know, the problems of local government are sort of beyond us, but we have, you know, we have covered in every single one of these Committee reports, some aspect of the value-added character of government.

I feel like that ought to be kind of one of our main themes, right, because if we weren't going to promote what the value of government is, I don't know who else would anyway, in this particular realm.

MR. DENARO: Yes, I mean just food for thought,

and we do need to break off here soon for lunch. But just listening to this conversation, and I think we had this conversation also in one of our previous meetings, where we were getting kind of excited about hey, maybe what we as a committee ought to be doing is telling the government they ought to spend more money.

Like those Europeans are spending a lot of money, why can't we spend more, both at the federal level and the state level? Then one of us said folks, do you guys read the papers? Not going to happen. It's going in the opposite direction.

DR. GIULIANO: But I want to be careful --

MR. DENARO: So we maybe need -- let me just finish. So we maybe need alternative ideas, I don't know. Maybe there's some way to privatize these model deployments after the fact or whatever, or create the incentives where they can be a profitable exercise.

I don't know what the story is, but money's always a problem, but it just never seems to be the solution.

MR. TOTH: Let me -- I'm sorry. Let me pushback on that, because that problem is across the board also, not just with ITS, and Jack Lettiere, who's on this Committee,

not here obviously, and I used to talk all the time about how we were just spectacularly, stunningly, to use your word, unsuccessful in allowing our customers to realize the value of what we were doing.

They'll lean against the pump, having a bottle of water in their hand that they just paid -- that they could have got for free out of their tap, and paying three times the cost for the raw value of gas, because somehow they understand the value of that, but not the value of this.

So I'm thinking as you're talking, and I know this is scare tactics, but what parent in this country wouldn't willingly pay for some technology, if you told them that you could reduce the potential for their child to be killed prematurely on a roadway, by whatever the statistics are, it's got to be 20 times, for a very small investment.

We're just not framing this discussion right, and maybe it goes back to what, in another way, what I was saying before. We have to be more clear on this, and Shelley, I respect what you're saying. Maybe while you're doing your delicate negotiations, is not the time for us to act like Malcolm X's mob outside the hospital.

But somewhere along the line, we have to -- we

are so afraid in the transportation sector, to go out there and tell the public what's really going on. We use codes and other things. Sorry.

MR. VARAIYA: Can I get in quickly?

MR. DENARO: Yes.

MR. VARAIYA: One example is a 75 kilometer freeway that was just constructed in Monash by Vic Roads, and it was a $1.4 billion project. Up front, they said ten percent of that cost would go to ITS.

After construction, during construction, they would put in ITS technology. They had before and after measurements, and it's clear that that ten percent -- the return was tremendous on that ten percent investment.

The same example is a committee that Gen and I used to be, where how to spend the $20 billion bond measure for congestion mitigation in California, and our committee was supposed to look at ITS technologies. The conclusion of that thing was they were just not interested.

Proposals were made by Caltrans to the transportation commission for implementing the simplest kind of ITS, such as detectives, and that item was removed on the first meeting of that committee. There's something wrong,

where the federal government is being spent, or at least part I'm sure was federal money being spent by the states, and you cannot even mandate that five percent, two percent, one percent, ten percent of that money should go to this kind of technology.

You do mandate mitigation requirement, and you do mandate putting HOV lanes, but you cannot mandate running them intelligently.

MR. BELCHER: Or maintaining them.

MR. VARAIYA: What?

MR. BELCHER: Or maintaining them.

MR. VARAIYA: Or maintaining them.

MR. BELCHER: Maintaining the ones you've got.

MR. DENARO: All right. I'd like to propose we can continue the debate over lunch obviously, and we'll have our breakouts and then we'll come back together. In the interest of time and we're somewhat close, because we are behind. We're missing a whole section that we're going to move to after lunch. Joe.

DR. SUSSMAN: Yes. We'll go -- thank you, Bob. We'll go to lunch now. We'll give you a few minutes just to get it and start to digest it a bit. We have some informal

reports over lunch, Bob talking about the White House conference, and this is time to talk about further engagements with Chopra, and the state of reauthorization.

We'll perhaps hear from our friends at DOT, as well as Scott Belcher, on the state of the reauthorization of the transportation bill, and anything else people want to throw into that potpourri. After that, we'll go into our subcommittees and see where we can get. Thank you.

(Whereupon, at 12:17 p.m., a luncheon recess was taken.)

A-F-T-E-R-N-O-O-N S-E-S-S-I-O-N

12:51 p.m.

DR. SUSSMAN: If everyone could take their seats, that would be good. So we have several lunch time reports that are of relevance to what we are about here, and we'll start, if I can find them -- oh, there you are, with Bob Denaro, reporting out on the White House session he went to a few weeks back. So the floor is yours, Bob.

Informal Reports

White House Wireless Innovation and Infrastructure (WIN) Initiative

MR. DENARO: And I have to start with a big apology, that I've been traveling for three weeks, and I think -- well actually, I don't know if three weeks ago I knew I was going to make this presentation.

But anyway, my notes are at my desk on the meeting, and of course, my memory is crystal clear on everything that happened during the meeting. So anyway, we know where I'm going with that.

Unfortunately, I don't have a lot of details of what happened, but I think it's just as important to set up for the meeting as what the intent was. So anyway, I'll walk through that.

Basically, this was in your handout in your read-ahead package, so I won't go over this. But the WIN for Transportation program comes out of the total WIN program President Obama has in place, $3 billion from telecom spectrum -- auctions, and $100 million of that is going to transportation over a five-year period.

MS. ROW: May I make one -- this is really important.

MR. DENARO: Yes, sure. Yes, please.

MS. ROW: This is proposed legislation.

MR. DENARO: Right.

MS. ROW: It has not been passed, so this is not a done deal. This is what is being proposed. Okay.

MR. DENARO: Thank you, and please, Shelley, jump in, because you know a lot more about this --

Dr. Bertini: I thought I saw the giant check up in your office.

MS. ROW: Oh, let me go see.

MR. DENARO: There was a picture of her holding this check?

MS. ROW: Yes.

MR. DENARO: No, please jump in because I'm just

reporting what I've read in the material. You probably have more up-to-date information. The stated purpose in there for the transportation piece was safer, less congested, more flexible, sustainable, efficient, reliable, and resilient surface transportation. It sounds like a basketball.

Okay, next slide. So I'm just, I'm not going to read to you here. I'll just let you glance over this. I just cut and pasted from the documentation there. This is what the money is supposed to be used for. I added the bolding.

Dr. Bertini: But the point I would make is these are ideas, not necessarily constraints.

MR. DENARO: Good, thank you. Next slide. These are my words obviously, and I said this earlier. But certainly in my experience, what I heard from Peter was he was very sure of saying this was about safety, and you know. So I mean that came through very clearly.

By the way, it was also -- Aneesh Chopra, was of course chairing the meeting and sponsored the meeting. David Strickland was also there. So from NHTSA.

MR. ALBERT: Can I ask a question?

MR. DENARO: Yes, sure.

MR. ALBERT: And maybe this is something that should get into the flavor of some of the things that we're writing. If this is about safety, some 60 percent of the fatalities are in rural areas, how much of this is, do you think, going to be applied to where the safety problems really are?

I saw the third bullet up there, that talked about rural communication. But I'm just wondering if people don't naturally gravitate when they talk about safety and rural in the same sentence.

MR. DENARO: Actually, I think that explicitly came up at the meeting, that somebody did point that out. I can't remember correctly.

MR. ALBERT: Okay.

MR. DENARO: But again, I don't have my notes in front of me. But I do remember that coming up.

DR. SUSSMAN: Go back one. I didn't pick up what --

MR. DENARO: That was about the communications there, yes.

MR. ALBERT: And the fast lane issues are always in rural areas, not in urban areas.

Dr. Bertini: I wasn't at the meeting, but from what I've heard since, a lot of the takeaways had do with emergency response, specifically in areas where there are no communications, but where there are, you know, just basic access issues. So I think it's very much --

MR. VONDALE: But also a lot of the scenarios that V2V addresses would be equally applicable to rural areas -- on whether it's -- it doesn't have to be a stop light, but it could be an intersection.

MR. DENARO: And I'll say, you know, we get -- a personal standpoint, because by the way, I was asked to say a few things about our Committee at this meeting, but I was invited specifically as an individual representing my company. So the comments I gave and so forth were mostly related to that.

But I'll just add to your comment. I mean my company is involved in a lot of government programs and that sort of thing, and both, you know, government programs but especially with my customers, the car companies, when it comes to using data for safety, without question they say you know NAVTEQ, we're not doing anything until you've got the entire rural covered, because people don't get in trouble in

safety typically going around curves too fast and so forth in the city.

It's out in the rural areas where all this happens, and if we're going to provide enhanced safety based on map information and so forth, it's got to be in the rural areas.

MR. ALBERT: I'll buy you beer now, Bob.

MR. DENARO: There's a lot of -- I'm just, you know --

(Simultaneous speaking.)

MR. DENARO: I'm just a profit guy responding to my customers. If they need it there, I've got to do it. So there was a homework assignment, which I'll show you in a minute, and he had some questions that we had to answer, and from those, he gleaned that there were three areas, at least, that seemed to gravitate to in responses.

One was policy needs versus technology, and he specifically made the comment clearly, this does not look to be a problem of technology. It looks to be a problem of policy.

He definitely brought up interoperability of standards and major issues, said that is front and center in

his mind, is -- well it was David and Peter obviously, and then there was some discussion of the applications.

This, I think, starts getting to what we're talking about with the private sector, innovating, coming up with new applications and that sort of thing. So there was definitely a spirit of creating solutions and systems that are open to invigorate this innovation by the private sector.

DR. SUSSMAN: It's interesting to me how nicely this aligns with the way we've organized this activity.

MR. DENARO: Yes.

DR. SUSSMAN: So Chopra's on the right track.

(Laughter.)

MR. DENARO: We'll be sure to mention that to him.

MR. ALBERT: And we'll tell him so, right.

MR. DENARO: And his big thing, you know, and he's doing his part as a government guy, in saying hey look. If we're the problem, you need to tell me, because we need to get out of the way and so I want to know if there are government barriers, or on the other side, if there are opportunities where the government can really help, I need to know that, too. That's what he was really, really asking

for.

Next slide. Now this is again, straight out of the documentation that was delivered. These were questions that were asked of us.

Dr. Bertini: Commercial vehicles are --

MS. CHASE: What are regulated --

Dr. Bertini: Regulated?

MS. CHASE: Oh, regulated commercial vehicle applications, sorry. I thought it was --

MS. ROW: Is this from the RFI?

MR. DENARO: Yes.

Dr. Bertini: Because one point is that, you know, inspection data, the idea that inspection data could and should be shared. It's not currently shared necessarily from all kinds of jurisdictions. This was one thing with commercial vehicles --

MR. DENARO: This was really background from the RFI -- again from the RFI, the technology-focused questions.

DR. SUSSMAN: He's got the rural --

MR. ALBERT: I'm celebrating, Joe.

DR. SUSSMAN: -- appropriately folded, right?

Dr. Bertini: To be frank, we wrote this, I mean,

JPO --

MR. DENARO: Even more excited?

MR. ALBERT: We can have a rural model deployment initiative now.

Dr. Bertini: It's on the table.

MS. CHASE: Did we get this, because I don't remember -- I must have missed that part.

Dr. Bertini: I think Bob sent a note out to the group afterwards.

MS. ROW: There's a PDF file.

Dr. Bertini: Yes.

MS. CHASE: It wasn't in today's. It wasn't in the agenda. It was a longer time ago?

Dr. Bertini: Yes.

MS. ROW: This is the RFI that was recently published and just closed this week, I think.

DR. SUSSMAN: And in the pack RITA had packaged for this meeting, one of the attachments was WIN.

MS. CHASE: Was WIN, but not these words?

DR. SUSSMAN: No, right.

MS. CHASE: It was a WIN, right.

MR. DENARO: In all this, yes.

Dr. Bertini: And we can certainly, this is on the website.

MS. CHASE: No. If I have it, I'll --

MR. DENARO: Yes, you can read through this real well. This was given to us as background material, so I'm just -- so these are the homework questions that specifically we were asked that in representing our companies.

So number one, what are the key communication challenges facing surface transportation, based on in my case, NAVTEQ's experience. Question 2, what's the most important lesson you'd like to share on the successful deployment of wireless communications? Question 3, pitfalls in communications.

Now for my company, we certainly had some points about Question No. 1 and some responses to that. Our only involvement in communications is our traffic surfaces, and we don't implement the communications. We utilize communications. So we've had some experience and problems with that, but we're not a communication company obviously. So the answers focus mostly on the top, under number one there.

Next slide. So these are my responses, and as I

said earlier, what I did is I surveyed several people throughout the company, a couple outside the company, and really just reported what I heard.

So the first one was, you know, the challenge of a common solution to vehicle positioning in communications, where you have to cover things, diverse applications like traffic services, navigation, modes of crash notification.

There's initiatives coming along that, probably most of you have heard of it, about usage-based insurance, where your premiums are based on how you drive, not how old you are, what your gender is, where you live. Road user charging, which is tolling, of course, and fleet management. All of these require both positioning -- and most of them requiring communications, and the fact that each of these different communities are evolving their own particular solutions.

It's just not going to happen, that you're going to have multiple devices in the vehicle, all serving the same communications, same positioning function. So that challenge.

The second one being optimal mix of communications. This is something that our company has

phased, in terms of all right, if you're sending traffic data out to everyone, what's the best channel for that, the cheapest, cost-effective but also performance-wise effective.

If you are getting information back from vehicles, what's the best communication for that, especially are you worried. If there's a traffic situation, you're worried about getting information continuously back from vehicles. That would imply maybe a cell phone, which it typically is.

But if on the other hand it's data that's going to be used in a less real time sense, maybe it's download once a day or once a week or once a month, than perhaps with another communication channel that you're using instead.

So it was a matter of from data going into a vehicle or coming out of a vehicle, what is the optimal communications choice, based on the application of the data that is being used? One feedback I got was definitely what the government should be looking for is early wins, with what you might call low-hanging fruit.

This is kind of how do you survive? You know, V2V, as we said, is going to take a really long time to have enough cars with it, and so long as it's a great goal, it's

probably something that should be done. But are there some early wins along the way from those technologies that they had developed, that can --

I mean we talked about a little bit earlier about better promotion to the consumer. So coming along the way, see some early wins that will allow consumers to embrace the benefits of some of this technology.

Fourth bullet, it's not about the technology about business models. How do all these people in the value chain win? How do they all make a profit? How do they all participate willingly and aggressively?

This one came out earlier. I heard this from a couple of people who in my company who had been involved in all the deployments with states, where it was this great aspiration that when I put this thing in, and don't worry. The money they're spending is going to be worth it because this will stay in place and it will be a model that continues into operational use, and very, very often that has not happened.

As Shelley pointed out, a big problem, part of the problem has been locally finding the funds for maintenance and support for the operation of that system

that's left in place. Then my comment, reflecting this Committee, saying we're struggling to find the right interface for the government and the private sector.

I also did mention the, and I don't have it on here, but what we said earlier, the other gap that Peter Sweatman mentioned, the gap between federal government and local government.

This one was kind of an interesting comment from a particular individual known to people in this room, but I'll leave the name unmentioned. But he told me that he felt the nation really needed a more visible and passionate champion for ITS.

We certainly have passionate champions. We've been to JPO and you guys and so forth. But is it -- but are you visible on a really grand scale, and what would that take? That's kind of an interesting comment.

DR. SUSSMAN: I would say the ITS movement has been seeking that for 20 years. I mean we for a while had Senator Lautenberg from New Jersey in his earlier terms. But I can't think of anyone of that stature who's currently carrying that water.

MR. DENARO: So I think that is the last slide,

yes. So anyway, again as far as the responses from people in the audience, there were telecom people there, auto industry execs, a few related technology and industries.

Dr. Bertini: There were some multimodal people there.

MS. ROW: Transit. Transit, truck.

MR. DENARO: Multimodal. Yes, transit was there, yes, yes. And nothing -- again, I apologize. I don't have my notes with me. Maybe if you guys remember anything from it, and, Shelley, if you do. But a lot of discussion around those issues having to do with the policy issues, the fact of the gaps between private industry and government.

There was a lot of contribution there, and I think some good comments there. But it was really around those issues that we're dealing with right here.

DR. SUSSMAN: How large a group was involved?

MR. DENARO: I think there were 20 invited.

MS. ROW: A little more than 20 invited, and 22 were there.

DR. GIULIANO: I have looked at -- you know this, when I read all this stuff, it really struck me. $3 billion, 100 million for that long list of transportation objectives,

how did we get to 100 million and --

MS. ROW: That's easy. They just --

Dr. Bertini: It's called a silver tongue number.

DR. GIULIANO: Who's they?

MS. ROW: It came from the White House. We --

Dr. Bertini: It was revealed to us.

(Laughter.)

Dr. Bertini: I don’t know if you saw this movie -- film about too big to fail, where they sort of came up with the $700 billion number. I mean I think they said well, don't forget about transportation.

DR. GIULIANO: You know, in truth, 100 million is nothing, related to what's needed to deploy anything in ITS.

MS. ROW: I don’t think -- the point here I don't think is deployment. It was about --

Dr. Bertini: This is seed money.

MS. ROW: It was innovation.

DR. GIULIANO: Well, there were, if I think I saw demos and model corridors and this and that.

MS. ROW: There's a little bit of confusion. There was the $100 million for the WIN program that has been proposed. It would be to incentivize innovation in surface

transportation using wireless technology.

DR. GIULIANO: Yes.

MS. ROW: Comma, period. Those questions came from the RFI that we issued publicly, to ask for a response from the community on if we had such $100 million, what sorts of things would the community think we ought to do with it. So we threw those things out there as questions for the RFI.

The WIN language, as currently proposed, and again proposed, doesn't have that level of detail in it.

DR. GIULIANO: So is there a presumption then that this is seed money that the private sector is going to -- the wireless industry is going to match or --

DR. DROBOT: No. Most of this, if I remember the total $3 billion, a billion went to the National Science Foundation.

DR. GIULIANO: For?

DR. DROBOT: There's a chunk to DARPA, DOE, I think there was a small piece for NIH, okay, and one piece for education, and that was it.

MS. ROW: They just bought people off.

MS. CHASE: I have a project that I've longed to do, that bill would address that. Do you think the

innovation that's happened on smart phones, is because it was an open platform, theoretically open? People could get in? Something that I have pitched to Peter Appel's predecessor and to Peter Appel, and to many is that if we had an open box in cars that plugged into OBD-II, that pulled that data, it would be a platform on which people could innovate.

I've talked with innovators across the country, and they're all building their own boxes at great expense. If we had that box, it means you could get innovation. If we had that box, people would therefore quit buying the box because they wanted the app.

So the whole financing of the deployment would be taken care of because end users would be buying the box. So if we're addressing financing issues, innovation issues and a two year piece about successes and wins, you would now have some successes on that, because you would have a thousand experiments of apps and 999 of them crummy, and you might have one or two that are killer apps.

Those would come out, and it would not be the government who's forcing you to put this box in your car. It would be able to use for -- pricing, road tolling, pay as you drive insurance, the whole nine yards. New York City is now

trying to, like this idea. We applied for a -- ARRA funds, you know, one of those guys. We didn't win.

New York City is trying to do it with a really pitiful amount of money. But I cannot think of a more smaller spend that produces more experimentation and has more upside than this one. When we just look to the smart phone example that's happened in the last 3-1/2 years, a billion apps in four years have been created, and that was because people could get in there.

MR. DENARO: Robin, how would you get around the privacy concern on that?

MS. CHASE: The owner of the vehicle owns that data, and I choose to download an app because I'm willing to share that data with someone else.

MR. DENARO: You lock it in the vehicle?

MR. VONDALE: I just had a quick comment on that. The SYNC system in Ford is an open platform. We do encourage outside people to innovate with apps for that system, but we do approve those apps. One reason, of course, is like driver distraction. We don't want to just have an open system that allows people to do things that may be overly distracting and so on. But --

MR. DENARO: What kind of data do you get out of that system?

MR. VONDALE: I don't know the answer to that. I don't know if we get any particular data.

MR. DENARO: No, no. I mean you said it's open. So innovators are getting to look at some data.

MS. CHASE: I looked at that. I mean I talked to Ford a little bit about that, the goal of that open thing. So it's SYNC, which is Microsoft, which isn't really open, and the data that they were reporting out was things that really were surrounding entertainment, in-vehicle entertainment.

So it wasn't doing, it wasn't getting data points that I felt were interesting for things that we'd like to achieve.

MR. VONDALE: But it doesn't have to be entertainment.

MR. DENARO: Right.

MS. CHASE: And then the approval piece. And to the safety issues, if it's RITA only, you're not doing anything. You're not putting on the brakes and you're not whatever it is.

Further Engagement with Aneesh Chopra

DR. SUSSMAN: Any more comments for Bob on the White House conference? Well, the next item segues directly into that, which is the notion that this committee, at its previous meeting, the one in Detroit I think, identified the opportunity of further engagement with Mr. Chopra, relative to the particular issues that we're interested in.

That was part of the Subcommittee 1 charge. So, Peter, do you want to say a few words on that?

DR. SWEATMAN: Sure. Thanks, Joe. That was something that we looked at. So we feel that some things such as accelerating ITS deployment in the U.S. for near-term advances in highway safety, mobility, energy and environmental performance. I guess the thinking behind, you know, we've laid out some bullets in our report here about meeting goals, format and so on, desired outcomes, key issues to be discussed.

But a lot of it revolved around the two gaps that we talked about earlier, that first of all, close the gap, how to evaluate and close the gap between government ITS research and the innovation efforts of the private sector players, including major industries and entrepreneurs. So

obviously the auto industry included in that, but that's not just the auto industry.

To leverage the best communication and other technologies from both within the transportation sector and outside the transportation sector, and then to accelerate deployment across all modes, and included in that, of course, is to accelerate the deployment at the local level, state and local level.

So and I guess what we were thinking was at the end of the day, we're probably not going to get too many opportunities like this, and we really wanted to focus this in a way that could really move deployment forward, in terms of identifying things that the White House and the U.S. DOT could do that they're not doing now, that would really move this forward.

So that was the thinking behind it. We thought we needed to have key executives, not only from ITS but from automotive, telecommunications and the broader IT industries, transportation entrepreneurs, and leaders from the federal and state DOTs and MPOs.

We weren't exactly sure how long we would have Aneesh Chopra's attention, so whether that would be a full

day session or a half day session would remain to be figured out. Workable number of attendees, 15 to 30. Perhaps we need a very active and influential facilitator to pull it all together.

So the desired outcomes, first of all, first and foremost, actions to accelerate ITS deployment on the part of the White House and U.S. DOT; making sure that the government role in ITS is encouraging and facilitating innovation and deployment by private industry, including after-market suppliers as well as original equipment manufacturers, identifying barriers to deployment.

We thought some of the key issues, and this would be ceded to some extent. We didn't want to make this into kind of a PowerPoint jamboree, so this would have to be carefully put together in terms of how we raise the issues.

But certainly things like the alignment between government R&D and initiatives by the private, not only automotive but also telecommunications industries would be important, and basically the gap-bridging that we talked about earlier would be key issues.

Having an open communication platform, not only for private vehicles, freight and transit that entrepreneurs

will be interested in. Another idea that we talked about in Ypsilanti and we included here, was the notion of a value chain for transportation data, that would extend across modes and address who owns the data, security and brokerage of that data.

So at least some of us think that there's going to be a lot of value in the data that's going to be generated with wide deployment of ITS, and consideration of that value chain would be an interesting thing to include.

So, Joe, that's -- I guess I feel that whatever we do here is going to be very much informed by other experiences with White House summits particularly, and JPO's interactions with Aneesh Chopra and so on. So we threw this out. We did have some other thoughts, but we thought we'd leave it at that.

DR. SUSSMAN: So is there a game plan for how we go about actually making this happen?

DR. SWEATMAN: I think that's what we want to talk about today. I think we need some input from the DOT folks, to --

DR. SUSSMAN: So we see our federal colleagues taking the lead and developing the contact and getting this

to happen, is that right?

MR. DENARO: Well, the last time we talked about this, I thought we talked about getting our plan and our thoughts -- now or you know soon, shooting for a fall meeting, and then yes, asking the JPO to help with the contact there. Because it come down through --

Dr. Bertini: Yes. Should I remind the -- I mean it was about a year ago, where John Augustine and I and Peter Appel met with Aneesh, actually at a Mexican place down at the waterfront here on a beautiful day.

MR. AUGUSTINE: Too much detail.

Dr. Bertini: Yes. But this is kind of a standard -- this is sort of a standard White House Aneesh idea, kind of like the WIN initiative event that ended up happening first. But at the time, he was very much saying well, you've got this piece of spectrum. You've got DSRC. Why isn't it being implemented? What do we need to do to seed this, to accelerate it, to get it out of the way?

A lot of the stuff that you talked about, Bob, was very much in the spirit of what the motivation was for this original idea, and then we of course said well, what about all the guidelines, about advisory committees? He said

well no. You form a subcommittee. I can join the subcommittee. We can put this together.

So I mean that then precipitated the creation, I think, of subcommittees here. Then we sort of lost, I don't know, momentum or whatever, and you know, we didn't get the event scheduled. But my sense was this is still something that wouldn't be difficult for us to remind Peter and Aneesh about, and it's just a question, you know, when did Peter want to sort of do the ask.

MS. ROW: The other thing, having just done this one, this last one, we work collaboratively with the OSTP, Office of Science and Technology Policy at the White House, which is Aneesh's office, to organize it. But the DOT did that all. So there's that part.

The thing that I think that I learned from the process of doing it that I can share with you, that might help make this, help you focus your thoughts, is that there are a few key pieces. First of all, the participants are essential, to understand who the participants are and to get a good cast of participants. That's one of the most difficult pieces.

Focus, focus, focus. The one that we had was a

very broad charter, and it went all over the place, all over the place. So I think it's essential for this group to be clear on what you want out of it, crystal clear, and less is more, I think, unless you really want to be all over the place.

He likes pre-work. He read everything that was sent in. It was astounding. He read it, he understood it, he assimilated it.

MR. DENARO: He called us out individually, saying, Bob, you said in your opinion, this, this, this. Tell me more. I go, uhh?

MS. ROW: He did it all day. All day. It was amazing. I've never seen anything like it. So the pre-work is essential to not only get the group focused, but to get him focused, because he will carry the conversation.

DR. SWEATMAN: Yes, yes. So he'll be the facilitator.

MS. ROW: Absolutely, there's no question. I was very anxious about that. So do we need, how are we going to -- don't worry, don't worry. There was no worry. But the pre-work and the questions that set the stage will be very critical and essential to guiding the conversation.

No PowerPoints, forget that. No presentations, none. There's just -- yes, just conversation. He'll walk in the room, pumped, charged, loaded, ready to go.

MR. DENARO: Yes, I mean my email to you after the meetings kind of alluded to that. I learned in a similar way. I mean, he walked in and Peter had said well, I think what we'll do is go around and do introductions, so we all know who's here. And Aneesh said "No. I've got three questions. I want you to answer it now. Here's the three questions. I'm going around and you're first." The first guy goes ha.

MS. ROW: And if it wasn't clear, he'd say, now wait a minute. I'm not quite sure that you answered the question.

MR. DENARO: Yes, I loved that.

(Laughter.)

MS. CHASE: I liked those three questions, but so how -- did Aneesh feel that he got out of it, or did you feel that you got out of it? You're saying it went all over the place, and those three questions were inadequately directed, even though they seemed like good ones. But I realize --

MS. ROW: Well, that was for the WIN, and the WIN

is very broad. So it was intentionally left very broadly. In that case, we wanted the discussion to go whichever way it needed to go. So it was okay, and it's still not clear how the follow-up is going to go, and the follow-up is tricky, because of FACA.

We can reconvene that group. It's not like we can recharge them, because of the FACA dilemma.

MS. CHASE: Even if it's a fact-finding.

MS. ROW: Yes. This, I think what you guys want to think about is what you want out of this, because you will engage him. He's extremely bright and very quick. So I think you need to really think about how you want to use that energy, and how you want to use that time.

That's the other thing. A day, not going to happen. Two to three hours, tops.

MS. CHASE: Small aside of background that I think Adam is also privy to. I know that Aneesh and Pat Gallagher, who's the head of the National Institute of Standards and Technology, NIST, are working on the public safety piece with Vint Cerf. Vint has been talking to me and Adam, and I was just at this other meeting on Tuesday with Pat.

One of the things they're talking about was transportation intersect. He wanted to know was the public safety piece's spectrum interesting to -- would that address the transportation needs? And once he said that, I said well, transportation what? Transportation, the DSRC and hard safety needs, or the larger pieces.

So anyway, I just want to say I know that Aneesh and Pat Gallagher and this WIN thing is actively, in their minds, in an active position, thinking about the cross between transportation and public safety in this space. So it's not going to take a speck of persuading. They're ready.

So the question would be around these questions. Yes, what do we want to -- what are the things that we want to get out of it? I feel like there's some things that I think DOT can get out of it and JPO can get out of it, and there's other things that the White House and their policy wants to get out of it.

So I think there's two different sets of things, and then maybe we three, as a group, for something else.

DR. DROBOT: Well no. I mean there's specifically, I think, a bill, I think it's Senate 11, that takes what's called the Deep Lock in 720 megahertz, and

allocates 40 megahertz to public safety, okay. And the heart of that is the creation of a new entity that would actually oversee that part of the spectrum and its uses.

The intent is that those are actually mixed uses, not purely for public safety. I think that's the context of the question.

Dr. Bertini: If I could maybe just provide one more piece of history, going back a year, the original conversation that prompted this was, you guys in Transportation have 5.9 gigahertz. Why isn't anybody using it? I'm just speaking generically.

It doesn't -- these are the right players at the table, and Jim, you and I have talked about this several times. They are the right -- and you mentioned it earlier. Are the right people within, let's say, the auto industry, within other pieces of the industry, aware of the significance of this?

The idea was, if the White House convened something with sort of the, you know, the CTO level folks from kind of the aspects of the industries that you represent, you know, to just kick it up a notch, to quote Jim earlier, you know, to make sure that there's an awareness of

the potential that we have here, and the great value.

So that was what prompted originally this conversation. That's not to say you can't recap slightly your questions.

DR. DROBOT: Yes. So there is one more part to this. Inside the WIN fund, if I remember correctly, there was 500 million allocated for NTIA, to actually help move spectrum around among federal agencies, to optimize its use, and there was --

MS. CHASE: And I think that's the committee Vint's working on.

DR. DROBOT: Yes, right, and there's 500 million in DARPA, to actually free up additional spectrum from DOD uses essentially.

MR. DENARO: So let me -- I want to just comment on, Shelley. I think your advice or summary or whatever you want to call it was perfect and right on. I completely agree, based on what I experienced in that meeting. Participants are going to be hugely essential there. If we have the right people there, that will make all the difference.

I want to absolutely second what you've said

about focus, and I'll go so far as to say, and let me apologize ahead for insulting the rest of my Committee members and certainly I contributed too. I think we need to throw away our current idea of what this meeting is about and start over, because to address all those topics, I think, would be a big mistake in two or three hours.

DR. DROBOT: You need a crisp ask that he can say yes to.

MR. DENARO: So I was going to go there. Thank you. I was going to go there. That's exactly --

DR. DROBOT: That's all you need.

MR. DENARO: This is like, for those of us in the industry, this is like having that rare meeting with the CEO and you know --

Dr. Bertini: Bump into him in the elevator.

MR. DENARO: Well, no. I'm saying that you've been called up there, and what he's going to say at the end of your little presentation is how can I help you? You'd better have a really crisp answer to that and you're probably going to get what you ask for.

I think that's what this meeting is. I think Aneesh would be thrilled if we asked him something that he

could say yes, I'm going to do that, and it will be prepared within 30 days. So I think we need to cast this around and really focus.

We've got a lot of things we would like. I think we need to narrow that down to one thing we think he uniquely can make a difference, or the White House can make a difference for, and focus on that and go well-prepared, well-cast, other people in the room and so forth, and get what we ask for. That's my view.

MS. ROW: The meeting is doable, if you didn't get that. This can happen. So that's the good news. It's just doing it in a way that is going to get out of it what we want.

MR. DENARO: Well, and yes, and set him up to do something he wants to do. Saying yes, I'm here to knock barriers down. If that's a barrier, you know, I'm going to attack that, or whatever it is.

DR. SWEATMAN: Well, it sounds like he led into this with a leading question. What are you doing with that thing? You've got some spectrum. What are you doing with it?

MS. ROW: Oh, well, that part was. But not in

the WIN thing, yes.

DR. SWEATMAN: Yes.

MR. DENARO: Yes, and I think our meeting was different, and we need to differentiate it, because we can't have another meeting that we just had.

MS. ROW: A WIN meeting, right.

MR. DENARO: Yes, another WIN meeting. Right, right, and I don't think we should have a committee meeting there. I mean if we do stuff that we put together there, it sounds like one of our committee meetings. I don't think we need to go have another committee meeting with Aneesh Chopra.

I think we need to focus down on something really targeted. I don't know what that is.

DR. SUSSMAN: How about tying in, just to get some ideas on the table, tying into this elevating the level of involvement on standards to more senior levels within government.

MR. DENARO: That's one possibility. That's one thing to put on the table.

DR. SUSSMAN: Talk to the President and tell him we want standards.

MR. DENARO: That's one possibility, yes.

DR. DROBOT: So the next time he has a G20 meeting or something, it's on the agenda, essentially.

DR. GIULIANO: My question would be to the people who know him and his work best, is, of all the things that we've been throwing around, what do you think he would do the best job at helping us? You know, I'm tempted to say something like, you know, barriers and solutions. How do we accelerate deployment or something like that? But he may not be -- that may not be where he could give us the most help.

MR. DENARO: Correct. You're completely right.

DR. GIULIANO: So, you know, I'm open to suggestions here.

DR. DROBOT: Well, so let me make a suggestion that we've skirted around on this. You know, there's a component of ITS which can be provided by the automobile manufacturers, by consumers, and then there is a part which is infrastructure, okay, where you really have to instrument the roadways, whether it's at lights, corners, curves, things of that sort, okay?

What I have not seen the DOT program do is build what I call a Congressional wedge, that eventually drives a program and an item specifically for that. Could that cost

money?

MR. DENARO: I'm not understanding what you're saying. What is that?

DR. DROBOT: Well, you know, let me put it this way. If you look at the deployment of ITS, okay, one component of that are really devices that become part of the infrastructure.

MR. DENARO: Like?

DR. DROBOT: Okay. So let's say I put a sensor at every traffic light.

MR. DENARO: Okay.

DR. DROBOT: It looks at things and it's going to eventually send out the signal of who's going to -- okay. That costs money. I don't see the states paying that bill by themselves. I don't see each individual state going off on its own and having enough of the technology, et cetera, and standards, you know, to carry the ball on that. That's a national program, okay.

If I look at, you know, what was VII, there was never a Congressional wedge that says we start off at this level. You've got to give us this much so we build our capacity as an organization, and as this moves to its

deployment, actually have the capacity to go and manage this.

The reason I say that is, by and large, DOT tends to be a grants-giving organization, okay, and not one that actually manages programs of this sort. That's what's really necessary here. That's a reasonably big ask, and it's an ask at the national level essentially.

MR. DENARO: So where would that -- I mean, he's in the White House. Where would that be assigned?

DR. DROBOT: So what happens is OSTP goes through, does a recommendation, helps work it through OMB, does it in conjunction with the Secretary of Transportation, and eventually this ends up being part of the President's budget request, okay, that says, I want to go and deploy and here are the steps that we're taking to make this ready, okay?

Because if you don't do that, you know the moment the big issue comes up, OMB starts shooting at you, that you haven't done your homework.

MS. ROW: That's a really good point. Adam, just one quick thing, I guess even more simply. If you only look at V2V, it's going to take some kind of infrastructure footprint, probably, to manage the security network.

DR. DROBOT: Absolutely, absolutely.

MS. ROW: Much smaller than the old VII program.

DR. DROBOT: But you've got to start with that. That's the way.

MS. ROW: Because I think you make a really good point. The only thing that's rooting around in my mind, are we ready to ask that ask?

DR. DROBOT: You know, you'll never be ready. You put the noose around your neck, you ask and they deliver, okay. That's the way it goes.

MS. ROW: That's true.

MR. BELCHER: Here's another way to get to the same thing. I'm sorry, Robin. Go ahead.

MS. CHASE: So I had another -- I had another recasting. So who's supposed to be at this meeting is some U.S. DOT people, some industry people, and I want to add in some innovators and entrepreneurs into that group. So the question that was on Aneesh's mind and that I know is currently on their mind is to ask industry, why aren't you using this piece of the spectrum that was yours?

I'd like U.S. DOT to hear the answer. So I'd like to ask industry that question. I'd like it to be asked

in an overt way. They give their answer. I think we know what the answer is. So then question to U.S. DOT --

DR. GIULIANO: So what is the answer?

DR. DROBOT: What is the answer?

MS. CHASE: It's way too expensive to deploy, and when you do a little of it, it's useless. We need to have the whole big thing all done at once. So we'll hear what they have to say. I'm not going to answer. They'll answer. But it's asked in an overt way from the guys, the answer.

Number two, U.S. DOT. Are there alternative pieces of the spectrum that would work, because right now they're playing with these other pieces of the spectrum. Can we swap that out for something that's perhaps more useful and do we solve that problem?

I'm not the engineer. I have no idea, but maybe that would get to this fundamental problem that we've always had with this piece of spectrum.

Number three, innovators, what is the gap for you, and the gap in terms of innovating on the transportation sector in general, not this particular piece? What is it that you need? I think there may be a fourth question there that I'm not getting at. But I feel like that for me

is the -- they're thinking about spectrum allocation right now, that is something that's in his bailiwick. He's trying to figure out what could we sell, what can we merge, what are the different things? That's my pitch.

MR. BELCHER: Okay. A third option would be one of the -- if you start from the premise that we are going to deploy 5.9, starting from a different premise for active safety, we need to find early adopters. One of the most logical places for early adopters is in the tolling sector.

MR. DENARO: Is what?

MR. BELCHER: It's in tolling, and one of the problems with tolling is that most tolling systems are proprietary and based on business models, where they haven't recovered their investment. So we could ask him to take the lead or to identify, somebody to actively think, take the bully pulpit in moving tolling systems to open an interoperable system based on 5.9, and to determine the transition from the existing business model to that.

By doing that, then, you also create a platform for other entrepreneurs and other people to use that infrastructure.

MR. DENARO: Now I'm not sure exactly what you're

saying though. Are you saying 5.9 toll tags, or are you saying --

(Simultaneous speaking.)

MR. BELCHER: I'm saying toll tags that have the capacity to, that are based on an open platform, that have the capacity to read 5.9. So that you've got, essentially you've got the start of an infrastructure, and that could -- you could have V2I happen much more rapidly. Because those tags would be "here I am" devices.

MR. DENARO: Well, but that's the part I'm not understanding. Are you saying -- is this a gantry toll system, or are you going to the vehicle miles --

MR. BELCHER: No. I'm just talking about moving, transitioning the myriad of existing tolling systems we have into at least a system that has a common base.

MR. DENARO: Oh, okay. Got it, got it. Okay.

MR. BELCHER: But you can't do that, because these guys have all got contracts, and DOT can't tell them to forgo their contracts. But DOT can use its bully pulpit and the White House can use its bully pulpit to move the tolling industry in that direction, which would give you at least some of an infrastructure base in which to start from.

DR. SUSSMAN: And he would be excited about that why?

MR. BELCHER: I think he'd be excited about --

DR. DROBOT: Why would he be excited about that? That's what I was going to ask.

MR. BELCHER: Well, one, if he's bought into the connected vehicle paradigm that's been established, this jump-starts it.

MS. CHASE: That's true.

MR. BELCHER: Huh?

MS. CHASE: I agree with you about the open tolling as a mechanism to open things up. I'm not about 5.9, but you're absolutely right, that the tolling is the jump start for opening up the system, and getting people to have devices that are interoperable and start being compatible.

Dr. Bertini: And OnStar would be another thing, OnStar-like systems. You know, you've got millions of vehicles out there with it pieces of the puzzle, but there's On-Star or the ATXM version. That's another thing Aneesh talked about.

DR. DROBOT: Did he -- say that again? He talked about it.

Dr. Bertini: Well, he -- I attended one of these public safety convenings that he held last year, and there was someone from Microsoft and someone from OnStar there who handled the post-session, ten-minute session, saying, well, you -- he was telling us, you know, you guys need to get together and work on this.

But I would just say that, in addition to the vehicles that having tolling-related communication devices now, there are also vehicles that have these crash notification systems, ATXM OnStar.

DR. DROBOT: But those are all of the commercial, public spectrum, okay.

Dr. Bertini: But I'm saying there are pieces of the puzzle there. There are pieces of the puzzle in the tolling.

(Simultaneous speaking.)

DR. DROBOT: -- it's the right thing to do.

MR. VARAIYA: There's more to the story. I helped one of the entrepreneurs that you talked about. So I helped start a company five years ago in Berkeley, which is wireless sensing. It produced a little box which is used in the intersection to measure vehicles. It's used to measure speed

in freeways. It's used to do ramp metering, it's used to wrong-way ramp control, best travel time. Same platform, an open platform.

Now it's going to detect pedestrians and bicycles and parked vehicles, and we're developing one which will measure weight. It's wireless, so that you just stick it in the ground and then you just listen to it. Battery-operated, which will last ten years.

Now, the spectrum is not DSRC. The spectrum is Zigby 802.11, because it's extremely cheap, right? So the radio is -- we don't do any invention of the radio. We design all the protocols on top of it with the physical thing, and so there are these opportunities with this kind of open platform that is used, and now we're going to start manufacturing and selling in China next month.

But getting it through here, I mean, it is -- it's used in 150 cities in the U.S. and every state. But there are lots of these kinds of opportunities, once you develop that platform. It's multi-programmable, so you just sit in your office and you can play around with how that device will operate.

But these kinds of things are not visible in --

it's not V2V, but it could be infrastructure to V easily, because you just would survey your base state, so you can -- it is now V to Internet or infrastructure to Internet, because it's going through GPRS or CDMA or et cetera, where it could easily go to --

We're going to start a safety experiment next month, to see how safe intersections are using these sensors.

MR. DENARO: I'm not understanding, and I don't want to just take us in a new direction here, but I'm not understanding what we mean when we say the community's not adopting 5.9 or DSRC. Are we saying like your system didn't use, and OnStar didn't switch over to 5.9? Is that the kind of things we're saying? I'm not sure what we mean when we say that.

MR. VARAIYA: There is no way in the world the economics will work for us to use 5.9. We use 2.4. It's an open ISM band. So it's not secure, you know, and it's not dedicated.

MR. VONDALE: It seems to me, you know, the people who have looked at it so far have decided that the only thing that's likely to work, if we're going to continue to pursue the path we're working, is 5.9.

MR. DENARO: The only thing that's going to work for what?

MR. VONDALE: For safety, hard safety.

MS. ROW: Hard safety.

MR. DENARO: Hard safety.

MR. VONDALE: And that's, you know, that's an important part of the path that we're headed down. The point I was going to make here is a suggestion. To me, looking at the policy and the technology, and understanding that Aneesh is the Chief Technology Officer, he's probably going to want to grab onto something that's technical. To me the biggest obstacle to deployment is security of the system.

I think, ultimately, that's going to be a huge challenge, and my suggestion is that he focus in on trying to make sure we solve the security aspect. Regardless of what spectrum you use, if you're going to try and do hard safety, security, protecting the system from hackers.

MR. DENARO: So let's drill down just for a second, so I understand what you're saying. Is what we'd be asking then, we heard Walt Bennett give a description, a description of probably what's required, at least at a conceptual level, to do that.

Are you saying what we want to do is have Aneesh fund the development of that by the federal government, by DOT or whatever, and put that in place?

(Simultaneous speaking.)

DR. DROBOT: We already have a program.

MR. VONDALE: Make sure we have the adequate resources.

MR. DENARO: What was that?

MR. VONDALE: Make sure we have the adequate resources, people and money to solve that problem.

MR. DENARO: So you're saying we think we know what's needed in a general sense. Let's just go do it. Is that part of what you're saying?

DR. DROBOT: Bob, let me do the following thing. There was a point in time when I think Mr. Jones was running the program, and he thought that a $1 million investment was enough to solve the security problem, okay. I think, as people have gotten into it, and understand the scale you have to operate at, I would say, the contention between privacy and security, the ability to withdraw certificates, the system to distribute them, and really make sure that all of this is unhackable, foolproof, all of that. When you peel

back the onion, we find that this is a big problem.

MR. DENARO: Now are you talking specifically about the 5.9?

DR. DROBOT: I don't care whether it's at 5.9 or any other frequency.

MR. DENARO: Okay. But for this application --

DR. DROBOT: If you do not solve the security problem, and somebody can access --

(Simultaneous speaking.)

DR. DROBOT: -- and do things in a car, it's not acceptable. Okay. That is to me, while there are people working on it, there isn't a demonstrably solved, a demonstrable solution to that problem.

MR. DENARO: You mean a program that's implementing that?

DR. DROBOT: Yes. I mean, there are programs on the way that haven't gotten to the point where you can demonstrate hey, this actually works and it will do what it's intended to do.

MR. DENARO: So make this happen.

DR. DROBOT: Make this happen.

MR. BELCHER: But do you ever solve it? I mean,

don't you just stay ahead of them?

DR. DROBOT: Let me put it this way. A practical solution -- so let me do two things, okay. If I look at the financial industry, and I have lots of customers in that industry for whom we do security, they didn't care about what I call 100 percent solution, okay.

You know, one percent wastage, it's okay. I'm going to pass that bill on to my customers, okay? Once you start dealing with human lives and liability all of that, this becomes a very, very different problem.

You really need a very hard solution. It's not going to be 100 percent, okay, but you know, it's going to be 5/9ths or 6/9ths or something like that for it to be viable, okay. That's a tall order.

MR. DENARO: I think Shelley's going to make a comment.

MS. ROW: Well, I'm just, I'm still back on Jim's comment before, of how do you plug in the strengths? While I like the direction all this is going, my observation from that meeting is that his strengths are going to be absolutely in technology. He gets technology.

He cited to us several examples of previous round

tables that had resulted in him facilitating the coming together that had previously had difficulty coming together, and he gave them a timeframe to act, and they got together and they solved the problem.

And in that particular instance, it was around the standards issue for health care.

DR. DROBOT: This was a health care, sharing electronic files.

MS. ROW: Sharing electronic files.

DR. DROBOT: How do you satisfy HIPAA and --

MS. ROW: That's right.

DR. DROBOT: He was extremely proud of that.

MS. ROW: And he was very happy about that, and because it was technology-based, and it was groups of people who had had a historic problem and there was laws on the way. He brought them together, made them work together, and they came to a resolution in like a month.

MR. DENARO: Did he put money into that exercise?

MS. ROW: I don't think, I don't remember there being money.

(Simultaneous speaking.)

MS. ROW: I'm not sure he's got a lot of money at

his disposal, so I don't know. As you're thinking about this, you might think about things that are the pulling together of people, where it's a real problem. He gets standards. He gets the standards problems in general. We didn't talk about these particular problems. But that seems to be where he really has a good niche.

MR. DENARO: He has a good experience in that area, so he wants to replicate.

DR. SUSSMAN: A bureaucratic question. You mentioned FACA before. We operate under FACA. I'm wondering if it's more difficult to do this through this Advisory Committee, than it would be simply by reaching out informally to Chopra and working with him. I mean, this is FACA. I think it gets messy, huh?

MS. ROW: Are you saying have him work with this Committee?

DR. SUSSMAN: No, no, no.

MS. ROW: No. Say it again. I missed it.

DR. SUSSMAN: I'm saying informally help him facilitate the getting together of these people, but don't make it a FACA operation.

MS. ROW: No, it can't -- the group that we had

before was not a FACA group.

DR. SUSSMAN: But we are.

MS. ROW: You are, and that's good.

(Simultaneous speaking.)

MR. BELCHER: It wouldn't be us. We wouldn't be -- I mean, maybe one or maybe a few people here might be there, but it would be a different group.

MS. ROW: The FACA concern is when you pull together a group of people like that, particularly in a highly visible situation, they can't advise. They can't reach consensus in the meeting.

It's just an informal gathering of people to share ideas. We run a line, if you wanted to reconvene them, that becomes very difficult. If you want to follow up with those people, it becomes difficult.

MR. DENARO: Why is it, and you said that before, can you give me a little bit more detail? Why is that a problem when you follow up?

MS. ROW: We can probably do some follow-up. It's not completely clear what --

MR. DENARO: Is that because it starts looking like a FACA then?

MS. ROW: Well, it starts looking like, well, how did you pick that particular industry person to give input to the White House?

DR. SUSSMAN: Right, got it. Got it.

MS. ROW: So there's just a little bit of care we just have to exercise there. Probably not insurmountable.

MR. KISSINGER: In the spirit of what you guys were just talking about, you know, are we shooting for -- is the objective to have one of the recommendations from this Committee to be the thing we're taking to that meeting, or are we doing this separately? I mean, is there an advantage to have it part of this?

MR. DENARO: My answer would be we're doing it separately, but most likely what we pick will be something that's on our recommendation list, because that's all we know about.

MR. KISSINGER: And what's the advantage of that, versus going in and saying we've had a year-long discussion; here is the highest priority that this group has recommended, and we need some White House attention.

MR. DENARO: The advantage of that, I think, is that we're -- all we do is write a letter.

MR. KISSINGER: No, I mean --

MR. DENARO: And he can execute maybe, on some one narrow thing.

MR. KISSINGER: Well, I mean, I see some advantage, from my perspective, of taking one of the recommendations from this Committee. But it sounds like we're almost considering another option, which is to -- you know, we're having this process to write this letter, and then we're -- all right, well, what do we want to take, you know, what do we want to take --

MR. DENARO: But like this one thing we're floating right now about security. It's going to be one of the recommendations we had in the Technology Strategy Committee.

DR. GIULIANO: I have a -- I want to throw something out. One of the real knotty issues that we have come up with is this -- and this goes back to Joe's suggestion about standards and interoperability, is that the discussion that we had about competition, et cetera, and basically the disincentives for harmonization, and is that something he could peak to.

In other words, is he the person that could

actually get people into a room to say, okay, what would it take for you guys to buy off on, you know, to get you guys to agree on some basic standards --

DR. DROBOT: He could, though. I mean he could.

DR. GIULIANO: I mean so -- and that's a really big problem that we've identified. Maybe that's --

DR. SUSSMAN: That's the closest thing to something actionable I can see.

DR. GIULIANO: Yes, yes.

DR. SUSSMAN: I mean you can't say let's have a meeting to bridge the gap between the government, between the private sector and the locals. I mean what's he going to do with that?

DR. GIULIANO: Exactly, right.

MR. DENARO: I was thinking the same thing there.

DR. DROBOT: So let me ask a question on 5.9, okay. You know, if I look at 802.11 devices, and you look at the numbers shipped annually, it's in the hundreds of millions, okay, and high hundreds of millions, okay?

You look at where 5.9 is today, okay, even if you were to go to full deployment, 60 million cars in the whole world were to do this, okay, you're still structurally, I

would say, a factor of ten higher in cost, okay? Just because of the replication capability, of where you are with something like WiFi.

If you were to look at LTE, the same kind of economics apply. You're going to have almost a billion people a year that buy devices. The question is who then makes the annual investment to move the 5.9 technology forward, building new chip sets, et cetera, et cetera, okay? And this is what I've got to say sort of the moose on the table. I don't see it.

It might work better. It might be dedicated. I understand that. I don't understand how the economics work out. So Pravin, am I on the wrong track or --

MR. VARAIYA: I agree with you 100 percent.

DR. DROBOT: I still don't see how that works out.

Remarks by Mr. Greg Winfree, RITA Chief Counsel

Dr. Bertini: Did somebody just join the call?

MR. WINFREE: Yes, hello. It's Greg Winfree calling in.

MR. DENARO: Hi Greg. It's Bob Denaro.

(Simultaneous speaking.)

MR. WINFREE: --calling in to introduce myself. I think I had a chance to meet quite a few of the Advisory Committee members probably at the April 2010 meeting. Sorry, go ahead.

DR. BERTINI: Thanks for calling in, Greg. I gave a glowing introduction of you earlier, and promised your close involvement with this group after my departure, and they were all very happy about that. They're all smiling now.

MR. WINFREE: Oh, good. I was stricken by the silence.

MR. DENARO: Actually, our chairman is just coming back in, Joe Sussman. Joe, Greg has just joined, so he just called in.

DR. SUSSMAN: Great. Thank you for calling in. I took a brief biological break. We've worked closely with Rob Bertini, and we understand you are going to be moving into that slot in about four weeks, and perhaps you can give us some sense of any perspectives that you have that may be of value for this PAC.

MR. WINFREE: Oh, absolutely. As Rob probably mentioned, I became involved with some of the policy issues,

and we started to consider things like privacy, especially, in conjunction with cybersecurity, and that was another related discipline. So I've been working on those issues, along with NHTSA and Federal Highways and Federal Motor Carriers.

So I'm certainly attuned from that perspective, I certainly look forward to getting more steeped in some of the technological advancements and other partnerships that are out there. I mean I think it's a really fascinating technological concepts, and I'm really interested in seeing how it plays out.

For those of you who don't know, I'm an avid motorcyclist, and one of those persons on those projectiles who are often at the mercy of other road users, infrastructure, et cetera. I think these kinds of developments will only help make the entire transportation system safer.

So, yes, I'm very much on board, enthusiastic and look forward to carrying on what Rob's substantial shoulders have been carrying, and I'm sure it'll be a tough act to follow.

DR. SUSSMAN: Well, thank you for your comments.

I ask the Committee if anyone has any questions for Mr. Winfree while he's connected.

Dr. Bertini: Well, thanks a lot, Greg. I know you're traveling and I appreciate your giving a quick call. I'm not sure when this group will meet next. I think that will be decided probably later today.

DR. SUSSMAN: Right. Yes. We hope you can participate when next we convene. Occasionally, we do so via telecom, and could participate there as well.

MR. WINFREE: Yes. Short of that, I'd certainly like to take an opportunity here to work that into my travel schedule to come around and visit with you folks, you know, where you all live and work. I think it's important to do that. So I'll look forward to scheduling some time to do that as well.

Dr. Bertini: Robin Chase lives in Paris, so if you can see about that.

(Laughter.)

DR. SUSSMAN: Well, I work in Cambridge, and I'm guessing you'll come up to see our friends at the Volpe Center from time to time. I'm at MIT.

MR. WINFREE: I certainly will.

DR. SUSSMAN: And perhaps you and I can have a cup of coffee together during one of your visits.

MR. WINFREE: Absolutely, absolutely. I've got several contacts up there from my days back in the pharmaceutical industry. So I've got a bunch of friends at Biogen and another start-up, started by Dr. Whitesides over at Surface Logix. Cambridge is certainly, in addition to Volpe, an area that I'm quite familiar with. So I look forward to visiting with you there, though.

DR. SUSSMAN: That would be terrific, thank you. Well thanks so much, Greg. We appreciate you taking the time to call in from some airport somewhere, and we look forward to meeting you face to face.

MR. WINFREE: Likewise, likewise, and thanks again. I look forward to working with you all.

DR. SUSSMAN: Thank you.

MR. WINFREE: Yes. Thank you, Rob. Take care.

Dr. Bertini: Bye.

MR. WINFREE: Bye.

Resumption of Discussion of Engagement with Mr. Chopra

MS. CHASE: Back into the other question, I think that is precisely a good question, is that the answer to why

we don't use that space is because of the investment requirement, and then it would be -- and I guess maybe it's unfair, though, to have Aneesh or -- what's he going to say about that?

He can hear it, which is interesting for him to hear it. But he can't commit the U.S. government or the magic to commit the U.S. government to what it's going to take to build it out. But I would like to have that conversation in an overt way with someone in the White House. But he's perhaps not the right person in the White House to be having it with, or you've got -- on this 2013, I also am beginning to feel slightly bad about the 2013 decision that's coming up. So if we were to use Aneesh in this venue for this conflict, that would be informing that decision. Is that -- how do you feel about that?

DR. DROBOT: No, but let me do the following thing. There is an annual letter that comes out from OSTP, signed by the directors of research of, you know, DOE, NSF, et cetera, et cetera, and it's really guidance for the federal budget and what everybody else concentrates on.

Aneesh is very instrumental in placing something in that document, okay, and that is the President's signal,

both to the departments and to the Hill, okay, of what programs are of value and what should be emphasized.

If that document says that it is important to do connected vehicles for safety, et cetera, et cetera, you know, that's sort of a license for agencies to go and fund and sort of focus on those issues, essentially, okay. You know, when you look at the machinery, it ends up carrying everything from SBIR programs, you know, all kinds of other things.

This becomes grist for the mill, okay. That's an important thing. That's something Aneesh can do.

MR. DENARO: But haven't they already done that?

DR. DROBOT: No.

MR. DENARO: I mean hasn't the government already done that? We have a 5.9 program. It's --

DR. DROBOT: No, let me put it this way. If you were going to ask, you know, where is there a 5.9 program of record, other than in DOT? The answer is nowhere, okay.

MR. DENARO: But, but --

DR. DROBOT: That's why nobody touches it, nobody finances it, nobody invests in it.

MR. DENARO: But if I'm Aneesh, he's going to say

we already did that, we put it there, and nobody's using it and it's your fault. I mean --

DR. DROBOT: No.

MR. VARAIYA: I think, having it, you know, from OSTP, that's not going to push commercialization of 5.9 at all. I mean for the reasons that you just noted.

DR. DROBOT: I agree, I agree.

MR. VARAIYA: So what is going to be achieved by that?

MS. CHASE: So going back to this question, for me, I feel like that's an interesting question to have.

DR. DROBOT: So let me -- wait a second.

MR. VARAIYA: Connected vehicle, but not tied to 5.9, I agree with.

DR. DROBOT: No, no, no. But what I will say is the following. You know, when you have a federal program that will have a wedge, and it's committed to significant spending over time, that does generate investment, okay.

But -- and so unless you end up with a ledger of record, and it's up on the Hill and it's a new start, et cetera, et cetera, you know, you're not going to generate the resources.

MR. DENARO: I'm confused about something that I haven't understood as we've talked about this. Okay. If 5.9 is specifically to address the car-to-car safety problem, because it has low latency and so forth --

DR. DROBOT: Now the low latency is not because of the frequency.

MR. DENARO: No, I understand. No, no. So the dedicated bandwidth and we can do what we want to mold this thing the way we want it to.

DR. DROBOT: Right.

MR. DENARO: And yet we're also saying people are not adopting it. I'm not understanding why we care that people adopt 5.9, because it sounds to me like 5.9 is specifically to solve a certain problem, low latency communication for critical crash avoidance type things, and that what we've said is the system has to embrace additional communications from most likely cellular, and cellular's going to handle everything else. So if that's the case, why do we care about 5.9 over everything else?

DR. DROBOT: So Bob, let me do the following.

MR. DENARO: Now it might be expensive --

DR. DROBOT: No, no, no. Let me look at this

way. Okay. I think there are between 600,000 and 800,000 intersections, okay, that eventually you would want to install it.

MR. DENARO: Well --

MS. ROW: There are 250,000 signal lights.

DR. DROBOT: Okay, or whatever. I'm not going to argue a number. Let's take 400,000.

MR. DENARO: But in the V2V, we don't yet do intersections.

DR. DROBOT: No, no. I understand. But eventually you have to do something like that. Okay. Now the question is if I want to put up a device, okay, is it going to be ten bucks because it's 802.11, or is it going to be a thousand bucks, okay, because nobody's investing in it and this is sort of a custom-made low-volume chip set. Okay?

If it's a thousand bucks, you've got labor, you've got the other things. You end up with one hell of a bill, essentially, okay? That's the real issue, and who's going to pay that bill?

MS. ROW: And what else could you do with that money?

MR. DENARO: Okay. That's for the V2I part.

DR. DROBOT: Well, I think the V2V, you know, when you look at sort of what penetration curve looks like, faces the same problem.

MR. DENARO: It will be expensive.

DR. DROBOT: Very expensive.

MR. DENARO: Have you guys looked at that? The philosophy of 5.9 and DSRC?

MR. VONDALE: Yes. I mean what you're pointing out is a big issue. I mean the experts would love to use a different spectrum if they could, because of the fact that --

MR. DENARO: The point not being that the spectrum is the wrong frequency; the point being that you want to get on to something that's being utilized --

DR. DROBOT: You want to use a common technology --

MR. VONDALE: Right, to be more useful for a variety of things. We're looking at whether 5.9 can be used for other things, and hopefully you can find some other things. But right now, the experts believe that that is the frequency that works for hard safety, and, you know, I agree.

The philosophy right is use 5.9 for hard safety and other frequencies for everything else. It would be nice

if we could settle on one frequency to do everything.

MS. ROW: And just so we're clear, we don't have some like emotional attachment to 5.9. We're just trying to use what will do the job that needs to be done.

DR. DROBOT: It's the most developed for this particular purpose today, absolutely correct.

MS. CHASE: Something that I didn't understand. I thought that one of the challenges with 5.9 was that it required a significant amount of roadside infrastructure, because of it's characteristics, and then if you had another one, it wouldn't require so much infrastructure investment.

DR. DROBOT: It's line of -- okay. So 5.9 is line of sight. It gets blocked easily, it bounces around easily, things of that sort. My feeling is as you really go through all the testing, all of those things will become manifest.

MR. VONDALE: Really, the issue that right now is facing us is for purposes of security, the thinking is that we have moved away from V2I to V2V, but now it's starting to look like in order to address the security issue, we will need a lot of --

DR. DROBOT: We need to infrastructure to do it.

MS. ROW: But far less --

(Simultaneous speaking.)

DR. SUSSMAN: I think we're going to have to move on from this. Sorry. I mean I have an emotional attachment to it --

(Simultaneous speaking.)

DR. SUSSMAN: But I'm going to recommend -- Peter, you and your group have heard a lot of ideas, and perhaps we can refer it back to the Sweatman subcommittee, to flesh out.

I personally think the standards idea is something that someone like Chopra could have a lot of leverage on. We obviously have to see how this late June, mid-July meetings go before that. But at some point, that's something that he could see as actionable, but I'm sure there are other equally good ideas.

But we've got a fair amount to do before the appointed hour. So may I suggest we move to a discussion, the last, perhaps the last of the luncheon discussions, which is reauthorization.

DR. SWEATMAN: Jack, just before you leave that, I feel have to accept that challenge. I just want to say

that Shelley's comments were incredibly helpful, and I thought wow, this conversation's getting off to a really good start, because we understand how we need to pitch this.

It needs to be technical, it needs to be short and so on, and then everything else is just being really confusing. So I heard standards and, you know, when we talk about 5.9, there's some kind of elephant in the room, that we don't want to do something that's going to disturb the existing programs and all that kind of thing. It's really kind of complicated.

Maybe standards might be a nice way out of this. But I'd like to think that we have a much more positive kind of view of what we want to do. So we might have to come back to the Committee at some stage.

DR. SUSSMAN: We can talk about it offline.

MS. ROW: Yes, and I just think --

DR. SUSSMAN: If other people have other ideas, I suggest you communicate with Dr. Sweatman.

MS. ROW: I think we need to do this quickly, because if you really want to do something before December 10th or whenever it is that all of us go away, we need to get going. So my only suggestion is --

DR. SUSSMAN: Well, we need an idea.

MS. ROW: -- like within the next month, we ought to have it worked out.

DR. SUSSMAN: We need an idea, I think. I think Shelley's advice, of making it crisp, making it singular, is exceptional advice. But we haven't come to any --

MS. ROW: The "it."

State of Transportation Reauthorization Legislation

DR. SUSSMAN: -- any closure on what that is. So the other thing I wanted to have a long time to discus was reauthorization of SAFETEA LU. Scott has some expertise, Shelly has some expertise.

MS. ROW: Rob. Rob knows more than I do.

DR. SUSSMAN: I'd like to -- and Rob as well. So the floor is open for anyone who feels they can add anything to our knowledge base about that legislation or proposal.

Dr. Bertini: Did we talk about this last time?

DR. SUSSMAN: Last time was --

Dr. Bertini: I get confused if we talked about it to the ITS America Board. Polly Trottenburg gave a --

DR. SUSSMAN: Oh, that could be. I wasn't at that meeting, of course. But we may have talked about it in

Detroit, but a lot more has happened since Detroit.

DR. BERTINI: I'll just say from our perspective, I mean, the President's budget for 2012 is -- is not proposing any significant changes to the ITS program. The piece that got added on was the WIN Fund, which would be $100 million, not per year but total over five years, and that's really the one change, and then generally speaking, the DOT or the administration's proposal is out there on websites for you to take a look at.

You know, some things are moving forward regarding -- I just saw it today. The Senate side is doing some markups, and so pieces of the puzzle are being dropped from the House and Senate side. The thing I heard was that the Senate version looked a lot like the administration's version. But that's just through some emails, and not through any --

DR. SUSSMAN: Yes. I'm less interested in the public stuff that's been distributed than I am in the Congressional perspective on the urgency or lack thereof going forward. I think in Detroit, the comment was made that we're unlikely to have such legislation until President Obama is reelected or not. So how are we doing on that kind of

time scale?

MR. BELCHER: Well, in terms of that type of time scale, the House will draw up its bill the week of July 4th, and it will very quickly go to committee markup, that week, I think. I think it's scheduled for committee markup that week.

The troubling part of that is that it's not been shared with the Democrats, and it won't. The bill is -- again, is expected, anticipated to be in the 217 billion to 230 billion dollar range over six years, which is lower than the current legislation.

The reason for that is the need to live within the trust fund means. So Mr. Mica is very intentionally, and you've got to appreciate the position that he's in. While he is the chairman of a very important committee, it is a Republican-led House, and not matter how much he might want a different or bigger bill, he's really -- he's forced to have a bill that is that size.

What you can expect is I think there would be much more focus on highways, much more focus on state autonomy. You'll see money pulled from high-speed rail. You'll see money pulled from livability. You'll see money

pulled from, you know.

He probably will not change the transit highway mix, but -- and it will be more focused. You'll see, you know, greater attention to public/private partnerships, and you might even see some loosening of some of the tolling provisions.

But it's not going to be a whole lot different. But that should be dropped July 4th, and the big question on the House is whether you can get floor time, especially with the debt ceiling debate that's going to take over most of the summer.

MR. ALBERT: And it's not on the schedule, is it?

MR. BELCHER: It's not on the schedule.

DR. GIULIANO: And then you have to fight over appropriations after that.

MR. BELCHER: Well, then you've got to get --

DR. GIULIANO: The new fiscal year.

MR. BELCHER: You've got budget talks that are going to go on at the same time.

DR. GIULIANO: Right.

MR. BELCHER: So that's a real risk, but Mr. Mica is committed to getting a bill out, and I think he -- it's

possible. On the Senate side, I have maybe a slightly different take than Rob. I think they are going to drop a bill roughly the same time.

But what I've heard, and they are actually -- they are starting -- nobody's seen anything yet. But --

DR. BERTINI: Technical assistance requests are floating around.

MR. BELCHER: Okay, yes, and we've gotten some too. I mean, they're actually talking to us now, which is a good thing. But there was press three weeks ago that there was an agreement between Chairman Boxer and minority lead Inhofe, that they had reached an agreement in principle on the bill, and that it would be roughly $330 billion over six years.

That would be the current legislation plus some inflation, and that -- but there's no indication how that delta would be funded. So that's a problem. Mr. Inhofe came out probably two or three days later and said, well, we kind of have an agreement, but I don't think it's ever going to happen. What we really ought to be driving towards is a two year bill.

A two year bill is probably the worse of all of

our options in some respects, because it doesn't address the funding issue that we face, and what it leads to is an increasingly decimated trust fund that becomes of crisis proportion, even worse than it is now.

The interesting thing is if that press release is accurate, I mean it is what it is. It was a press release by the two leaders of the committee, it means that they've essentially thrown the administration under the bus. This is me speaking. This is not -- I'm not speaking on behalf of the administration. I'm not speaking on behalf of anybody else.

The reason I say that is the administration bill is $587 billion over six years, and you know, if your negotiation is between 217 and 230 and 587, that's a big span. If your negotiation is between 330, where you don't know how you're going to make up the difference between the two and 217, you're really playing with a much smaller pool, and there's not a lot of change.

I do think you will see -- in the Senate bill, you'll see a lot that they can fight over, because the Senate bill will continue to try to address the transit-highway match. It's going to be more favorable to transit. It's

going to be more favorable, much more favorable to livability issues, much more favorable in trying to address transportation sustainability.

So there is -- a lot's going to happen, and it's going to happen very quickly. I mean once the July 4th weekend hits, the legislation -- both bills are likely to be out there. The administration bill has been leaked, and so I don't think -- those are the ones on the internet that Rob was referring to.

DR. BERTINI: Those are the ones.

MR. BELCHER: Okay, yes. You can find the administration bill.

DR. BERTINI: But also our -- I mean the RITA position is on our website. It's not the technical language, but it's the budget.

MR. BELCHER: Right, and that's been out for a while.

DR. BERTINI: Yes, on our website, just to be clear.

MR. BELCHER: But you know, the interesting thing, and to a comment that occurred earlier, the bill language that the administration puts together to share with

Congress, had a provision that has already been controversial, and that's a provision that would have created an office to address mileage-based user fee research.

The administration very quickly, the White House very quickly said, you know, that wasn't -- that's not us. That's, you know, the Department was a little bit out in front on that, and we're still not supportive of that. So that's just another factoid that's out there.

The last thing I would say, and again this is my own conjecture -- this is not based on what I've read or what I've heard from specific individuals -- it's not as bad as it sounds. I would say that because, and what I mean by that is it's not as bad as it sounds, in that there is, I think, still a -- I don't know. I'd say 52.8. It's just a number I make up to indicate that I think that there's a little bit better than even chance that you could get legislation this year.

DR. SUSSMAN: 52.8 is your probability.

MR. BELCHER: That we'll get it.

DR. SUSSMAN: Not yet another number, okay.

(Laughter.)

MR. BELCHER: Yes. It's my probability, yes.

52.87643, and the reason, you know, it's totally arbitrary. But I do think there is the possibility you get a bill this year, because -- because the President needs some winds going into the reelection cycle. He needs to be able to show that he can compromise with the Republicans, and historically, transportation has been relatively non-partisan.

So you add those three things together. The only thing that makes the whole thing that much more difficult is just how polarized, particularly the House has become. So that, I think that's the wild card that nobody can really manage.

So that's what I know at this point. I've had conversations on both sides in the last week or two. Nothing that nobody else hasn't heard or read, but that's kind of the big picture.

DR. SUSSMAN: Scott, thank you. Anyone else have also any factoids or anything else to throw into the pot? It sounds pretty discouraging to me, in terms of just the numbers that you cite. You know, hundreds of billions of dollars apart. I mean where is that going to come from?

MR. BELCHER: Well, I mean the discouraging part

is not really -- the discouraging part is not really whether they compromise. It's the fact that the country is in such significant financial straits that we're not going to make the investments in our infrastructure, in any scenario that we need to.

I mean that's the discouraging part. I mean you're just not going to see the kind of money that all of the commissions, anybody who's looked at this has told us we need to be investing. We sit around here and we talked about how much we're not investing in research, and how much other areas are investing in research, and how, if we really want to do this, we need to invest.

We talk about how we need to go to the White House and tell them to invest. There isn't any money to invest. So we're going to get a bill that's in fact going to shrink the amount of money that the states have to operate.

From an ITS perspective, I mean you know, from an ITS perspective, I think the things that people here do become more attractive, because it's cheaper and the return on investment is better than laying new highway, building a new rail system. I mean you know, and you think it's bad if you think about the highway system.

I mean think about public transit right now. Ridership is going up. Service is being cut, you know. At the time where we need more buses and better buses and more rail, you know, transit systems are going broke, and they're cutting service and raising fares. It's a tough time right now for transportation.

DR. DROBOT: But you know, Scott, if I look at, let's say, outcomes from things like the stimulus package, the choice was not to do ITS-like things. The choice was more concrete, and because the shortfall is a trillion-plus dollars.

MR. BELCHER: But I think the bigger question on that, the choice was not to do transportation and infrastructure. I mean, I agree. The second choice was not to do ITS. But the choice was not to do infrastructure.

DR. DROBOT: Well, no. I mean --

MR. BELCHER: Seven percent of the stimulus went to infrastructure.

MR. CALABRESE: I think all of the money went to Transportation for shovel-ready projects, and ITS not shovel-ready. We're not. We've got seven projects out that we had designed --

DR. BERTINI: Well, the problem with ITS is you don't need a shovel. I mean we're talking about a different kind of technology that --

MR. CALABRESE: And when FTA Administrator Rogoff came the day after, you know, he stood with the hard hat construction workers. You know, ITS is a little more vague in terms of creating jobs. We're looking at, we're gearing up right now, our best guess for the reauthorization.

(Simultaneous speaking.)

MR. CALABRESE: I mean if you look at 330 to 230, that's about a 30 percent cut, and hopefully it stays at the same ratio, roughly 82 percent highways, 18 percent transit. We all get a 30 percent cut, and the real depressing thing is we've never been in a period of time -- is there total agreement on something? Yes. There's total agreement on the state of our infrastructure, which is really, really bad.

MR. ALBERT: I met with House P&I, Mica, Duncan. I met with Environment and Public Works yesterday, also with Baucus' office, Inhofe's office, and also with Conrad out of North Dakota. The only thing I really heard anything different was there was a move trying to get money out of the general fund, to help soften the blow on the transportation

side.

But no one was quite sure whether that would even have a chance in hell of happening.

MR. BELCHER: But we've gone to the general fund the last two years. It's hard to imagine going to the general fund in what's -- given the fiscal recurrent Congress.

MR. ALBERT: And I heard the two-year was really being thrown around more and more, because no one can figure out how to pay for anything, and they were supposed to have a Revenue Committee meeting yesterday. It got cancelled.

DR. SUSSMAN: Anything further on the reauthorization?

DR. BERTINI: I think ITS America organized a nice event with Congressman Blumenauer a few months ago, and he pointed out something that I had never really thought about, is that there's no other item that we consume, whether it's off of your, anything that posts its price on giant signs on every street corner, besides gasoline. You know, I've been thinking about that and noticing that a lot more.

DR. DROBOT: Every Starbucks should have a law that says --

(Laughter.)

DR. BERTINI: But unfortunately, the giant numbers don't convey to the public what's really behind those numbers. I thought that was an interesting --

MS. CHASE: That's a good point, though, because that number also is just a fraction of what it actually costs.

DR. BERTINI: I mean that's -- well, yes. I mean it's a number, but it's not presenting information to the public. It's not helpful.

MR. BELCHER: Joe, can I get three minutes on World Congress?

DR. SUSSMAN: It's on reauthorization. Scott has another thing he wants to raise. Go ahead.

MR. KISSINGER: It's certainly related. I mean there is a coalition --about the long-standing under-investment in rural road safety. There is a rural road safety coalition that has gotten a bill, a rural road safety bill introduced in the House right now, which is very much in the context of reauthorization.

DR. SUSSMAN: What is the scale of that?

MR. KISSINGER: Well, it's hundreds of millions

of dollars, I think, per year. I don't remember the exact numbers. I can get a copy of it.

DR. SUSSMAN: Okay. Scott, you had another point. I think I know what it is --

MR. BELCHER: If I can just take three minutes just to update everybody on where the ITS World Congress is and the preparations for that, because I think it's important, and unfortunately I have to leave at three.

In terms of the program for World Congress, we have -- the big name speakers are Bill Ford from Ford Motor Company; Tom Stephens, who's the vice chairman of General Motors; and Ben Verwaayen, who's the chairman and CEO of Alcatel-Lucent. We also have Deborah Hersman, likely have the Secretary of Transportation. I mean I don't have the official letter, but I'm fairly certain he'll be there.

If our last annual meeting was any indication, we will have six or seven of the modal administrators. So big speakers. Many Transportation ministers from around the world will be there and have confirmed. 250 technical sessions for people to get training for the engineers, and then plenaries on the whole focus, interestingly, is on keeping the economy moving.

So everything. This meeting is really around the role of transportation in the economy. So we'll have a public sector plenary, where ideally Secretary LaHood will participate. Private sector, with CEOs from large companies. That's where Ben Verwaayen. We'll have a modal administrators plenary, and then we'll have a safety plenary that will have Dave Strickland and Deborah Hersman, and maybe even your counterpart at MIT, the guy who runs the H Lab. I can't --

DR. SUSSMAN: Oh, Joe Poppel.

DR. DROBOT: Joe.

MR. BELCHER: Yes, Joe. So that's -- so the program is good. The preliminary program's out on the website, so go look at it. There's a ton of stuff there. Demos. We'll have 25 demos right now. Eight of them are safety. Then we have mobility demos, sustainability demos and pricing demos.

So even if parts of the government can't talk about pricing, we need to showcase how you can do congestion pricing and DMT and those kinds of things. So you can see and feel, and CAMP will -- this is the 5.9, the Collision Avoidance Metric Partnership, will also be showcasing what

they're doing, through one of the user acceptance --

MS. ROW: Traveler clinics.

MR. BELCHER: Traveler clinics. The exhibit hall has got over 250 exhibitors, 350,000 square feet. So a place to see where technology is. And then finally, there a couple of important events. There is a first responders day.

So for first responders, people in uniforms, they can come for free. There's a student's day. Again, students, high school or college students can come for free, and we're working with U.S. DOT; we're working with the universities, to make sure that there's also more to do than just walk the exhibit hall and the demos.

We'll be doing an investor matching day, where we're linking up investment capital firms with entrepreneurs and other companies looking for money. So this is another opportunity to bring and to develop a culture around transportation that exists in other cultures.

There are a number of other events, but that's just kind of a couple of highlights, high thresholds. What? October 16th through the 20th in Orlando, Florida. It's in the United States once every three years. There will probably be 10,000 plus people there from 70 countries.

MR. ALBERT: Could we have our meeting down there, our next meeting?

DR. SUSSMAN: We talked about the possibility of doing that. We've never had much luck with it, because we don't -- the FACA stuff makes it a little difficult to organize, and people's schedules are so packed, even if we have a large number of us going, finding the time --

MR. ALBERT: Why is that any different from here, the schedules?

DR. SUSSMAN: Well, I mean you're at the conference. You're going to sessions and so on, and just your setting aside a day for the purpose of --

MR. ALBERT: We could it before or after.

DR. SUSSMAN: Yes. Scott and I have talked about that --

MR. DENARO: Yes. What day of the week does it start on?

MR. BELCHER: It starts Sunday. Sunday afternoon is the opening plenary or the opening session at four o'clock. You could do it Sunday. You could do it Saturday, and then it ends on Thursday. So you could do it Friday.

I need to -- I'd be remiss if I didn't -- U.S.

DOT has been a very active partner in this. This is their opportunity to showcase, and they also, it's an opportunity. Because we have such strong international participation, there are a lot of different meetings going on on a lot of different topics.

So it's, I think it's a great opportunity to kind of see where we are, and continue to push. There will be a lot of press there, and so again, this is a chance to try to make sure people, the public understand what's really possible.

MS. ROW: And just to one of the earlier points, I think we're going to try to use, as one of the existing sessions, that they put in for standardization. I think we're going to try to use that as the place to talk about international standards harmonization, to help raise that profile.

We're going to be working with Peter. It's an easy sell, Peter, so that in his presentation at one of the plenaries, he will mention international standards harmonization. His counterpart at the EU is going to be there. We're working with them, so that they also will say something about it.

So we're trying to use World Congress to address one of the other issues we talked about earlier today.

MR. BELCHER: And just one other thing on that. We're looking at a session for CEOs and ministers, to talk about the interface between transportation and the economy. It will include the Chinese minister, the Indian minister. So different levels of economies around the world, again, to try to build the case that we need to invest in our infrastructure, and we need to invest in transportation, and if we don't, we're going to fall behind.

DR. SUSSMAN: You said ministers and CEOs. You mean private sector CEOs?

MR. BELCHER: That's my current thinking. I'm thinking that transportation leaders, primarily ministers, but you know, I think if you could get some key thought leaders from the private sector, that would make the session even more interesting.

DR. SUSSMAN: They're the equivalent of Secretary LaHood, the ministers are on these --

MR. BELCHER: From the other countries, yes.

DR. SUSSMAN: --participate in that as well.

MR. BELCHER: I don't know. Somebody likely --

the problem with Secretary LaHood is he's hosting a ministerial session, literally two months prior for APEC. So it may be that he will be ministerial sessioned out, and that we'll have somebody else from DOT representing DOT. We're working through it. We're working through it.

DR. SUSSMAN: Sounds like quite a meeting. It's hard to believe that New York is three years ago now. It's amazing how the time goes by.

MR. BELCHER: It is, and it's five months.

Subcommittee Breakouts

DR. SUSSMAN: No question. We should start on this. Okay. So Bob and I have been thrashing around, trying to figure out how best to use what now turns out to be an hour and 20 minutes before we adjourn. There are, I guess, I could think of two possible ways forward, and maybe Bob has some others.

One is to follow the original model and go into our subcommittees again, to kind of see where, how the subcommittees, an individual subsets of this group, feel about what they heard and what work they might feel they want to do.

The other alternative is we just continue with

the plenary, and try to map out the way forward, for how we get from here to the advisory memo that I spoke in an impassioned way about at the very beginning of the meeting, saying we really need to get to that. So Bob, did you have another alternative that we can get some discussion on, and go on forward?

MR. DENARO: No. I think those are the options. I was just noting that we had planned a full hour of breakout and then an hour of report out. We don't have that much time anymore.

I'm not sure of the value of, say in our subcommittee, of spending a half hour together, besides which we're hitting the post-lunch haze, and energy level might be sinking a little. So that would be a pretty boring breakout.

DR. SUSSMAN: Of course, you just returned from Germany yesterday, so it's more of a haze for you --

MR. DENARO: It's about 10:30 my time, so I'm starting to slump. But one thing that struck me in this meeting here is I think we've had some great discussion. I've learned a lot, and thank you for all those who have answered my questions, because that clarified some things.

We came up with a few target topics that there

seemed to be some passion around, and I wonder if we'd rather pick one of those and dive into it a little bit more while we're here together, and hash that around.

DR. SUSSMAN: I'm open to --

MR. DENARO: Well Joe, I want to throw it out to you.

DR. SUSSMAN: -- what people would like to do. We can certainly stay in plenary. I have a hunch that people are starting to look at their watches and think about their airplanes and things of that nature relatively soon. So we may in practice lose critical size.

Shelley, do you have any perspective on how this time might be best used, from the JPO perspective?

MS. ROW: I'm not sure that I do quite frankly. I think it sounds like the way that this has evolved at the working groups or the subcommittees, it sounds like that they want to go back and do some more thinking. I think it might be your next meeting, where the pieces begin to come together into the final recommendations for the report. I'm trying to think.

DR. SUSSMAN: Well, I was frankly hoping for something a little more aggressive. I was hoping we'd come

out of this with being able to write the report.

MS. ROW: Yes.

DR. SUSSMAN: Go ahead, Robin.

MS. CHASE: I was actually looking forward to that, but if we wanted to stay in plenary, we could be thinking about what the front end of that report, that is, things that are joint. What are the joint points that we want to make, so when we do redo our subcommittee stuff, we don't do those things? So that's my recommendation.

MR. DENARO: What about other meetings? How do other people feel?

DR. SUSSMAN: Ann, are you on?

MR. FLEMER: Yes, I am.

DR. SUSSMAN: Oh good.

MR. VARAIYA: I think maybe having subcommittee meetings are preferable, and then coming together could be done electronically, because this is the only time that we'll have to meet, right?

DR. SUSSMAN: Okay. Well that would have been my preference as well, and it sounds like that may be a reasonable way to go, and if there's some time before we actually quit, we can come together. So let's think about

subcommittees. We'll stay in here, so because we've got the phone and Ann is our chair, and we have a breakout room, I guess.

MR. VELEZ: Conference Room No. 1 is on the other end of the conference center.

DR. SUSSMAN: So perhaps Peter et al. can take that, and the Standards people could grab a corner and have their discussions. That will take care of it.

MR. DENARO: Pravin, are you going to join us in the Technology Subcommittee.

MR. VARAIYA: Yes.

MR. BELCHER: Yes, he is.

DR. SUSSMAN: Let me just mention one further thing before we break up. It seems to me that there were two points that were strongly made, at least as I understood it.

One was we need to toughen up, sharpen up the recommendations, that while they were good, they were a little plain vanilla and one can go with what we have, to something where we can be perhaps a little sharper than we were.

The second was the notion that as a practical matter, we're looking not so much at JPO, but are looking at

the ITS program at the federal level, and that we ought to be writing our materials in that context. So let's go into breakout.

Adjourn

(Whereupon, at 4:00 p.m., above-entitled matter was adjourned.)