The Committee met in the Potomac Ballroom of the Crystal City Marriott, 1999 Jefferson Davis Highway, Arlington, Virginia, at 8:00 a.m., Sheryl Wilkerson, Chair, presiding.

MEMBERS PRESENT:

SHERYL WILKERSON, Committee Chair, Vice President, Federal Government Affairs, Michelin North America
STEVE ALBERT, Director, Western Transportation Institute, Montana State University
ROGER BERG, Vice President, Wireless Technologies, DENSO North America Research Laboratory
JOSEPH CALABRESE, Chief Executive Officer and General Manager/Secretary-Treasurer, Greater Cleveland Regional Transit Authority
JOHN CAPP, Director, Global Active Safety Electronics, General Motors Corporation
ROBERT DENARO, Vice President, Nokia
GINGER GOODIN, Director, Policy Research Center, Texas A&M Transportation Institute
DEBRA JOHNSON, Deputy Chief Executive Officer,
Long Beach Transit
J. PETER KISSINGER, President and Chief Executive Officer, American Automobile Association Foundation for Traffic Safety
SCOTT MCCORMICK, President, Connected Vehicle Trade Association
RAJ RAJKUMAR, Professor, Department of Electrical and Computer Engineering, Carnegie Mellon University
SUSAN SHAHEEN, Adjunct Professor, Civil and Environmental Engineering and Co-Director, Transportation Sustainability Center, University of California, Berkeley
KIRK STEUDLE, P.E., Director, Michigan Department of Transportation
GEORGE WEBB, P.E., County Engineer, Palm Beach County, Florida

U.S. DOT STAFF PRESENT:

WALT FEHR, Systems Engineering Program Manager, ITS Joint Program Office, Office of the Assistant Secretary for Research Technology
STEPHEN GLASSCOCK, Program Coordinator, ITS Joint Program Office, Office of the Assistant Secretary for Research Technology, Committee Designated Federal Official
ROBERT SHEEHAN, Transportation Specialist, FHWA, Office of Operations, Transportation Management
JEFF SPENCER, ITS Program Manager, Federal Transit Administration

ALSO PRESENT:

STEVE GEHRING, GM
BRIAN HOEFT, RTC, Southern Nevada
SPENCER MATHEWS, Volkswagen Group
JILL WARNOCK, HWG LLP
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MR. GLASSCOCK: Good morning, everybody. Welcome. I'm glad that everyone could make it. Ken Leonard asked me to pass along his apologies for not being able to attend today. The senior leadership in the office is at an offsite training retreat, whatever you want to call it, so no one is able to attend.

Bob Sheehan with VITA in Transit and Walt Fehr will be here later on. In fact, Walt is going to -- we did some last minute juggling of the agenda and on an informal basis, Walt is going to talk to you, give you a little blurb on what is going on at the JPO, while you are having lunch.

And again, I am going to hand it over to Sheryl but it is your meeting, so please speak up if you want things done differently on a different time basis. So, again, welcome everybody. And I am in the back. Let me know if
OPENING REMARKS

CHAIR WILKERSON: Thank you. So, thank you all for being here and for taking time out of your professional duties to participate on this important advisory committee. And Stephen, thank you so much for taking care of all the logistics.

MR. GLASSCOCK: Yes, so I'm sorry. Everybody has been here. It is not your first rodeo. So, identify yourself for our friend at the end of the table there that is recording everything. And the restrooms are all the way down past the elevators. So, it is a little bit of a hike. I'm sorry, Sheryl.

CHAIR WILKERSON: That's okay. Would it be helpful if we went around the room and gave our names for you? No, okay, great. So, if you have a question or comment, just announce your name first. So, thanks again, Stephen, for all the logistic and administrative stuff.

So, for the record, the members who were not able to participate today were Scott Belcher,
Bryan, and Tina Quigley. I think that's it. Yes, at least that is what we understand.

I will be sure to follow up with each of them and share the progress that we have made from the meeting today. To the extent there are subcommittee leaders, to the extent you can reach out to them and get their input onto any of the recommendations that we make today, that would be extremely helpful because we will have a very tight time line.

So, does anyone have any questions about the agenda? Again, we tried to provide as much time as possible for the subcommittee breakout sessions. It was very difficult, in light of the selections that everyone made. Some people had just one topic they were interested in, others had four. And so we tried to make sure that we didn't have four groups going at once, when other people would not be able to participate. So, I had probably five or six different schedules and Steve and I, we went through trying to figure out how to make sure that people who wanted to participate on the subcommittees and weigh in on those in their
top two to three categories could participate. So, if there are other suggestions for how to do that, we welcome that.

MEMBER MCCORMICK: Sheryl?

CHAIR WILKERSON: Yes.

MEMBER MCCORMICK: I just wanted to note that I tried several times to get a Scenario Planning date for everybody to work with. Roger was able to participate but I couldn't really get any traction from anybody else on any schedule. So, it died out of apathy.

CHAIR WILKERSON: Yes. So, I think maybe today, though, there might be an opportunity to revisit that.

MEMBER MCCORMICK: Okay.

CHAIR WILKERSON: Just we came up with five topics.

MEMBER MCCORMICK: Right.

CHAIR WILKERSON: We can eliminate a topic, if we need to. We can add a topic, if we need to. So, the floor is pretty flexible. But we wanted to make sure that given all of the time that we had in suggesting that option, that we
provide some time to at least vet --

MEMBER MCCORMICK: Well, Roger and I both kind of felt that some of the other topics probably would benefit more from the time, since there wasn't a lot of interest in doing that.

CHAIR WILKERSON: And my understanding was that some of the Scenario Planning would correspond with some of the other topics.

MEMBER MCCORMICK: Right.

CHAIR WILKERSON: So, still, I think it is worthy of keeping and then maybe if you are not able to get a group in that scenario, I will go over that schedule that we have and who would be in that, based on what we discussed the last time. And then if not, we can have that discussion, as we go through into the recommendations for the subcommittees.

So, the primary purpose of our meeting today is to review the preliminary drafts or recommendations that were submitted last month. And the goal will be to submit a formal Advice Memo to the Secretary next month.

So, during our May 13th teleconference
call, we received updates on those five topics that we identified at the February meeting for consideration in the Advice Memo.

Each committee member identified those committees that he or she wished to serve on and have been afforded an opportunity to contribute, both to those draft recommendations through various phone calls.

The drafts were shared with the full committee prior to review and preparation for today's meeting. And today we will pretty much use the majority of our time to take a deep dive into these topics and further refine the recommendations for the full committee consideration. So, our goal will be to submit a formal Advice Memorandum with formal recommendations next month.

So, the agenda provides for three breakout sessions. We propose the two key topics for the first two and then the majority of the members have already selected their first and second choice. Some people only had one, others had four. So, when we get to the breakout
sessions, I will explain how we sort of allocated your time.

So, there are a couple of circumstances where there may be members who did not select one who will have an opportunity. We encourage you to the extent you did not originally select a committee, that you might choose one or one of the other two subcommittees to listen in on or weigh in, so we can get your insight.

So, again, this is just a suggestion. If you have other recommendations for how best to use our time, the short time that we have, now is a good time to weigh in.

MEMBER DENARO: So, Sheryl, just to make sure I understand, we are going to break out as subcommittees?

CHAIR WILKERSON: Yes.

MEMBER DENARO: Okay.

CHAIR WILKERSON: So, for instance, the 9:30 to 11:00, we went through a number of different reiterations and we tried to do -- you can see we kind of went all over the place trying to figure out how to make sure that we maximize the
time with those subcommittees that people chose.

So, for instance, the first two are Funding and Scenario. Like Steve had picked that as a one. Scott Belcher, who is not here, didn't pick one of those. He had really wanted to be on the Data Committee. So, he would have had to pick Funding or Scenario to sit in on.

Roger picked Scenario Planning as number one, so Roger will be in that one.

Joe, for instance, you did not pick one of those two. You really wanted to be in the Public Transportation and the Shared Use, which you will participate in later. But for the first 9:30 to 11:00, you can pick which one you might want to sit in on or you can spend that time further refining the topic that you originally worked on.

So, anyway, we have some charts and it is pretty easy. I don't think we left out -- there is only a few places where I think a couple of people will have to choose.

So, any other comments on that?

So, before we proceed, we thought it would be helpful, we circulated the comments or the
draft recommendations and we thought if you would like to make suggestions, or make other observations for how we can use the time in those subcommittees best, if there are people who won't be able to be in a particular subcommittee or who come up with ideas, since we have gotten the drafts that you would like to share openly with the committee, now would be a good time.

So, we have allocated just an hour to have open committee discussion. If there is no discussion, we really want to get down to the subcommittee meetings. We can use that time wisely.

I had just a couple of just brief suggestions. One is the documents that were submitted were very different. So, to the extent that we can come up with a template and agree sort of how we will present this so that when the subcommittee leaders or anyone who wants to be part of working on the final draft, we can spend a little less time worrying about format, we can really focus on the substance.

Some of the reports had more
information than others. Some had charts. Some had prioritized them. Others had more introductory and background information. So, to the extent that we can look at those as a whole and say what really do we want to recommend. We don't want to have maybe 50 recommendations. We really want to fine tune and make sure what the top priorities are. So, as we look at this, maybe we should look at what we may not need to have, what may be able to be combined.

And then lastly, there were some that had sort of suggestions and talked about subject matters without making a formal recommendation. I think to the extent this is going to be going to the Secretary and Congress, we really need to have specific recommendations.

So, Steve, is there anything you would like to mention for that? Because right, the Secretary will say yes or no or concur?

MR. GLASSCOCK: Right. Yes, well the JBL is the one that recommends the concurrence or non-concurrence. So just as much as they can be to the point, the better. And there is not a limit
on how many you can recommend. I just -- having too many, it may dilute the meaning of the report but it is up to you.

MEMBER MCCORMICK: Yes, the other thing I kind of wanted to remind everybody is that this is the interim report.

CHAIR WILKERSON: Yes.

MEMBER MCCORMICK: And what I would like to make sure we do is save time at the end of the day to at least do kind of a look into what is it we think we are going to be addressing or dealing with or adding value to for the main report at the end of next year or the middle of next year.

CHAIR WILKERSON: Okay, that sounds great.

MEMBER MCCORMICK: And it might be that it is building on some of these and maybe new things.

CHAIR WILKERSON: Okay, good point.

MEMBER DENARO: Let me add on to that. We have got a lot of time in breakout and we do need some of that. But I am concerned that we don't have enough time as the plenary committee really going
through and looking at recommendations for all the subcommittees. And this is our, it sounds like, our last meeting before we actually submit something next month.

CHAIR WILKERSON: I'm not sure I understand.

MEMBER MCCORMICK: Well, we have all of the recommendations.

CHAIR WILKERSON: We have the recommendations, right.

MEMBER MCCORMICK: We need to get to concurrence on it.

CHAIR WILKERSON: Yes.

MEMBER DENARO: But is there enough time for us, as an overall committee, to discuss five sets of recommendations?

CHAIR WILKERSON: Well, we still have time before September. I mean we still have several weeks to go after this. And I know some people had a tough time getting those calls set. So, I think we kind of brought it on ourselves but I think to the extent we can, later on -- I could come up with some timeframes that we could possibly
consider before we do submit something before the end of September, the last week of September. But if you have other thoughts or suggestions, I am happy to --

MEMBER KISSINGER: Well, I think what Bob is saying is that the subcommittees have all done a certain amount of work. And there is probably less need for them to meet to reiterate their --

MEMBER DENARO: And more to communicate to us.

MEMBER KISSINGER: -- their report to the whole room.

MEMBER DENARO: Just to throw out a suggestion, I can, speaking for Data, I think we can spend a half hour just staring at each other saying do we like what we have come up with already.

CHAIR WILKERSON: Okay.

MEMBER DENARO: And say that so later on, instead of 45 minutes so that the subcommittee can update the committee, try to make that a two and a half hour block, where we can really all hear and weigh in on everything else.
CHAIR WILKERSON: So, do you want me to cut, take a half hour off of each one of those times?

MEMBER MCCORMICK: Well, why don't we be opportunistic with it and let's plan for a half an hour and then just ask each committee do you need more time, depending on where they are. And then we will reserve all the extra time we can combine into that.

CHAIR WILKERSON: And part of this exercise, too, if you look at how we broke that out, the goal is for all of us to be weighing in on those topics.

MEMBER MCCORMICK: Right.

CHAIR WILKERSON: So, 9:30 to 11:00 is just not the Data Committee. It is, let's say, for instance, Public Transportation Data, half of us will be in one of those groups. So, you will get some cross-pollination during those discussions and you might get some other insight from people who weren't part of those subcommittees.

MEMBER MCCORMICK: Why don't we ask the question right now? Which of the subcommittees need more time before they can present to the
convening group? Do you?

MEMBER DENARO: Speaking for Data, I don't think we need more time.

MEMBER MCCORMICK: Okay. Funding?

Okay. Shared use?

MEMBER SHAHEEN: No, I'm ready.

MEMBER MCCORMICK: Okay, then maybe what we do is we use those times to discuss the topics and --

CHAIR WILKERSON: Well, the other thing, too, in light of the structure and the template, I think there should be some time spent figuring out one, do we need to keep all of these. For instance, Shared Use has a lot. So, my assumption is that you are probably going to need a good amount of that time.

There are others that might need more text or context added to the draft recommendations in the beginning or to provide some context, so shared use doesn't look like it is 15, you know ten recommendations, just to provide some continuity and some thought.

MEMBER MCCORMICK: But the model we had
from the last committee, the last PAC group is a very effective model.

CHAIR WILKERSON: So, I think you will probably need a little bit -- I think you will probably need -- your timer was kept back by the lot of people that will be part of that.

So, well we can -- how about 45 minutes?

MEMBER MCCORMICK: I think we have a template, the one we used from 2012-2013.

CHAIR WILKERSON: Well, I did share that with everyone but I didn't get comments back.

MEMBER DENARO: Let me throw out just another suggestion.

CHAIR WILKERSON: Sure.

MEMBER DENARO: That we could maybe take one session of say 45 minutes for all breakouts.

CHAIR WILKERSON: Yes.

MEMBER DENARO: Each breakout, the football five can meet in parallel or if we have the data, if we don't feel like we need to meet, we can split up and go attend other ones that are going on. Maybe, actually, I mean four when I say
that because maybe Scenario Planning is something we would like to do all together. So, maybe we make the Scenario Planning session be a plenary session in here and then also keep a longer review session at the end for redoing all the recommendations.

CHAIR WILKERSON: So, if we cut back, if we make them 45 minutes, so that gives us 30 -- that is an hour and a half from those three.

MEMBER BERG: I have another suggestion. Why don't we flip it and have us, as a group, review the existing thing and let the breakout groups work on improvement that was suggested by the group.

CHAIR WILKERSON: That's fine.

MEMBER MCCORMICK: You are okay with us destroying your title.

(Laughter.)

CHAIR WILKERSON: I had to propose something because we needed to -- so, I am open to suggestions. The goal was -- we had two different proposals. The goal was to make sure that after reading them there was a lot of -- they were just very different, very inconsistent. I made
comments on all of them. So, I am going to provide my comments to the various committees in writing, subcommittees. But I wanted to be sure that we had some consensus.

Since you proposed that, can you recommend your time frame?

MEMBER MCCORMICK: Yes, Roger.

MEMBER BERG: I would suggest maybe that each breakout group, not breakout group, but every subcommittee, maybe --

CHAIR WILKERSON: Make their formal presentation?

MEMBER BERG: Yes, make a presentation, talk about it for a half an hour. I think by that time, we will have got some major things through.

MEMBER CAPP: That should help with the consistency.

MEMBER BERG: Yes.

CHAIR WILKERSON: I'm flexible.

MEMBER DENARO: So would that be like an hour and a half, do you think, 8:30 to 10:00?

MEMBER BERG: Yes.
CHAIR WILKERSON: So, if we go from 8:30 to 10:00, that is an hour and a half. And then take a break.

MEMBER DENARO: Then a break.

CHAIR WILKERSON: Okay, is that okay? And then we go from 10:15 to let's say do you want to do 11:45?

MEMBER DENARO: I would say I am thinking that 45 minutes would probably be plenty for the committees to break out, based on what they heard.

CHAIR WILKERSON: So you want 45 minutes.

MEMBER DENARO: That only brings us to 11:00 if we do it that way.

CHAIR WILKERSON: You said 8:30 to 10:00, though.

MEMBER DENARO: Yes, 8:30 to 10:00, break for 15 minutes, and 10:15 to 11:00.

CHAIR WILKERSON: Okay. And then --

MEMBER BERG: How many groups do we have, four, five?

CHAIR WILKERSON: There are five.
MEMBER DENARO: Okay.

CHAIR WILKERSON: We can still do 11:00 to 12:00 and then do lunch, although we have got lunch scheduled.

MEMBER DENARO: Well, what would --

(Simultaneous speaking.)

CHAIR WILKERSON: I'm sorry?

MEMBER DENARO: What would the 11:00 to 12:00 be?

CHAIR WILKERSON: One of the subject matters. The first one could be Funding, the next one could be Public Transportation, the third could be Data. So, 11:00 to 12:00 Data. Is that fair?

MEMBER DENARO: I'm not understanding what you mean.

MEMBER BERG: I thought we were going to do like let's say Bob says I am going to present the Data Advice Memo draft.

CHAIR WILKERSON: Right.

MEMBER BERG: Everyone looks at it and says I think that is good. And Susan starts and says, talks about Shared Use and maybe we talk about that for an hour.
MEMBER MCCORMICK: Yes, I don't think they are going to take an hour and a half each.

CHAIR WILKERSON: Okay.

MEMBER MCCORMICK: Collectively, they might take an hour and a half.

CHAIR WILKERSON: I just want to make sure that if we get into a really deep discussion on Shared Use or some others that we have ample time later on, that we are not crunching back up and then we don't have time to have discussion.

MEMBER MCCORMICK: I would rather say give the presentation. If there is serious concern about how its content or formed, that gets moved to their breakout session. And then whoever has got that concern can participate in that.

MEMBER CAPP: It might take a couple of hours to talk through them as a group.

MEMBER MCCORMICK: Right.

MEMBER CAPP: I'd like to do that. And then there is still time to break off.

CHAIR WILKERSON: Okay, I'm a little confused. But can you reiterate for the record what we are going to do, based on what you have just
said? Because I did not get it.

MEMBER MCCORMICK: We start, as Bob and Roger said, we go have each group present what their presentation is to the group, what their conclusion or recommendation is. And then we have an open discussion at that point, in terms of the completeness, the value, the semantics of whatever it is they are presenting and move on to the next one.

If there are serious concerns, then that member of the committee can go work with them in their breakout session --

CHAIR WILKERSON: Okay.

MEMBER MCCORMICK: -- to input their input.

OPEN DISCUSSION OF SUBCOMMITTEE DRAFT RECOMMENDATIONS

CHAIR WILKERSON: So, it is pretty much what we have up there. Open committee discussion from 8:15 to 9:15?

MEMBER MCCORMICK: Yup.

CHAIR WILKERSON: Okay, that is what this time is for.
(Simultaneous speaking.)

CHAIR WILKERSON: So, is everyone in agreement? Okay, so we will go for that. So, why don't we start with funding? Okay? Has everyone had an opportunity, I really hope, to help Ginger with the insight and comments that she needs?

MEMBER DENARO: Can we put the recommendations up there on the screen?

CHAIR WILKERSON: Does everyone have a copy, a hard copy?

(Simultaneous speaking.)

MR. GLASSCOCK: Everyone should have a copy.

CHAIR WILKERSON: I think lunch is fine. If we run over, then we will work with it.

MEMBER MCCORMICK: Well, we can always have a working lunch, guys.

CHAIR WILKERSON: Well, just Walt Fehr is coming in to give a presentation.

MEMBER WEBB: And I don't know who to ask. The Senate passed its version of the Transportation bill. I haven't looked at it. But does anybody know what ITS things may or may not
be in that version? I know it is 1,000 odd pages.
For the analysis, does anybody have any sense of
burying a nugget in there for ITS, as far as study?

MEMBER MCCORMICK: Well, I wouldn't
say that nugget would be the appropriate term.

MEMBER WEBB: If it is there at all.

MEMBER KISSINGER: I was at a meeting
with like five or six associations and their
government reps were all in that meeting. And I
was told forget the Senate bill because it probably
will never really be taken up seriously.

MEMBER MCCORMICK: That's what I heard
from our Government Affairs Committee as well.

MEMBER KISSINGER: So, probably what
is in there is probably not worth spending a lot
of time on.

MEMBER MCCORMICK: Their expectation
was that there wouldn't be anything substantive
until the fall.

CHAIR WILKERSON: Can you please say
your names when you comment for the person who is
recording?

MEMBER BERG: I'm Roger Berg.
(Laughter.)

MEMBER BERG: I was just trying to think, since we are leaving the Funding -- how it was viewed over on the Senate side when they did the legislation, it was just not even considered at all. So, whether the whole bill survives or just portions of it meets all their standards.

FUNDING

MEMBER GOODIN: Well, I think where we are at right now is that we have a continuing authorization, which is no more money than what we have had before, which is kind of the story that we have had for the last however many years.

MEMBER MCCORMICK: Six years -- forever.

MEMBER GOODIN: Yes. So, the background information kind of lays out that we have a funding issue that we had some long-term sustainability questions, that we have got a lot of competing needs for this bundling supply of money. And ITS has always had, it has always been a challenge to prioritize ITS with the many kind of demands on funding we have.
And so given that we don't see, and I am speaking for the subcommittee, a change in that dynamic at all, that the way that we are approaching this is that the implementation and a significant portion of the funding is more and more being taken up at the state and local level.

So you know, you look nationally and 60 percent of the funding of transportation happened at the state and local level. So, federal is important but when we get down to the implementation, it is happening at those levels.

And so the way we kind of went at this is to say the federal role can really enhance the implementation and stimulate the funding at the state and local level through pilots, demonstrations, seed money for deployment. So, our first recommendation is really saying we need an infusion of money to continue to expand on what we have, what DOT has done in these kinds of demonstration and pilot projects in a lot of different areas but in ITS similar to what is going on down at the Connected Vehicle pilot, which they haven't announced those pilot programs.
But what that does is that it provides a way at that local level for policymakers to understand the direct benefits of the implementations, so that they can look at not just rely on federal money to support deployment but looking at how do we now take this shrinking pie and either expand that pie with more money or carve the pie differently, so that we are allocating money that may be going to capacity expansion and now look at how ITS can fill that data and address the needs.

So, the amount of money that we proposed here, and just I don't have a feel for this $200 million in annual funding on top of research is a significant amount, just based on what I understand about JPO's budget. And it could be that in conversations that I have had over the last couple of days, we need to say that may be a number that all of a sudden it is like, that is out of the question. We might want to look at what you would get for $200 million versus $100 million versus $50 million and have some different options.

On top of that, the second
recommendation really relates to looking at innovative funding, innovative financing for ITS and Operations. So, this is a way of making the pie bigger. We have some experience in the U.S. and internationally but infrastructure projects where the public and private sector can be gathered to implement those, there is a lot of examples in different modes, et cetera. But we don't have a lot of examples in ITS and Operations. There are some but this recommendation rally points to research that can explore how P3s could be used in the ITS and operations area. Again, this is another tool to kind of get the funding pie bigger.

So, that is the -- one thing I do want to mention that we talked about in the first recommendation with the money for demonstrations is if you look at the three bullets there, quantifying the cost of the benefits, I think we have talked for many years about we need to be able to explain the benefits of ITS but doing it in a way that policy makers can understand for the individual traveler for their agency, what does this really mean. An assessment of how the cost
could change as you scale up from a pilot into an implementation, program implementation.

And then also the last bullet here is dedicated funding for communication and outreach of the results. So, taking this very technical information that we get from an evaluation but translating that into ways of communicating so that policymakers understand what that value proposition is.

I have noticed in the last report for this committee there was some recommendations related to outreach and communications and I think I remember from one of the earlier meetings that that was kind of -- wasn't acted on. So, I think we are trying to emphasize again there is a really important role that communication plays and try again to address it.

CHAIR WILKERSON: Would it be useful referring back to that recommendation? I mean it could be another inadequate system.

MEMBER GOODIN: Right. So, that is my high-level overview. I would ask the committee members if they have anything to add to what we have
presented here. Kirk, okay.

MEMBER STEUDLE: I would just underscore the question mark of the $200 million annual on this.

MEMBER GOODIN: Right.

MEMBER KISSINGER: Peter Kissinger. What is the, when you say over and above dedicated research funding, is that over and above like the current level or is that earmarks? I'm not sure what that --

MEMBER MCCORMICK: This would be three times -- this would make their $100 million budget go to $300 million for the JPO.

MEMBER GOODIN: Yes.

MEMBER MCCORMICK: And I have two concerns. One is that because it is such a growth and because Ken Leonard said I wouldn't know how to spend $200 million, I think part of the recommendation would be to have RITA consider how best to manage those funds because it can't be done with the current staff and they are certainly probably not going to do it. It requires some additional thought.
My other concern is that the use of the term pilots and demonstrates. We have been doing pilots and demonstrations for over a decade now. Industry has spent hundreds of millions of dollars supporting them. I think, for the most part, we know what to do. And that if we could somehow get that money moved toward incentivizing employments, it doesn't have to be of the entire thing and it doesn't have to be the exclusion of pilots because you made valid points about where there is value in capturing benefits and cost assessments. But I think it should include that if you have this bucket of money, that if somebody wants to go out and say I want to do a deployment, much like Michigan is doing, that they can use the funding for that as opposed to a pilot, which tends to evaporate a year after they have done their dog and pony show. So, I wouldn't want to replace those wording but I would like to add the thought that we do --

MEMBER GOODIN: Yes, I think we could offer some clarity there because, frankly, we saw these pilots that lead to deployment. My
background is less in ITS and more in the congestion pricing and managed lanes area. So, for the last 20 years, the federal government has been providing funding for basically hot lane managed lane projects. And those have demonstrated benefits that have now led to much more implementation. So, that is kind of how I was thinking about it. So, it is really pilots that lead to ultimate deployment or that become deployed.

CHAIR WILKERSON: Steve.

MEMBER ALBERT: Steve Albert. Just an idea. Rather than focusing on some research cited things, what if we change the tenor of our tone a little bit to how we would accelerate deployment, rather than how we might do a pilot that might lead to something. It might be just a different tone of what we would be recommending.

I mean I would argue, and I just came from our National Rural ITS Conference that I have chaired for many years and we had two or three breakout sessions on Connected Vehicles. And there are a lot of comments coming this way. But I still feel that a lot of the ITS stuff has not
trickled down to local. And it could be more palatable to politicians who might read this to say if we were going to put a greater focus on a bottoms up approach, getting ITS deployed in local areas, not necessarily rural, it might have a different tone it as well. Because I would argue, many times FHWA never finishes what they start. They do a demonstration and then they say, well, that is going to trickle down to rural America and it really doesn't. And then they say well, we have done that. Why do we want to do it again? Well, you didn't do it in the context of a -- so, I mean those might be some things where we talk about in our breakout meetings.

MEMBER DENARO: Bob Denaro. In the past, we have avoided the explicit mention of numbers and maybe we should continue that. I would prefer, instead of saying arbitrary $200 million increase, I would rather see us even have that in the body here, saying where are the gaps in the funding and why.

When I think of our role as a committee and where this is going to the Secretary and
ultimately to Congress, I think the value that we can -- and I like the idea about acceleration. If we believe that these are the intent, let's provide some of that background rationale for people to read. I mean we are one of the few documents that gets read up to those levels. So, I think the value we can provide is to articulate some of that, the whys for this.

You know when you listen to Chris Urmsom from Google talk, one of his main points he is making these days is the number of fatalities on the highways is equivalent to a 737 crashing every working day. That is kind of cool to get that message across and then plays into the acceleration, every day that we don't implement these things.

But when you talk about acceleration, it is not just funding. It is NHTSA's involvement and how they may help deployment via mandates. And then what would the JPO role be in terms of the research or what needs to be done to help that.

So, the summary of that is -- and I think we have lots of words in here already but I would
like to focus on a lot of the whys. We, as the expert committee of 19 or 20 people from around the United States are telling the Secretary and Congress these are the reasons why you need to find the funding to go get this accelerator in place. I think that is the value we can provide.

MEMBER MCCORMICK: Yes, the only objection I would have is that I would want the $200 million number to stay in there because I don't want it coming back and says okay, there is your $5 million when you are all done.

I want to put a stake in the ground that says this is what we need and then, to your point, this is why.

MEMBER DENARO: We didn't focus on that. We would have to word it properly. The difficulty is the JPO can't react to that. They are not going to react to that. They are not going to say yes, please give us $200 million.

MEMBER MCCORMICK: That's all right.

MEMBER DENARO: So, if somehow we lob over their head.

CHAIR WILKERSON: But that is a topic
you can discuss in your breakout.

MEMBER STEUDLE: So, this is Kirk Steudle.

I somewhat disagree with what Bob just laid out for what the intent of the committee is and what the letter of recommendation is. I don't feel that this letter should be the compendium of all knowledge. It, frankly, is an Advisory Committee to U.S. DOT that says here is what we looked at. Here is things that you have got to come up with answers for. It is not for the committee to come up with the answers for. It is here is the things that you need to work on, specifically, in the next two years or whatever the time frame is.

So, I would lean more towards, no, these are the recommendations and you, expert, DOT, you pull in those other experts and help come up with that. I don't think the need or the intent of our letter, and I have sat on a couple of these committees, is to tell DOT, here is all the background and here is what you should do, and exactly how to do it. I don't think that is the intention of an advisory committee. The Advisory
Committee needs to look at it and say here is the things that you have looked at. We recommend you develop stuff around this and pull in your experts to do that.

Because to say that this group of 19 people is the universe of experts, I think that is too far. There is a lot of knowledge. I don't mean to downplay anybody's knowledge here but there is a lot of people in this space. And there is people that do this for their job every day. And that is really what the advice letter is to them is to say okay, look, you are going off the track here or here. You need to get back on the track. Or look under this rug, and this rug, and that rug.

So, I just --

CHAIR WILKERSION: Well, as you have that discussion, you know, looking at the charter in number 4(c), it does, it says to a minimum, at a minimum. And it does recommend appropriate roles for government and the private sector and investing. So, I think you can take a look at that in your discussion. I have a copy there for you.

I have just one question. To the
extent that there are the federal grants, like the TIGER grants, would they weigh into it? Are there any issues that might tie into the grants? Because a lot of the state localities are fighting for these little bits and pieces for their intermodal transportation or their local mobile transport systems. Would that play a role in any of your discussions at all? They are all competing for that little piece.

MEMBER ALBERT: TIGER grants are more geared towards large infrastructure projects.

CHAIR WILKERSON: I just wondered because some of them are have intelligent transportation proposals in the ones that I saw that were submitted.

I know that they solicit different companies to support some of the grants that were being proposed and a lot of them were intelligent transportation projects for local communities. So, that is the only thing I was --

MEMBER DENARO: This is Bob Denaro. Does domain of ITS include automation?

MEMBER GOODIN: Yes. According to
Strategic Planning, yes.

MEMBER DENARO: Yes. So what you are addressing is conventional ITS, if there is such a thing plus V2V, V2I and all of that.

MEMBER GOODIN: I was looking at it for everything that is in the DOT.

CHAIR WILKERSON: Okay, great. So, is it possible to loop to Public Transportation?

MEMBER GOODIN: Yes, unless there is anything else.

MEMBER KISSINGER: Peter Kissinger. On the second recommendation, I mean do you have any specific examples of what you are looking for there? I mean it strikes me that, again, putting the money into actual pilots and demonstrations, as opposed to sort of esoterically banding those V2V concepts, it makes more sense to me but I don't know what the intent was there.

MEMBER GOODIN: I did a very quick scan of what research was available on this particular topic and I didn't see anything out there. And I think there is a lot of discussion about is there a private sector role and what public assets could
be leveraged to bring outside money to the table. And I mean we have seen this used effectively in infrastructure projects to accelerate deployment. Is there a way that those kinds of practices could be used in ITS?

I don't know if there are examples out there. I just haven't been able to see much, kind of bits on the research, almost.

Kirk, will you talk about what you did?

MEMBER STEUDLE: Yes, so what one of the questions on P3s is the spectrum and the cellular carriers. And is there value from these longitudinal corridors that are all wirelessly connected? There is a lot of data moving back and forth. Is there a value to that data to cell companies or some other private company that could be leveraged?

When you look at deployment of these in urban areas, you can hang it on the background of the ITS programs that states or locals have. When we get to rural areas, there isn't an infrastructure. So, the only infrastructure that is out there is a cellular network and is there
enhancements that could be made because there is
data that is moving back and forth that is of
interest to a private company. That is the
question.

And frankly, I think in order for this
to roll out across the country, that is the piece
that has to get solved. It is the rural
connection. It is the rural back hall. Because
you know 80 percent of the miles are rural and there
is no public agency anywhere that is going to be
able to afford to instrument 80 percent of the
country.

So, then you are going to have it in just
the urban areas. Is there a value to that data
stream that is there? What is it? What does it
look like? Who is interested in it? I mean I have
had companies approach me about it.

(Simultaneous speaking.)

MEMBER BERG: Do you think the cellular
guys would know that already? I mean, they have
people whose job it is to expand their business.
And if automotive and that data was an integral part
in somebody's business plan, they would know. We
haven't seen it. So, I tend to believe it is not there. It is not really a compelling reason for it.

MEMBER STEUDLE: Well but that is the reason that this is in here because -- entertain it; see if it is. Have the conversation. Because if it is not, let's quit fooling ourselves. We are not going to deploy these in 80 percent of the country.

MEMBER BERG: And like record the results so people understand. That makes sense. That I buy.

CHAIR WILKERSON: Right. Okay. Well, before we go -- we have some visitors from the public. Could we go around the room and if you could give your name and your affiliation? And then we did have a question. There is a gentleman over here who has a question.

MR. BAYLESS: Sure, Steven Bayless, Vice President of ITS America.

MS. WARNock: Jill Warnock, I'm a legal assistant at Harris, Wiltshire & Grannis.

MR. MATHEWS: Spencer Mathews with
MR. SPENCER: I'm Jeffrey Spencer, Volkswagen Group Government Affairs.

Federal Transit Administration on the ITS Team.

MR. HOEFT: Bryan Hoeft with the RTC of Southern Nevada.

CHAIR WILKERSON: Thank you so much for being here.

And you had a question or a comment?

MR. SPENCER: Yes, well, actually a comment to address Ginger's point on the public-private partnerships.

The FTA does not have a current strategic plan but we do have a business plan that was recently approved. And it really leverages those public-private partnership. We are looking at the shared economy in an effort called mobility on demand. We are looking at situational mobility, demand of responsive mobility that is companions to fixed route transit.

Susan Shaheen and I have worked many years for this stuff, you know car sharing, bike sharing, things like that. There is such a movement in that.
The second part of that is also engaging with the internet and big data. How is data going to drive that economy? So, the public-private partnerships are a huge part of the model going forward in our research.

A second point, and Mr. McCormick pointed out that when you keep calling it demonstrations, et cetera, we finally need to get to the point, well especially in transit, and Mr. Calabrese can probably back me up on this, when we throw it over the fence and say it is now deployment, it now competes with all of the other regular funding. And for a transit discussion and when you get down to medium, and even smaller agencies, rural agencies, it is competing with do I buy another bus, do I fix the ones I have, or do I invest in transit technology? You know what that answer is, often times. So, we need to fix that issue, especially in the language that goes to Congress because they always like to see deployments, which is still needed, especially as we move forward with these partnership and demonstrate how they do work.
But yet the main stream, once it does go over the fence, we need to have a way to encourage and enable.

CHAIR WILKERSON: Great, thank you. That was very insightful. Steve.

MEMBER ALBERT: One thing we might want to think about, and I apologize for new ideas that should have been brought up earlier.

CHAIR WILKERSON: No, that's great. That's why we are here.

MEMBER ALBERT: Some third bullet on underserved markets, whether those be rural, for instance, where they dealt when rural areas don't have power and don't have communications, how do you roll this stuff out. And the institution is quite frankly, as we said, probably greater in rural areas. And you have to not only deal with the state DOT but the counties, and the villages, and the blah, blah, blah, blah, blah, blah, and the scale of things may be a little bit different. If you have road closures, the alternative routes are probably 150 miles away versus just your next intersection.
So, something relating to that or bringing these underserved markets up so that we can achieve national deployment might be a good idea and what kind of partnerships might you need to carry that forward.

CHAIR WILKERSON: Okay, great. Any more comments?

Okay, so that is a great transition to Joe. Maybe we can start with the public transportation, Public Transit.

PUBLIC TRANSPORTATION

MEMBER CALABRESE: Thank you. And thanks to my committee. Some really, I think, some basic things. I think we are recommending we take a multimodal approach to our recommendation. We know that the Secretary is very into multimodal approaches. I think you have our two-page report. Public transit ridership is growing. I think there are a number of factors for that. Number one, the population is increasing. Urban centers are growing. We are become older as a nation and seniors are more likely to use public transit. But I think this is big, it is important, 800 pound
gorilla is the millennials, our younger brain trust, are moving more towards walking, biking, using public transit. Driving an automobile is not a necessity of life as it was with my generation.

Public transit is safe but has the ability to increase the capacity of our transportation systems I think in a very positive way.

Some of the reasons why public transit has not been better utilized, overall image and attractiveness, the perception of safety -- not the reality of safety but the perception of safety. When there is an accident on public transit, you know we had a terrible accident here a few months ago with WMATA where 19 people were killed. Again, that is a one hour on our roadways in the country but many, many months of PR on it. And the lack of significant frequency of public transit and again, that is limited by funded.

So, there is really three recommendations. Public transit is safe. It could be safer. How can ITS technology be used to
enhance the safety of buses and trains? I think that 99.9 percent our discussion here is automobile-related not public transit related. How do we take some of these technologies and put them on our buses and trains to make those systems both safer and a higher perception of safety. I think that is really important.

The model for Ford or GM to say our cars are the safest might drive more sales but then economic model doesn't exist in public transit. If the government doesn't do it, it's not going to get done, quite honestly for some of the reasons Jeff stated.

So, again, we are looking to further prioritize. When I have asked the questions in this room before, we will deal with cars first and we will deal with buses and trains down the road. I don't know that it should not be reversed. I think we should sort of deal with buses and trains at the same time.

From a deployment perspective, in most cities there is typically one transit system in every major city. There is a limited number of
decision-makers, a limited number of facilities so the deployment would be much easier and, I think, the roll out would be much better. That is number one.

Number two, public transit could be more attractive to customers. How do we increase its image? I think a lot of studies have gone to say the better real-time information we deploy, the better information we give to our customers, the more utilization there would be. The problem is there is hundreds, maybe thousands of different systems out there. There really isn't a standard. There isn't a technology standard for these systems and maybe there needs to be.

In the meantime, every public transit system is paying -- you know this is a great public-private partnership -- paying the same developer or company money to develop the same product for them. So, maybe there could be one standard to better utilize the government's money so more money can be going to deployment versus continuing to develop the same technology.

And lastly, what can we do? Public
transit, we don't like to refer to ourselves as an assembly line but we really are. The quicker our buses and trains go, the more cost-effective we are, the more services we can provide. What ITS technologies can be used to increase the efficiency and the speed of what we do? Certain organizational systems enhance real-time information. All this stuff is really great but if we can coordinate that stuff and focus on ITS technology for public transit, I think we will get a great bang for our dollar. Done.

CHAIR WILKERSON: Perfect.

MEMBER MCCORMICK: This is Scott McCormick. You know I think you made a point in here that resonates very well with one of the other previous committee's statements, where you said, unfortunately, the advantages of these tools are not universally recognized. And what I really was struck by was the fact that the JPO, the DOT, they give their webinars and their different discussions on various topic areas that that could very easily be reported that some of those that I have sat through would support educating that if
they just made sure you guys were all invited. You know I mean it goes out to their mailing list as opposed to specifically identifying people in the transit industry, since there is a limited number of them, and say hey, we are going to do exactly what you say here is explain this technology. So, I think there is at least a partial solution to answering part of that problem and it would be very easy to implement by the DOT.

MEMBER CALABRESE: I mean this might not address all the rural areas but there are probably 20 transportation providers in the country that serve 80 percent of the customers.

MEMBER MCCORMICK: Well, we'll invite John Deere.

CHAIR WILKERSON: They are using intelligent transportation. They are. They have GPS, they have all kinds of intelligent --

MEMBER MCCORMICK: They do. They have a very sophisticated system.

CHAIR WILKERSON: Very sophisticated. Maybe that is a topic we can add.

MEMBER KISSINGER: Why did APTA do this
or why doesn't APTA doing this?

MEMBER CALABRESE: Well, I don't know that it is APTA. APTA tries to consolidate, I mean try to coordinate needs but APTA really doesn't have any funding source to do these things.

You know the other reason is many of the technology providers are ATPA members. So, there may be some inherent problem with that.

MR. SPENCER: If I may, some of the problem we see is highway departments, et cetera, have staff. They have the engineers that are ITS trained. They have technicians, et cetera. Transit agencies don't have that bandwidth. So, often times, the target market misses. You can't get a GM to sit down in a meeting all day. He doesn't have time to do that. And then when he delegates, it is usually procurement person or something who doesn't have the technical capacity.

MEMBER CALABRESE: Our biggest issues, by far, as an industry, are implementing technology solutions but it really is very difficult.

CHAIR WILKERSON: Okay, Steve.

MEMBER ALBERT: I was going to meet
with Ken Leonard on this but now, I guess, is a good
time to bring it up and it is related to this.

One of the hats I wear is for FHWA is
the Center of Excellence for Workforce
Development. And it seems to me when you look at
ITS or you look at Connected Vehicles workforce
development, we are approaching a perfect storm.
We have 50 percent of our staff are leaving. We
have Connected Vehicles coming forward. You can't
hire IT people. You can't pay them enough to be
in transportation. And I don't hear anywhere in
here, in any of our recommendations, or any of the
discussions at a national level, AASHTO, TRB, et
cetera, and I have met with leadership, anything
regarding workforce development, how we are going
to fill those gaps.

MEMBER CALABRESE: And those will be on
IT. It goes to the people who fix our buses and
trains. There is a very different mechanic we are
looking for today. It is really a technician and
we can't find them. We have got to grow them. We
have got to train them. We have got to develop them
and it is a very critical issue.
MEMBER MCCORMICK: Doesn't the Professional Capacity Building Program at DOT support anything for transit? I haven't looked at it so, I don't know.

MEMBER ALBERT: No, nothing. Not that I know of.

(Simultaneous speaking.)

CHAIR WILKERSON: One at a time.

MEMBER ALBERT: Madam chair, if we treat this as a separate cross-cutting issue, I would be glad to try to lead it.

CHAIR WILKERSON: Is there any way to incorporate it in any of these? I was just trying to figure out whether it is --

MEMBER ALBERT: It might be and maybe that is something we put in the parking lot for right now and kind of look at it as we go through these. Or we do it as a standalone thing. But I think as a committee, we would be doing ourselves a disservice because we don't recognize what we need in the future in terms of skills, and labor, et cetera, et cetera. We can't just deploy things and walk away. We have got to have the right people
maintaining them. And that work force is going ---

MEMBER BERG: Can we say that as part of Scenario Planning? The scenario we see is an uneducated workforce? Or how does that --

(Simultaneous speaking.)

MEMBER CALABRESE: To make it work, there is actually a grant that the U.S. DOT has approved but not authorized yet to set up an apprenticeship training program for technicians. We are waiting for U.S. DOT to approve that. But no use 100 transit systems developing a hundred programs. We need one universal program nationwide that can be then propagated.

MEMBER MCCORMICK: Yes, and we they are actually partway down that path because they are incorporating the Connected Vehicle professional credentialing program that they created into the professional capacity-building so that it can be moved into transportation engineers, et cetera, et cetera. So, they are starting down that path but I think adding to that recommendation, whether we do it separately in Scenario Planning or in here, that they pay more attention to it and add more
availability for those types of things into an invitation to transit -- I'm sorry, this is McCormick -- would be a very valuable.

MEMBER CALABRESE: Great idea.

CHAIR WILKERSON: That's a great idea.

Okay, so, Scott, is that possible to --

MEMBER MCCORMICK: You want me to remember what I just said?

MEMBER CALABRESE: It's recorded, Scott.

CHAIR WILKERSON: No, I mean hopefully incorporate that into your Scenario Planning breakout session. I think that would be great.

Any other comments on Joe's presentation or comments?

MEMBER CALABRESE: The only question I had and we talked about this a little last time, should this be or not be separated from Shared Mobility? I think there is a lot of similarities. My concern is I don't want to dilute either one, in terms of recommendations.

CHAIR WILKERSON: So, I think why don't we plan to keep it here for now? And then as we
go through the Shared Use, there may be ways to cut
back, take that out of there and keep it in the
funding or vice-versa.

MEMBER CAPP: Well when we build the
actual lettering, it won't necessarily be broken
down by subcommittee.

CHAIR WILKERSON: No, no, no.

MEMBER CAPP: So, there is a chance to
move it around.

(Simultaneous speaking.)

CHAIR WILKERSON: I think just for
structure and priority, this is the way we have kept
it for now. Bob.

MEMBER DENARO: Bob Denaro. I am kind
of ignorant right now about the technology in
public transportation. But what you said before
about ease of use kind of strikes me as an area for
investigation.

If you look at one of the strengths of
Uber, it is the mind-dumbing ease of use of that
system with an app. It takes a lot of things out
of the equation and so forth for a lot of people.
And we are finding the public really gravitating
toward that. Now, arguably, I understand it is people who own smart phones and that is not everybody. But my question would be --

MEMBER CALABRESE: It's most people.

MEMBER DENARO: Well, it is getting a lot bigger. Exactly. So my question is, is there a need for something like that that is technology-oriented for transit. I will give you an example. I know that my prior company Nokia HERE, as well as Google and Apple, are all working on multimodal trying to provide routing suggestions for you. So, if you go in there and say I want to go from Dulles to the Crystal City Marriott, it will give you various options involving different modes of transportation, and even attempting to fold schedules in there so that you can kind of plan your trip based on when you arrive and so forth.

They are not totally there yet. So, my question is, rather than just leaving it up to the private sector to do all these different things, is there, and maybe there is a PDP to do this, but is there a way to make transit become more
attractive through that kind of ease of use technology and solution?

MEMBER CALABRESE: I think that technology is there. I think I have technology. I think Denver has that technology. I think Los Vegas has but it is not the same technology. So when you go from city to city, we need some standard so that people who are traveling know it is the same platform, the same technology and know how to use it.

MEMBER DENARO: So, even within your cities, does the public understand how to use that, do you think?

MEMBER CALABRESE: Yes.

MEMBER DENARO: Okay.

MEMBER CALABRESE: I think we are double or triple paying for it and the technology isn't universal enough so that when I come here I know how to use it because I know how to use it in Cleveland or New York or Washington or Boston. It should be the same.

MEMBER DENARO: So back to your comment about standardization. Okay, great.
CHAIR WILKERSON: Okay, so that is going to be incorporated into your Public Transit. Okay, great.

MEMBER WEBB: George Webb. So, just a question. In that last paragraph, it is just terminology/semantics. Research is needed on developing best practices. Typically I don't -- it is identifying or whatever. It is just the wording or were you trying to do something else in terms of consolidating or whatever? You mentioned some of the things above as examples.

MEMBER CALABRESE: Identifying and promoting. How about that?

MEMBER WEBB: Okay.

CHAIR WILKERSON: The other thing is on these if we could take your last two statements -- the last sentences in each one is the actual recommendation. If we could move those to the top and similar to the other format, that would be extremely helpful for our template.

MEMBER CALABRESE: This was our first draft.

CHAIR WILKERSON: No, I think it is
great. No, it's already there.

Any more comments?

MEMBER BERG: I have one other real
nit-picky thing. It is just maybe just me. But
like in the second paragraph it says one of the
safest modes of travel. Then you say safe but can
be safer.

So, if I was somebody who wanted to
invest, or study, or research transit safety, I
would say -- I would worry about some other mode
because this is already one of the safest ones.
So, sure it can be safer but do you get more bang
for the buck for investing in safety in one of the
other modes?

MEMBER CALABRESE: I think the bigger
bang for the buck is to try to encourage more people
to use an already safe mode.

MEMBER BERG: So, it is not really
enhancing safety but the perception of safety.

MEMBER CAPP: Well, I think people are
using it because it is safe.

MEMBER CALABRESE: I think it is both.

When there is an accident on public transit, it is
always significant. There are few accidents but those accidents are like that 747 that went down. So, how do we -- we need to get them at zero.

MR. SPENCER: If I may, actually, when you look at cost per crash, that is where it is. It is reducing the liability costs because one of the largest costs of transit agencies today is liability. And so you don't have as many crashes or the sphere of crashes because that is a low-speed mode. It is the fact that it is like ten times the amount of an auto crash. And then like you said, public perception.

If you have two cars crashing, it is on page seven of the Metro section. If it involves transit, it is front page news.

MEMBER CALABRESE: Even worse, if there are two buses with 20 people each that crash, I have 127 clients.

(Simultaneous speaking.)

MEMBER MCCORMICK: This is Scott McCormick. In looking at that Item 1, I guess it just strikes me that it should be presented in a more positive note. It is something that says
public transit is safe; however, mishaps can oftentimes garner significant attention. But if we are putting in but it can be safer and then, rather than say how can ITS technology, we assert the statement that ITS technology can.

MEMBER CALABRESE: I think that there are a lot of -- you know there were a couple crashes in the last ten years. Those crashes have mandated the federal government to put regulations on public transit. It could cost billions of dollars. And again, there is something that the industry -- you know right now there are standards for commuter rail that the industry is having a real difficult time implementing. So, the industry is trying to get things safer but these are billion dollar systems that aren't developed yet that keep pushing the implementation dates back. So, I mean there is a real need to strive in understanding that we are trying to make this system safer already with technology. And I think the industry needs some help in doing that in a standardized way.

You can never be too safe. I think that is one of the things we said.
MEMBER BERG: Agreed.

CHAIR WILKERSON: Okay, great.

MEMBER CALABRESE: We'll look at that language.

DATA

CHAIR WILKERSON: Any other comments? We used 40 minutes on Funding and we have used 20 on the Public Transit. We are scheduled for a break but, if we don't need a break, we could move to data. Would you prefer to keep moving? Okay, great. So, why don't we -- are there any comments on that? So, Bob.

MEMBER DENARO: And JIT, just in time, in front of you is a revision to what you have your book. Very hot off the press, right.

In content, it is essentially the same. So, you are not seeing it anew. Just some editing, primarily that improves the wording and so forth.

So, we went straight to recommendations. And in keeping with the format that we had in the last memo, we discuss it in a brief paragraph, what is the issue, and then we summarize that into a recommendation.
So, the first one is data policy consistency, which really says that data sharing is important but the policies differ widely between the states and within the federal government and so forth. So, the recommendation is that the Chief Information Officer should convene a Connected Vehicle forum, representing all the states, hopefully, to drive consistent data policies across the states. That is a big high ambition to drive that kind of standardization but that is the recommendation.

And any of my committee, please jump in and add comments.

MEMBER BERG: I thought you might want to include the automakers in that. It is not just the state's data it is the state's data. It is the automakers' data or the citizens' data.

MEMBER DENARO: Yes, that is a little different issue, Roger. I agree because I think what you are getting at is they are going to decide what to share and what not to share.

MEMBER BERG: Absolutely.

MEMBER DENARO: So, I wonder whether
there should be two recommendations. See, I don't know how the government gets involved in creating standardization of data being provided from the private sector.

This is dealing really with just the policies of what can be shared. I have heard a lot about concerns about liability. We, the city of such and such or the state cannot share data because we are worried about the liability if we do so. And then a different state will have a different idea. So, that is what we want to try and get consistency about.

You are bringing up a very important point but a little different.

MEMBER BERG: Isn't that the same thing?

MEMBER CAPP: The approach to solve that question may be different.

MEMBER DENARO: Yes.

MEMBER CAPP: It's probably a little bit different.

MEMBER DENARO: Yes.

MEMBER CAPP: It wouldn't make sense to
the forum like this include not just car markers
but anybody who has got data.

    MEMBER BERG: Perhaps any data source.
    MEMBER DENARO: All right, let's take
that into our breakout.

    MEMBER MCCORMICK: I think you ought to
be agnostic on who is sharing data. But I think
it would benefit from clarifying the top data
sharing in one of the first five words and then you
talk about data policy. And I think you need to
characterize that in terms of what the policy is
about. Is it about the ownership, the care and use
of it?

    MEMBER DENARO: Yes, yes.

    MEMBER MCCORMICK: Because a policy
can address many things and we want to kind of focus
on those three.

    MEMBER DENARO: Yes.

    MEMBER MCCORMICK: I think we want to
focus at least on those three topic areas, the
ownership, the care, and the use of it. Because
that clarifies, when we talk policy and the rest
of it, refers now back to those major elements.
MEMBER DENARO: Yes, I agree. That's good.

Moving on to the next one, data decomposition.

MEMBER MCCORMICK: Well, I had another question.

MEMBER DENARO: Yes.

MEMBER MCCORMICK: And this is actually for the U.S. DOT. Is the CIO the appropriate entity to convene that? It may be, I just don't know.

MEMBER BERG: I remember, I think it was our last face-to-face, the CIO came and gave this presentation.

MEMBER DENARO: Yes.

MEMBER BERG: And here is data and what does it do for us. And so, yes.

MEMBER MCCORMICK: Okay.

MEMBER DENARO: I kind of like pulling in an individual like that and throwing an action on.

MEMBER MCCORMICK: I like it, I just wanted to make sure that that was --
MR. SPENCER: Yes, for multimodal, you want it at the Secretary's office level.

MEMBER MCCORMICK: Okay, thank you.

MEMBER BERG: Good questions.

MEMBER DENARO: The next one is data decomposition. And again, talking about data sharing policy needs to be harmonized. But what we didn't hear from the CIO last time is that there are levels or differences in policies, depending on the types of data. And the example we are given here, vehicle location might be a really frightening thing because it has to do with privacy and all those things for very good reasons, whereas, something like local weather data, sensing by a vehicle and being shared, shouldn't be of concern to anyone, although there is a position associated with that, potentially. But the recommendation here is to look at data and instead of as one big bundle of just data, let's decompose that into different types of data and perhaps imply that there are policies that are different for each of those categories of data. And we are not suggesting we know what those
categories should be. That is what we are saying you guys, why don't you go work on that.

MEMBER MCCORMICK: I think within fundamental -- Scott McCormick -- I think we can fundamentally say that the stuff you are looking to share is road, weather, and traffic information. And if you characterize it as that, that takes it out of the realm of personal vehicles right now.

MR. BUTLER: Perhaps but the point here is there would be different buckets of seriousness, concern, whatever studied. Just studies of levels to help get past some of these roadblocks.

MEMBER BERG: What are the appropriate categories.

MEMBER DENARO: So, and like with your last suggestion, Scott, adding a little, for example, detail, like road, weather and traffic, is probably a good idea so that people can understand what we are talking about. But I don't want to just limit it to that. Maybe there is something we didn't think about.

MEMBER MCCORMICK: Yes, but we developed maybe different tranches.
MEMBER DENARO: The whole nature of this --

MEMBER MCCORMICK: Personally attributable versus publicly available.

MEMBER DENARO: The whole nature of this big data things is we discover things we didn't even know were there and we didn't know we could find out from data. That is the exciting thing about data.

Okay, the next one is other industry data policies. And this one we had a little debate about and I'm not sure that we came together. So, maybe we can continue to discuss it. But this actually came out in our last meeting. Someone suggested what about looking at other industries that already share data and one example is healthcare. And they dealt with privacy and security and those kind of things and done a pretty good job. So, wouldn't it make sense to really do some benchmarking against industries who currently share data successfully and potentially mine any concepts and ideas that could be used for vehicle data sharing.
MEMBER MCCORMICK: You know that is a really good point.

CHAIR WILKERSON: I was saying just like wireless and healthcare issues.

MEMBER DENARO: There you go, wireless is another one.

CHAIR WILKERSON: Issues when they were trying to deploy devices that crossed over from being a health device versus a mobile wireless device. They addressed a lot of these issues.

MEMBER DENARO: Right.

MEMBER MCCORMICK: And at our last committee, I think I had given to Ken Leonard, there is 24 privacy regulations and they are very specific for HIPAA, for financial transactions. And that would be a perfect place, I am thinking to mine or to look at some of those other data policies because each one of those recommendations, even though they are not mandatory, they each identify at least at some level their policy and intent. So, it might be useful to mine it out of there.

MEMBER DENARO: And what are those
applied to, Scott?

MEMBER MCCORMICK: Well, there is 24 --
we actually have no comprehensive digital data
privacy law. But there are 24 regulations, in fact
actual law, if you read it, is how to create a
privacy law regulation.

MEMBER DENARO: Okay.

MEMBER MCCORMICK: And if you look at
those regulations, there is 24 of them -- I'm
sending the list to the committee. There is 24 of
them that say this is how our industry should deal
with data, et cetera, et cetera.

MEMBER DENARO: Which industry?

MEMBER MCCORMICK: It could be HIPAA, for health information.

MEMBER DENARO: I see.

MEMBER MCCORMICK: Like I said, there
is 24.

MEMBER DENARO: Okay.

MEMBER MCCORMICK: Basically one was
written quite well and all of the rest of them were
sort of plagiarized off of that, characterized that
was our recommendation the first year to candidate.
And they would just take the one, plagiarize it, declare victory and walk away for transportation.

But having said that, it just dawned on me in this conversation that they do have a policy statement in each one of those regulations.

MEMBER DENARO: Okay, cool.

MEMBER MCCORMICK: So, it might useful to recommend, as part of the recommendation, to look at the other privacy regulations that are there for useful policy guidance.

MEMBER DENARO: Okay, cool. Any other comments on that?

MEMBER RAJKUMAR: Well, Bob, I think I -- Raj Rajkumar. It seems like recommendations 2 and 3, they seem like sub-recommendations of recommendation 1.

And then I would like to comment that recommendation 1 is the responsibility of the CIO of your DOT and 2 and 3 are the responsibility of the JPO. So, maybe they can be worded together in some form.

MEMBER DENARO: Okay, we will consider that in the breakout.
MEMBER RAJKUMAR: The third comment is good to hear the debate upon the black box. To me it seems like that we need a black box of some kind in cars.

MEMBER DENARO: Yes.

MEMBER RAJKUMAR: There is no cars of any kind I don't know what kind of confusion it leads to. I can imagine that would be a portion of common data recorded and then car makers may have to choose to add some options on top of that. There is a lot of data from the vehicle.

MEMBER DENARO: Yes, I will confess that I don't remember why we agreed not to address the black box but we definitely wanted to do that. Maybe some of the committee members can help us but we can talk about that again in our breakout.

CHAIR WILKERSO: It kind of goes also to the last recommendation, which I talked about, the other things that test the vehicle.

MEMBER DENARO: Sure.

CHAIR WILKERSO: Not just that it is embedded in the vehicle but like TMS, there is RFID now with tires. There is all these other things
that touch the vehicle that will be transmitting some kind of data. And that relates to -- well that is more of embedded but it could be an aftermarket device that is attached. There are all kinds of things that can be attached. But that recommendation 7 could possibly weigh in on that.

MEMBER DENARO: Okay. All right, the next one is called GPS data reliability and integrity. And in the one you have in your book, I call out Nat Beuse specifically because he brought this up when he presented to us. Obviously, in our recommendations, I don't think we want to put any individual's name in there but he cited concerns about the critical functions of GPS data. Having been in GPS for 40 years, frankly, I was surprise to hear him say that but very pleased to hear him say that because I think there are concerns.

So, anyway, he mentioned GPS vulnerability, natural as well as malicious corruption. So, there are technologies being developed to address those problems. And recommendation 4 says basically JPO should convene
a forum, invite these technology presentations from various industry participants who are working on this. And I, personally, I have seen solutions in ground-based, airborne, and space-borne solutions. I know of specific potential solutions from each of those sources to improve GPS reliability and reduce its vulnerability.

So, this recommendation says invite these companies in or whatever with an invitation, in the Commerce Business Daily or wherever it goes, and come in and talk about potential solutions and just get that knowledge. And maybe from that, that leads to solving the problem of GPS vulnerability.

MEMBER MCCORMICK: This is McCormick. Under Recommendation 2, you say that it should do this thing and then this is what they should do with it to have this result of category data.

MEMBER DENARO: Yes.

MEMBER MCCORMICK: I think you need a statement that says once you have convened this forum, what do you want to do with it.

MEMBER DENARO: Yes, sure.

MEMBER RAJKUMAR: Bob, I like this
recommendation but I would like to see whether
there is a recommendation to actually use Wi-Fi
spectrum expansion with influencing, affecting the
safety data from BSM or DSIC, too. So, very
similar events.

MEMBER DENARO: Would that be a new
recommendation, do you think?

MEMBER MCCORMICK: Or would it be
protocol agnostic that you are talking about? I
mean it could be Wi-Fi, satellite. When you are
talking about GPS, you are talking about a
satellite transmission. So, if we make it
protocol agnostic, then it is the SRC Wi-Fi, other
providers of Wi-Fi, cellular, and satellite, which
we already have a body of knowledge about several
of those areas. But it is a worthwhile --

MEMBER DENARO: So, you are talking
about the vulnerability of say Wi-Fi in those
specific things.

MEMBER MCCORMICK: In those four
communication protocols.

MEMBER DENARO: Yes, yes. Okay, let's
consider --
MEMBER CAPP: This one was a specific recommendation for specific --

MEMBER DENARO: Positioning. Exactly right.

MEMBER CAPP: So, we kind of want them to study this one. Maybe there is other things, too.

MEMBER DENARO: That is why I asked the question should that be a separate one and it sounds like it might be. So, let's talk about that in the breakout. That is a good suggestion.

The next one is called Connected Vehicle effectiveness and it is saying that -- well, it is addressing this whole real world effectiveness problem. There has been some study, obviously, and quite a bit of study, about the effectiveness about the proposed Wi-Fi solution. But this really gets to is there sufficient data being collected to really measure crash and industry reductions from that. Peter, you might want to expand on that because this was your idea.

MEMBER KISSINGER: No, I think -- Peter Kissinger -- I think you have summarized it quite
well. I mean, the bottom line is we are spending an enormous amount of money to bring this technology to market. And oftentimes, in this community, we forget about evaluating things when we put them in place. And I think especially in this case, that is absolutely essential. There is going to be a lot of questions asked and we really need to be prepared to do that. So, having the data is part of it. We need to have an evaluation plan ready before the stuff starts being deployed so that we are ready to evaluate it.

MEMBER DENARO: So just to be clear, this is about making sure we have a plan to collect data and collect that data after things are deployed. This is not something before that. There is a lot of studying going on before. Let's make sure we have a data plan after it is implemented.

MEMBER RAJKUMAR: Peter, I will comment. Raj Rajkumar. Could we increase the flexibility into the language of the communication architecture? It says first central server. It could be that each data gets own central server.
So could maybe some flexibility there. Services, something.

MEMBER MCCORMICK: Well it is just communicated to whichever device the analytics and evaluation will occur on.

MEMBER DENARO: Okay. All right, and the next one is called safety defect investigations. And commenting that the safety related defect program at NHTSA has come under some criticism, including Congress. And, again, data could be important to this. You know use data from Connected Vehicles to support defect investigations. So, kind of a specific little recommendation but one that could be pretty powerful that maybe someone is already thinking of this but perhaps not. So, that is our recommendation.

Peter, do you have anything to add to that?

MEMBER MCCORMICK: This is Scott. I have a question for John. Am I understanding that you are saying you ought to look into harvesting specific information from the vehicle that they
would then evaluate preemptively?

MEMBER CAPP: I would take this recommendation more broadly. It is just a suggestion to look at that as an opportunity to do their job better, right, and see where it goes.

MEMBER MCCORMICK: Okay, thank you.

MEMBER RAJKUMAR: Well, Bob, a comment. Raj Rajkumar. This really talks about safety and incidents but I guess we have seen a lot of news coverage about security attacks recently. Could we add security into this recommendation as well? If we can track the number of security attacks attempts on cars, that would be useful information to have as well.

MEMBER DENARO: I think that would be a separate recommendation.

MEMBER KISSINGER: Technically if there is a security breach, it is a defect.

MEMBER RAJKUMAR: But it is not safety. I agree with you.

MEMBER KISSINGER: It is a safety defect.

MEMBER DENARO: Sheryl actually
brought this up in a comment and we didn't have another meeting. But based on recent events, should we have something in here about security.

CHAIR WILKERSON: Absolutely. You should talk about that at breakout.

MEMBER MCCORMICK: I think it might be a separate recommendation.

MEMBER DENARO: Yes, I agree.

MEMBER BERG: Didn't we do a security recommendation last time?

MEMBER DENARO: Yes.

MEMBER BERG: So, is this going to be different?

MEMBER DENARO: We'll have to look at that last one and see.

MEMBER BERG: I don't think so.

CHAIR WILKERSON: You have to decide on that.

MEMBER MCCORMICK: I think we had covered it --

MEMBER BERG: Anyways, we can look at it.

MEMBER DENARO: Yes, we should look at
CHAIR WILKERSON: At our breakout session, would you like us to do that?

MEMBER DENARO: Yes. Okay, and then the last one, this was suggested by Sheryl and what you mentioned earlier about aftermarket devices.

CHAIR WILKERSON: Things that are not embedded, necessarily. We focused on a lot of what is in the vehicle and what vehicle manufacturers are incorporating in the vehicle. There are lots of other devices that are touching the vehicle that are connected. They might interact with the infrastructure on the roads. They might have their own infrastructure like RFID or RFID transponders or TMS and other things that maybe we should take a look at that and see if the aftermarket or other automotive equipment suppliers, what they are developing that could promote safety mobility.

So, I think it goes back to a certain black box issue cellometers. People are bringing devices in the vehicle. For instance, for motorcycles, I know there is a discussion about putting things in the
helmet but there are devices you can attach to your vehicle to show that I am here.

MEMBER MCCORMICK: Who is going to receive this data?

CHAIR WILKERSON: Well, it is just -- I don't know. Part of it is -- a lot of people already are providing that data to their own customers. So, they might have data coming from a fleet that is providing safety data already to their --

MEMBER MCCORMICK: I mean who in the framework will understand the question. You are asking the JPO to solicit information from the supply community about what safety-related information might be deployed or made available that could provide information to safety candidates but who?

CHAIR WILKERSON: I don't know.

MEMBER MCCORMICK: Because my point is, what is the purpose of having the JPO collect this, once the JPO is looking to harvest it.

CHAIR WILKERSON: To the public or --

MEMBER ALBERT: Steve Albert. I call
on ITS America for a second. And I don't know how many people know this around the table but the U.S. DOT, ITS America, AASHTO have all convened a big working group that is going to be producing a report in the next year and a half. I wasn't sure whether the committee was aware of that because of the questions of safety and who wants this data, where does the data go I think will be addressed in that report that is coming out.

MEMBER MCCORMICK: But the fundamental principle is that if you purchase the car, you may have access to it but they are the custodian for you. So, the question here is that if JPO is saying okay, Michelin has tire pressure monitors I want to use or whatever and has useful information, what do they do with this information? We are asking the JPO to solicit information about what all is there. The question is, okay what are you going to do with that.

Do they use it for evaluating recalls? Do they use it for that I know that your vehicle has this type of information collected on it. Okay, what? I can't get it if I am the JPO.
CHAIR WILKERSON: Right, there is some that is proprietary. But there are other things, for instance, when we were looking at the Connected Vehicle with putting data in the helmet. Right? That is not attached to a vehicle. It is part of the --
MEMBER MCCORMICK: But it is personally attributable.
CHAIR WILKERSON: Right.
MEMBER MCCORMICK: And you have some major issues with personal attributable.
MEMBER CAPP: So maybe a little specific of purpose.
CHAIR WILKERSON: We can revisit that.
MEMBER CAPP: It is going to help with pedestrian safety? Is it going to help with crash safety? Is it to help with traffic flow? And then they can look at data accordingly.
CHAIR WILKERSON: It says here to critical safety if they can improve road safety.
MEMBER MCCORMICK: Yes, but I think it needs to be more refined.
CHAIR WILKERSON: Okay.
MEMBER MCCORMICK: Because otherwise, it kind of opens a Pandora's box.

MEMBER CAPP: Yes, but we don't want to suggest look at all the data in the world, decide what you want, and find safety things. You want to tighten it so that there is a project that could come out of it.

MEMBER MCCORMICK: But the point is that if you are recommending that the JPO do something, they ought to have some measure or purpose for doing it.

MEMBER CAPP: It should be part of their mission.

MEMBER DENARO: There are two benefits from those kind of devices, I think. One is that you may have a type of data that you don't get in a data box or by other means which might be of value. And the second one is that if it is aftermarket devices, it may have a lot faster and wider deployment at early stage, compared to waiting for OEM vehicles to roll out. So, is there some benefit in exploiting the availability of that data and maybe that is the nature of the recommendation.
CHAIR WILKERSON: Right.

MEMBER DENARO: Okay.

MR. SPENCER: Jeffrey Spencer. A couple of questions, Mr. Denaro, please and I don't mean to expand your scope. But the descriptions you have just given are very much centric to Connected Vehicles and automobiles. And so, obviously, transit will take some benefit from the Connected Vehicles source but there is a lot more to data than just that. And I would impress to major things. And that is that transit has a lot of data. The problem is interoperability of the data. For instance, an automatic passenger counter data cannot talk to the fare box data and cannot talk to the cab data, the dispatch or your ABL data. So, there is this problem, especially in our space, and these manufacturers or vendors of these systems will gladly collect the data for you and sell it back to you again, even though you generated the data.

So, in a policy area, that is a big issue. I mean to me that is almost ludicrous. It is akin to buying a Microsoft package and then every
time you send an email they send you a bill. So, there are some other data issues that need to be addressed.

Right now the FTA is researching open data standards and transactional open data, especially for paratransit systems. So, maybe if you could look at data beyond what is just automobile and Connected Vehicles.

MEMBER MCCORMICK: Well, I understand because if FTA is already evaluating those standards, what are we recommending?

MR. SPENCER: Well, I think the key here is it is the policy of interoperability and establishing some platform of working together. Again, if you have your auto manufacturer, which the manufacturer may own the data in the private vehicle, what does data do? Where do you realize the synergy of the benefit?

And especially as the Internet of Things and Smart Cities is growing, how do you mine the data if it is all proprietary and you can't collect it and translate it into something that is usable?
So, the issue that I would say is that we are data rich but information poor.

MEMBER DENARO: Yes, I could debate with you on that but we will do that in our breakout.

CHAIR WILKERSON: Okay.

MEMBER DENARO: Because I have some strong disagreements with parts of that.

MR. SPENCER: That's fine.

CHAIR WILKERSON: Okay.

MEMBER DENARO: All right, so that is what we have so far. It looks like we have got a lot of work to do.

CHAIR WILKERSON: So, it is now 9:30. Do you want to take a break before we go into Shared Use?

Okay, so we will take a ten-minute break. We will be back at 9:45 or so.

(Whereupon, the above-entitled matter went off the record at 9:37 a.m. and resumed at 9:51 a.m.)

**SHARED USED MOBILITY**

CHAIR WILKERSON: Okay, we are going to go ahead and get started with Susan's presentation.
So, for the next -- we are going to start with Susan's presentation on Shared Use and those subcommittee recommendations. And then to the extent Scott wants to talk about what he wants to do with respect to Scenario Planning, we may, it sounds like we are probably just going to pass on that and then use that as a breakout session. So, Susan you have the floor.

MEMBER SHAHEEN: Great. So, good morning everyone. I just moved over so I could see your face because I really can't see anybody in this corner.

So, I wanted to start by thanking everybody on the subcommittee for all of your thoughts and feedback. Obviously, this is the most lengthy white paper that we have prepared on Shared Mobility. I felt like providing some background on it was particularly useful because Shared Mobility is more than just Uber. Uber tends to dominate the discussion across the United States, if not the world today but it is a lot deeper and richer than that.

And I think that the subcommittee, what
we have come up with is, obviously, a lengthy list of possible aspects that could be examining. We actually have 16 in a table at the back, which I attempted to prioritize and rank, hoping that the subcommittee could meet today and really talk more deeply about the items that we think should be risen to the top.

The other aspect, because I don't think this is an appropriate to go through all 16 recommendations is to just describe that I think we have got a lot of policy in here and trying to understand what the role of the federal government is Shared Mobility because there is, obviously, different levels of governance. So, national, state, local governance-related issues with respect to policy and research on shared mobility. But I think what we really wanted to focus on here was the role of federal government.

And so what you will see in terms of the list of recommendations is a very strong coupling between a public policy role and a research role because I do think that public policy is being made here on literally a daily basis across the United
States on these issues and the absence of data research and understanding, which I think has to be done in light of how disruptive the spaces will come. But I think our role here should be to look at the relationship between public policy and research. I think it is a really timely opportunity for us.

And I think the big challenge that lies for us because this is a lengthy document is trying to figure out of these particular recommendations, which ones should rise to the top.

And the other observation I would like to make is that all of the previous subcommittee recommendations, they are crosscutting with this topic. So, I don't know exactly how we want to address that but there is funding issues, you know the issue of the pilots and the issue of research performance metrics. I mean that is completely crosscutting.

We also have the issue of public transit. I believe it was recommendation 2 that talked about an inferred smart applications, smart phone applications as well as shared mobility
applications. And, as I have already mentioned, a lot of shared mobility is operating in the absence of data. So, that also, I think, comes over into this discussion of the Data Committee.

And then finally, I would like to say that Shared Mobility has been with us for a very long time. It goes all the way back to the 1940s worldwide. I have been tracking this for 20 years and it has been around a very, very long time. What is new about it now is it is being enabled by advance technology. So, what we are seeing is not new. It is just being accelerated and it is being accelerated by the presence of venture capital money as well as the diffusion of IT technology.

So, nothing is really new here but I think the pace of this has really, really gone much faster than I think a lot of us had ever thought would happen. UberX Lyft was introduced -- Uber was introduced in 2009 but it was a really a black car service. It was in August of 2012, just three years ago that these new community-based driver services came online. So, I just wanted to make sure you guys were clocking that and thinking like
who would have thought that three years ago we would
be where we are. And I think three years from now
we are going to be in a vastly different place. And
so what is the role of government and what is the
role of research in guiding and developing and
nurturing this incredible disruption that we may
have not seen for over 100 years.

So, that is sort of my overarching
comments and I think a lot of this should just go
to subcommittee for discussion for now because 16
recommendations I think are too much to handle in
an overview.

Thoughts and comments?

CHAIR WILKERSOn: So, however, for
those who might not be -- have already given some
thought or recommendations, was there anything you
would like to raise?

MEMBER MCCORMICK: Well, it is
probably too much to go over but maybe if we could
get a one or two liner of what the recommendations
are kind of in the framework?

MEMBER SHAHEEN: Do you really want to
do 16, though?
MEMBER MCCORMICK: Just what is the point of each one.

MEMBER SHAHEEN: Okay.

MEMBER RAJKUMAR: Yes, Susan, one comment is that pretty much all of the recommendations are worded as research could be evaluated, we just couldn't examine -- could seems kind of soft.

MEMBER SHAHEEN: Okay.

MEMBER RAJKUMAR: So, I think things should be should. Should be evaluated.

MEMBER SHAHEEN: I love it. I think that is right. If we are going to go with should, that would be wonderful. Thank you for that.

So, the first one is federal policy guidance. So, I basically think that there really are no standard definitions that have been integrated into law. I believe recently this summer bike sharing was codified in the context of being able to be used as something that you would take employee vouchers or credits and you could actually apply them to. This is the first time we
have really seen it codified in federal legislation. So, there are no really standard definitions from a federal standpoint, nor is there a really strong integration of these definitions of the various forms of shared mobility from a legislative perspective.

And so I think that it is important that we come up with better policy guidance on what these things are that can be agreed upon. I would like to just use the example of the transportation network companies. The California Public Utilities Commission developed the definition of the TNC and that has been adopted now, I believe, in 25 states in varying forms but very close forms throughout the United States. There has been a sea of change just within the last nine months with respect to states actually adopting legislation to any old TNCs to operate in their space. So, that is an example of a definition.

Best practices I think with respect to these yet -- just a second. I would just finish this thought -- I think also need to be brought to the table because I think there are not a lot of
documents that talk about best practices with respect to governance and public policy and with regards to shared mobility.

MEMBER KISSINGER: Peter Kissinger. I guess I am having a little difficulty trying to figure out whether shared mobility per se is automatically within the purview of this committee or are we just looking at the technology and ITS through an aspect of shared mobility?

MEMBER MCCORMICK: Well, the way I read your recommendation is that we are talking about at the federal level, what are we recommending they should do with addressing the policy.

MEMBER KISSINGER: Everything related to shared mobility?

MEMBER SHAHEEN: Well, shared mobility, at present, is enabled by ITS in some way, shape or form. So, as I mentioned, these systems, sharing is not new. Sharing economy is not new. But what is new is that it is infused with logistics management, information technology, instant access. And that is all being done through information technology.
So, I think it is a good question but it is difficult for me to unravel how we would even --

MEMBER KISSINGER: Well I hadn't even thought of that.

MEMBER SHAHEEN: Yes, I am not sure exactly how you would do that.

MEMBER MCCORMICK: I think if you redirect the first one to Victor Mendez, who is the Deputy Secretary of Policy, as an active -- for him to consider the research needs for the development of policy, that is our reasonable recommendation. Because then we push the decision of what is relevant and appropriate to be looked at to his office, which is the office responsible for policy.

MEMBER BERG: So is the recommendation to tell him to do his job better?

MEMBER MCCORMICK: I'm sorry, I couldn't hear that.

MEMBER BERG: So, is your recommendation telling him to do his job better?

MEMBER MCCORMICK: I don't know that the ride share aspect is part of his purview at
current.

MEMBER BERG: Okay.

MEMBER MCCORMICK: And so we are not saying that it is but what we are recommending is that he consider whether there is any policy elements that you just described that would be appropriate to his venue. To my knowledge, they are not doing anything with ride share policy. And maybe they make a decision -- I mean our recommendation is just to say well we think maybe you ought to do this. They can always come back and say not my job or we are doing it already.

MEMBER SHAHEEN: I mean I think one of the issues is shared mobility has been a novel-ish topic for a long time but now it is moving to the main stream. And the scaling of it is starting to signify mainstream. Billions of dollars are being exchanged and spent on this by automakers, car rental companies and it is not being captured by any public entities.

But the impact on the public on the traveling system on the network itself could be dramatic. So, I welcome advice on how because I
struggled with understanding exactly how to transform these into recommendations for Congress or for FTA or for the Joint Programs Office exactly how to do that.

But I think this stuff is falling through the cracks and clearly, you go to tier B, you go to almost any major conference in transportation today and what are you talking about? This disruption, right? It's happening.

MR. BAYLESS: I was just going to say -- oh, I'm sorry. Steve Bayless, ITS America.

I was just going to say that it is difficult to figure out what the federal role is and you'd probably have to dig a little bit into that. I used to work at DOT and I don't know the answer.

But one of the things I do know is that transit agencies probably they deal with FTA and they probably would ask FTA at some stage, well, what am I supposed to make of these mobility on demand services. Am I supposed to integrate with that or can I integrate with them? Are they competitors to me or complements?
MEMBER CALABRESE: Or can I compete with them?

MEMBER SHAHEEN: Exactly.

MR. BAYLESS: Yes, so at least you may need to equip at least someone in the department with some of these answers so that transit stakeholders can sort of understand. Maybe not panic. Maybe there is nothing there. Maybe there is good news for it there.

(Simultaneous speaking.)

MEMBER BERG: I think that is what Susan was mentioning. It is becoming a big enough deal where there should be some federal oversight on how this effects the transportation system in general. And that is the recommendation. Find out what to do. We don't know what to do. It is not our job to say what to do.

MEMBER SHAHEEN: But if it is slipping through the cracks, from a federal standpoint, I think what -- is to raise this issue. Right? Say this is slipping through the cracks and I monitor this on a daily basis. And all I am watching on a daily basis is more people are going
to this and more and more footprinting throughout
the country and in suburban areas and rural areas.
I mean the discussion is starting to expand outside
the urban areas. And I mean my God, the investment
that is happening outside of the U.S. is huge.

So, ultimately, maybe that is our
recommendation is that this is falling through the
cracks and somebody has got to catch it.

MEMBER BERG: Put this on your radar
screen somewhere. We don't know where. We can't
tell you where but somewhere it has got to be
addressed.

MEMBER JOHNSON: And I would say even,
and you talked about this, Susan, is that when you
look at public transportation, you are talking
about there is lack of regulation and then we, as
a Transit Agency can't compete. And sure you want
to call into effect the first and last mile. But
then again, when you have these small
transportation networks that have these community
routes and people can afford to pay for them, and
then you have people that are transit-dependent
that barely can afford a bus pass, you are creating
this inequity that is just --

CHAIR WILKERSON: It is a tiered system.

MEMBER JOHNSON: Exactly, it is a two-tiered system. But we would be remiss not to broach this at a higher level because we are going to create this --

CHAIR WILKERSON: Tier-weighted system.

MEMBER JOHNSON: Exactly. Totally leaving these people that are transit-dependent way, way, way behind.

CHAIR WILKERSON: There was one comment in the back there.

MR. SPENCER: Yes, Jeffrey Spencer, FTA.

In support of what Susan is talking about now, we had a lot of discussion about what is -- is it a competition or is it complementary. And that is what MOD is doing. It is a visionary look at how do we incorporate these things. Now already DART in Dallas and MARTA in Atlanta have cooperated with Uber, et cetera to do first
mile/last mile. And so we are seeing a transition into that.

The big issue at the DOT level is what is the capital investment on expanding our infrastructure? We just can't keep doing it. As population grows and things like that, we have to make better use for infrastructure. And it is more about moving people, not moving vehicles.

So, how do we leverage that, using the shared economy? And so those are policy-level issues at a higher level to look at what does the DOT need to do. What is the leveling of that playing field and how do we develop those public-private partnerships that make things happen?

MEMBER SHAHEEN: I can say that recommendation number 4 I think is very related to your comments and Jeff's as well. Bob Sheehan, who I believe is going to with us a bit later and Matt Nobles who used to be with FTA -- or he is now with Nobles but he used to be with FTA, they joined our Subcommittee calls and they actually made a separate presentation. And one of the things that
they were saying is that FTA and the Joint Programs Office is already starting to look at these kinds of things. So, maybe we could have a recommendation that would help elevate this and JPO in the multimodal program and at FTA that would help them be able to grab this.

So, maybe one in four kind of get combined but I'm not exactly sure.

CHAIR WILKERSON: Hold on one second.

Kirk was next, Steve was next.

MEMBER STEUDLE: Kirk Steudle. As I think about the shared mobility and the opportunities, particularly in the transit area, the piece that seems to get forgotten a lot is rural transit. I've spent a lot of money on rural transit sending people to specialized services. In some cases, a ride might cost $25 to get somebody to a doctor in a rural area that I would love to have that money redeployed in some more efficient manner. And I do think the shared services piece is interesting but it is availability. That becomes a target. Rural transit becomes a target quite often because the ridership costs are very
high. But if I pull out this phone and pull up Uber, there is nobody within 100 miles of most of those cities. And I will go back again, 80 percent of the country is very rural.

So, I think the piece that is missing here is how does it fit with rural transit needs. You get the small town in Kansas, okay, great. They still need some kind of buses and they need to get to the doctor. They need to get to whatever appointment.

MEMBER SHAHEEN: And I think this is the role of government to look at this issue because I live in San Francisco, I work in that area. I meet with these companies on a regular basis. They are not going to go into this unless there is a public-private partnership. And without that, I don't think this is going to happen or happen in the way you all envision.

So, again --

MEMBER STEUDEL: We are getting stuck with -- the Transit Agency is going to be stuck with, as Debra said, the expensive riders. And you role that out 10 or 15 years and you are going to
go well, look how inefficient these are because they have such huge expenses. Well, because that is what nobody else wanted to do.

But it is more than just underserved urban populations. It is rural populations as well.

MEMBER CALABRESE: If it is the rural population or in Cleveland, I would be much better off subsidizing an Uber from midnight to 4:00 in the morning than to run full-size buses and trains. But yet if I do that, from a liability perspective, if I have an agreement with Uber where I subsidize half the cost to make it affordable and that Uber vehicle has an accident, am I now liable? So, there is that liability issue as well. If I contract with them, am I then liable?

I do some contract services. I require people to have a boatload of insurance. But with an Uber or some of these systems, that is not possible.

So, I don't know if that is or isn't relative to this. But it is relevant in the day to day operations.
CHAIR WILKERSON: Okay, Scott.

MEMBER MCCORMICK: I am wondering if the team is supposed to look at not just the shared use and the transit but to look at how the traveler behaves. Because I drive my car to the airport. I fly somewhere. I take a shared vehicle of some way, shape, or form to wherever I am going to the conference/meeting/hotel. I take the Metro to get from there to somewhere. Maybe I end up taking Uber, a taxi all in the course of one trip.

And I can get all of that instruction on my map app. Right? I mean I can get what all of my options are when I plan that trip just on my phone. So, when we look at just Shared Use, we are just looking at a piece of that whole ecosystem, the whole spectrum. And so it might worthwhile to extend that or just to think about extending that across the spectrum because both federal, state, and local agencies have authority over almost all the other pieces. And they had to leave this piece out of it, in terms of what they are having, to your point, their oversight and peer review, probably disconnects it in a way that is not beneficial.
In the spirit of that last part, I mean I am certainly supportive of a couple of broad recommendations to get maybe DOT essentially more engaged. But I am just sort of less excited about 17 recommendations on this topic some of which I am not sure --

MEMBER SHAHEEN: They are actually ranked, if you look at the table at the back on page 13. And I think the point was to be comprehensive in providing a white paper. That was the objective of the subcommittee was to provide a comprehensive set of understanding of what some of the issues are that may interface with the federal government. We certainly were not recommending that all of them be included.

CHAIR WILKerson: The goal was to better educate the subcommittee and then the subcommittee would then --

MEMBER KISSINGER: That's fine.

MEMBER SHAHEEN: The subcommittee was actually pretty robust and excited about the topic
and felt that there was a really long laundry list of things that have to be dealt with. But I think nobody on the subcommittee felt that this should dominate the report to Congress but we wanted to lay out, as members of the subcommittee, what the issues might be that surround this because there is far more than just four or two issues surrounding that, as you can probably see if you open up a daily newspaper.

CHAIR WILKERSON: Okay.

MEMBER ALBERT: Excuse me. One thing you might want to consider is, and this addresses both rural public transportation, maybe even urban, but really more the phraseology of the quality of life.

MEMBER SHAHEEN: Yes.

MEMBER ALBERT: Because many of the transit applications which aren't traditional in rural areas aren't about getting to a job. It is about being able to get to hospitals or being able to get to groceries and things like that. So, the quality of life might be something that resonates with folks who might read this.
And second, in the bike and ped stuff, which we do a lot of, is really exploding in rural America, like you have said, but also on federal lands and national parks. I mean it is just booming. Everyone wants a shared bike program in almost every national park you can go to right now. And to me, that is an opportunity. So, just a suggestion.

CHAIR WILKERSON: Great comments.

MEMBER SHAHEEN: Yes, very, very helpful.

So, I think that is good for now. And then those who are really interested we can talk a bit more.

CHAIR WILKERSON: So, the last subject area that we have not raised was Scenario Planning. Scott, my thought was that you thought we could maybe discuss that as we do the subcommittee routine, to have open dialogue about that. Is there anything you would like to share about that before we do breakouts?

MEMBER MCCORMICK: Well, I think I would first like to understand the interest area
of the committee in terms of participating in that, unless Roger and John signed up for it, just to make sure I didn't do anything bad. 

CHAIR WILKERSON: I will tell you about the breakout. So, -- 

MEMBER SHAHEEN: I signed up for it, too.

MEMBER MCCORMICK: I know but we weren't able to coordinate a time and I just want to find out if we do do a breakout on that, is there enough people that want to participate in it to do something?

CHAIR WILKERSON: So, based on the chart and I looked at everyone's recommendations. Here is how it would play out. So, right now, we would have -- before our break, we have an opportunity to give an hour or 45 minutes to each one of the three topics, as discussed. And that would take us to 12:30 to 1:30 for lunch and then we could do the subcommittee reports and then further discussion on what we want to do next with the action items.

For Funding and Private-Public
Partnership, it would be Steve Albert; Joe would get to pick either Funding or Scenario because he was focused on his number one which was Public Transportation; John would be in Scenario Planning; Bob would be in Scenario Planning, that was your number two; Ginger Funding; Debra Funding; Peter would get to pick because he didn't have a priority for those two; Scott would be, of course, Scenario Planning; Joe would be in Funding, Tina's not here; Roger would be in Funding; Susan would be in Scenario Planning; Kirk would be in Funding; George would be in Funding; and then I would be in Funding but I would be happy to go to Scenario Planning.

So that is based on how the priorities were ranked. So, you have got a pretty healthy -- you have got one, two, three, four, five, six, possibly eight other total who would be in that breakout session.

So, in the interest of time -- I'm sorry. Bob.

MEMBER DENARO: Can I raise a question that I brought up earlier?
CHAIR WILKERSON: Sure.

MEMBER DENARO: What about we don't have a subcommittee on Scenario Planning, that we do that together today for an hour and a half or something, the whole committee?

There might be a lot of interest in it and I think you mentioned earlier it is crosscutting across all of these other issues. Scenario Planning, in my experience, works best when you have a good number of people and diversity.

CHAIR WILKERSON: Okay.

MEMBER DENARO: Scott, does that makes sense?

MEMBER MCCORMICK: I agree. I whole heartedly agree with that.

CHAIR WILKERSON: So, if we do Funding from 10:20 to 11:00, Public Transportation as the next, Data would be third, we could use Scenario Planning as part of the report time or a third of the 2:45, I guess.

Okay, let's backtrack a little bit. We have got 10:20. My thought was that we have one of the presentation breakouts from about 10:15 to
11:00 because we had talked about cutting back the time. The second goes from 11:00 to 11:45. A third would be 11:45 to 12:30 and that would get us on track for lunch.

We could then go from 1:30 to 2:30 for Scenario -- that is going to be a little tough. We are breaking it out.

MEMBER DENARO: So, just so I understand. The things before lunch are the breakouts. Is that what you are saying?

CHAIR WILKERSON: Well, the breakouts are throughout the rest of the day.

MEMBER DENARO: Right.

CHAIR WILKERSON: So, we can use that time. I just wanted to, one, Scott had suggested that we have some additional time at the end to discuss not only the action items but other things that we want to take up during the remainder of the year.

We wanted to have an opportunity for all of the subcommittees to come back and to provide an update on anything further. That wouldn't take too long, in light of the discussions that we had
but there would need to be ample time for one, two,
three, four, five breakouts. We could do the
Scenario Planning when we do the --

MEMBER DENARO: Or before now if
Scenario Planning is done jointly.

MEMBER MCCORMICK: Well, I do have one
other item I wanted to bring to the committee to
determine whether or not the subcommittee should
act on because it would serve us well to wait for
the next session. And it is a very simple
question.

CHAIR WILKERSON: Okay. So, you would
like to do Scenario Planning. Is it possible that
we can do that after we have had the breakout
sessions? That way you get the benefit of
everybody's input?

MEMBER MCCORMICK: Sure.

CHAIR WILKERSON: Okay, so let's see,
we need to then break out Funding, Public
Transportation and Data.

MEMBER MCCORMICK: Is there any
overlap between Public and Data?

MEMBER DENARO: And Shared Use.
CHAIR WILKERSON: Well, the problem is, certain people will not be able to get -- there is a lot of crossover. So, that is why it was broken out. Some people would have to pick a choice and not weigh in.

So, I think if we maybe reduce the times, then it will provide ample opportunity.

MEMBER DENARO: Yes, because Shared Use, if we do Scenario Planning together, Shared Use moves up with thunder there.

CHAIR WILKERSON: But then that would mean certain people who would be in those categories would no longer be able to attend Funding. Those people who picked funding would not be able to participate.

MEMBER WEBB: George Webb. Is there any overlap with Funding or Data that we could have breakout groups of those? I don't see a whole lot of them.

MEMBER MCCORMICK: I am not seeing any. I'm looking at who signed up for what.

MEMBER WEBB: So, potentially, break out into those groups separate for those 30 minutes
or whatever so you didn't have the individual time
if you chose to do a panel.

MEMBER GOODIN: Does that mean Public
Transportation and Shared Use go together in the
next slide?

CHAIR WILKERSON: There is a lot of
crossover on that one. We lose a lot of people.

MEMBER WEBB: I just picked what I
thought was the most obvious. The others could get
their own 45 minutes as far as being separate. I
thought that and Funding because just had enough
separate interest that they could go at the same
time for a breakout, rather than the full.

MEMBER DENARO: But if Shared Use and
Public Transportation are meeting together, that
is great because now you can cover both topics with
all the people who are interested in that.

CHAIR WILKERSON: Okay, so can you make
a formal recommendation for how you want to split
the time up because I am a little lost?

MEMBER WEBB: Well I was just going to
say whatever your first time frame, 10:15 to 11:00
have both Data and Funding going on at the same
MEMBER WEBB: So, in different groups. And then at that point, we would just go into combining Public Transportation and Shared Use for the next session.

CHAIR WILKERSON: Okay. All right and then that would take us to about 12:00 and we could move lunch and then do the Scenario Planning afterwards.

MEMBER WEBB: Sure.

MEMBER DENARO: Can we move lunch up ahead of time?

CHAIR WILKERSON: Okay, so we will start now, we will start following our consensus here. We will go to about 11:00 for Data and Funding. Then from there, we will go for Public Transportation and Shared Use. And that will take us, it will be about -- we have got 10:25 until about 11:15 and then we will go from 11:15 to noon.

MEMBER DENARO: Yes.

CHAIR WILKERSON: Okay. And then we will have -- we can either go -- yes, I think we
should probably break for lunch by then.

MEMBER DENARO: And then after lunch, we will do report backs. Is that correct?

CHAIR WILKERSON: We will do Shared -- Walt is going to talk to us during lunch from about 12:00 to 1:00.

MEMBER DENARO: Oh.

MR. GLASSCOCK: He should be here anytime.

CHAIR WILKERSON: So then, we would have lunch and then after lunch we would go into the Scenario Planning, all the committees would be back.

MEMBER DENARO: Is there a report out from the committees?

CHAIR WILKERSON: Yes, we will do that after the Scenario Planning.

MEMBER DENARO: Or do we want to flip out, do report outs first and then Scenario Planning?

MEMBER MCCORMICK: I mean you know Scenario Planning you are really asking what are the assumptions we should be questioning the
validity of.

CHAIR WILKERSON: Right. Okay? We still have some time. We can flip that around. But I think as long as we can get moving to have that subcommittee dialogue, the better we --

MEMBER MCCORMICK: I do have one question I would like to ask.

CHAIR WILKERSON: Okay.

MEMBER MCCORMICK: In February, they came out with the solicitation to replace all 190,000 postal vehicles in the United States. I, unfortunately, didn't have rounds of reading of specifications until about three weeks ago but there is no provision in there to do any form of vehicle communications, to do any type of road weather traffic information harvesting. I don't mean that they should require that be in there but there is no provision in the architecture so that it could be added. These vehicles last 20 or 30 years.

My question to the committee is is that something separate from the adjunct committee to make a recommendation that be put in there? It
just seems foolish to me to be buying that many vehicles that have the benefit, that cover rural areas, as well as every urban and suburban area to not have that capability. It could provide 200,000 vehicles with probe data over the course of the next four years as a purchase study.

And not having it in there, I understand why it might have been completely different departments dealing with this but I think it is not too late to ratify that.

MR. SPENCER: Jeffrey Spencer. Just as a suggestion or maybe question. You are talking about postal vehicles. What about as far as fleet vehicles as a whole?

MEMBER MCCORMICK: Well, my point is that there is a solicitation out currently to replace at least the first 160,000, I believe, which people are bidding on and that bid spec doesn't have any implementation of anything that we are talking about in this space, I mean the provision to incorporate it even in a year or two down the road so they could get funding for it.

MR. SPENCER: Just to reach out to
maybe other government vehicles. Because we have that opportunity, it would be beneficial to maybe place it as a general --

MEMBER MCCORMICK: Right, I mean we could certainly add any other federal fleet vehicles. But to me, there is a tremendous opportunity sitting right in front of us that no one is taking advantage of. Any thoughts? Kirk.

MEMBER STEUDLE: Yes, this is Kirk Steudle. So, I think a general recommendation somewhere in here, I don't know where it fits, that says the Secretary should work with other governmental agencies across the board on fleet procurements to make sure it has the latest technologies available. Otherwise, OMB will go for the cheapest version possible with the rubber floor mats and AM radios because they are cheaper.

MEMBER MCCORMICK: Well, given that we won't have a rulemaking decision until later, it is not a recommendation that they include it but there ought to be a recommendation that there is a provision to incorporate it at some future point. That is simply my point.
MEMBER STEUDLE: That is postal vehicles but when you think about all of the federal vehicles that are in all states --

MEMBER MCCORMICK: There is over a million.

MEMBER STEUDLE: That is how we are going to get a bunch of them in Michigan. There is a bunch of Michigan-owned vehicles that they are going to equip and county vehicles and the rest. You can do the same thing with every governmental agency in the safety pilot. That is what we targeted, government vehicles, buses, transports, whatever.

MEMBER MCCORMICK: And see that then would fit under the Funding Deployment. That would be an actual deployment if he is replacing a number of his state utility vehicles, then funding for the incorporation of that technology through --

MEMBER CAPP: It probably would be a general recommendation to look for opportunities to do that. Because those specifications don't exist for them to go change the procurement process
tomorrow.

CHAIR WILKERSON: Right.

MEMBER CAPP: It is kind of parallel. Like the general recommendation, but in the meantime, give Ken Leonard a call and say hey, look for opportunities to do that.

CHAIR WILKERSON: Okay.

MEMBER CAPP: But they can't go buy integrated V2V systems. You can write it down in big bold letters if you want, they can't buy it tomorrow.

MEMBER MCCORMICK: Yes, I just wanted to have a consideration for future incorporation.

MEMBER STEUDLE: I think that is a very appropriate comment coming from this group to the Secretary saying look, here is a blind spot that you may be missing an opportunity to go look at, without telling him do this, this, and this. Go look at this. Here's an opportunity to go look at it.

MEMBER MCCORMICK: Especially since we are looking at a potential rulemaking that may require it for everybody else. That will require
it for themselves.

CHAIR WILKERSON: All right, would you like to take the lead on drafting that --

MEMBER MCCORMICK: I will draft that.

CHAIR WILKERSON: -- and then we can discuss that further when we do the subcommittee updates?

MEMBER MCCORMICK: Okay.

CHAIR WILKERSON: Steve.

MR. BAYLESS: I was just going to say that a fleet is an excellent opportunity. One of the things that NHTSA has commissioned ITS America is do a market model looking at vehicle penetration for DSRC trying to understand the dynamics of you the network effect. Like you get early adopters in there, then you have got folks that will follow those adopters and then you get the majority down the road. The study is, essentially, to try to look at how fast that will actually occur. And fleet is definitely an opportunity.

One thing that we don't understand is -- and we understand how fleets roll out. We can make some very simple -- we make some very
simplified assumptions for NHTSA. One thing we don't understand is what the infrastructure component contributes to that network of products and to model that.

So, NHTSA is asking us to do this in the context of being able to submit this when they do a rulemaking to suggest this is how quickly we think the system will appear. And here is the contribution from the OEM. Here is the contribution from market advices, here is the contribution from V2I.

So, if we can help you with sort of -- we can sort of brief on some of these results at some stage. NHTSA has asked us to essentially do that. In other words, to just get eyes on this and sort of dilate the assumptions before you publish it.

CHAIR WILKERSON: Great. Thank you. So, in the interest of time, I will go through the basic priority list, what I have as everybody's priorities.

We are going to do Funding and Data. Correct? So for Funding I have Steve, possibly
Joe, Ginger, Debra, Peter -- Peter is under Data
-- Joe, Roger, Kirk, George, and myself or I am
going to be on Data.

So under Data I have Raj, John Capp,
Bob, Peter, Scott, and --

MEMBER DENARO: Is Raj -- are you in

CHAIR WILKERSON: He is under Funding.

He had a question mark on the Data.

And then under the next one would be --
what did we say -- Public Transportation and Shared
Use, I have the following. Steve would get to
pick; Roger would be in Shared Use; Joe in Public
Transportation; John in Public Transportation; Bob
had expressed an interest in Public
Transportation, question mark for shared use;
Ginger for Shared Use; Debra for Public
Transportation. Peter, you had a question mark.
You get to pick. Scott for Public Transportation;
Joe for Shared Use; Raj for Shared Use; Susan for
Shared Use; Kirk expressed an interest in either
so, it is up to him; George for Public
Transportation and then I was in Shared Use.
So, that is how that breaks out and then we will come back for Scenario Planning as a whole.

**SUBCOMMITTEE MEETINGS**

So, maybe you can tell us where to go.

MR. GLASSCOCK: So, one group will stay here. The other one will go all the way down the hall past the restrooms and there is a lounge area.

CHAIR WILKERSON: So, why don't we have Funding here and Data in the other room? And then the next time, at 11:15 we will switch and we will have public transportation here and shared use in the other room.

Okay, so we will swap at 11:15. Okay, we will change the schedule so it is updated, in case you need to pop in.

(Whereupon, the above-entitled matter went off the record at 10:33 a.m. and resumed at 12:04 p.m.)

CHAIR WILKERSON: Glad you could be here.

**ITS JPO UPDATE/LUNCH**

MR. FEHR: Well, I was glad for this
opportunity to be here. It is always interesting to engage with this particular group. It gives me a chance to hear some of this stuff firsthand, rather than wait for it to filter through whatever kind of reporting process that you normally go. And it also gives me a chance to sometimes validate some of the things that are already underway. You know if I hear some of the same things coming out of this group that we are already contemplating doing, that helps us to make sure that we are at least sort of a little bit on the right track. Are there more people coming in?

MR. GLASSCOCK: No, go ahead.

MR. FEHR: Okay. So, I have a couple of topics and this is going to be very informal, very back and forth, that hopefully you will get a chance to interact with me on these particular topics and maybe it will help spur some of the discussions that happen later in the session.

Sheryl had asked that we mention something about security. You probably all have seen some things in the press these past few weeks and there seems to be more and more every day
related to somebody doing something inappropriate with the communications-based capabilities of an automobile. So, I was going to touch on a little bit of the more proactive aspect of that topic that we are working on. Our friends at National Highway Traffic Safety Administration are the ones with the fire hose and the crash recovery kind of activities on the stuff that is out there on the road already but we are trying to approach what we are doing going forward from a more proactive, positive kind of a way.

Another thing I was going to touch on here is some of the things that we are putting in place in order to bring uniformity to this next round of deployment trials. We are kind of using this as a watershed event to try to push people from the way things had always been done in the past to a different way of doing things that we think is much more representative of how you would hope to do things in a real deployment. And a lot of it centers around uniformity. So, that is one of the things I can touch on.

And then the last thing is something
that is relatively new on our radar screen but we think is going to be extremely important to achieving those first two bullets and that is providing an adequate support system for all of the people that we are planning to have participate in these kind of activities.

So, before I launch into all of that stuff, I have to tell everybody that I am probably the latest poster person for the benefits of this communication-based, crash-avoided stuff that we are all trying to get out on the street. Yesterday, on my way home from the Park and Ride lot, somebody ran into the back of my car at a traffic light. My car was transmitting basic safety messages but apparently, their car wasn't equipped with the kind of machinery that would have helped this driver realize that there was a stopped vehicle in front of her before she hit me. So, maybe five years from now, less of those kinds of things will happen. But right now, they are literally a real pain in the ass. Now, I have got a car I have to have fixed and all that other kind of stuff.
So, anyway, this kind of doubles the incentive to actually try to get this stuff out because the more that actually experience this stuff firsthand and the more people that realize what it could have done to maybe prevent that, the more likely we will get people enthusiastic about doing it.

Okay, the security concept going forward. One of the things that we realize is that if we are ever able to get any kind of a handle on this particular topic, we have to improve the state of the practice in this area.

In kind of the before case, system integrity and preserving the integrity of the things based on the possibility of someone coming in an altering the behavior of a vehicle is just completely unheard of. Nobody even really thought about it.

I come from the industry where we built electronic control components for automotive applications. I spent 25 years in that industry. There are -- at one time, there were probably several million vehicles out on the road that had
parts that I was involved with either in design, putting into production, whatever. And that was something that nobody even thought about. It wasn't a design requirement. It wasn't even anything in anybody's thought process.

So, nobody anticipated that anybody would want to exploit that system and do something inappropriate. Nobody even thought about it. So, there are millions of body-on-frame Ford cars and General Motors light trucks with parts that I was personally responsible for or directly involved with that are vulnerable out there. I know it. I could tell anybody how to do something bad with those vehicles. And that is the same thing with every other vehicle out there on the road today. Anything that has been built since the middle 1990s has got some kind of electronic controls in it. Since 1996, it is quite likely there are serial bus communications connecting those controls and, particularly since 1996, there is a very vulnerable point inside of the cabin of those vehicles, the diagnostic connector.

Two hundred fifty million vehicles out
on the road, every one of them is vulnerable in some way or another. These things that you have seen in the popular press, they are just lucky examples. Everybody has to keep in the back of their mind that this whole issue is pervasive. Anything that has communication technology in it, anything that has got microcontrol-based stuff in it, is vulnerable. Now we know.

Okay, so what are we going to do about it going forward? One of the things that we have been considering since the beginning of putting together this reference architecture that we are going to be using as a pattern in all of our deployment projects going forward and as part of what we are recommending or advocating for these deployments out there, is that security is taken into account from the beginning. It is one of the design requirements. It is no longer something that is layered on in the afterthought. It is part of the up-front thinking process.

So, as people describe the systems that they are going to be building, one of the things that they are actually going to be describing are
the security, the communication and physical
security practices that they are putting in place
up-front, before they ever put a line of detail on
a drawing or they actually build a particular part,
or write a line of code, they are going to have to
have some kind of a concept for how they are going
to do something to improve the protection and the
integrity of the system.

Some of the things that we are doing
with this architecture and the tools that we are
creating to help people define and describe what
they are doing is making people much more aware of
the appropriate compartmentalization of an overall
system. These things are collections of
components. Everybody needs to understand that
clearly the boundaries of the components, where
those boundaries are pierced with communications
capabilities, and then what kind of practice are
you putting in place in order to preserve the
integrity of those communications.

So, if people at least understand the
boundaries of what they are working on, understand
where there are vulnerabilities within that
boundary and then when two things are connected, what kind of vulnerabilities there are between them, maybe they will make better decisions about how to do stuff with them.

So, you are going to find more and more and more very strict guidelines for how you protect the boundary of one of these communication-based devices that you are working with. And then if you do choose some kind of a communication mechanism, how do you assure trust in that communication and how do you protect the confidentiality of sensitive information that may be conveyed through that. That is all going to be part of the up-front design process.

So, that is one of the things that we are doing going forward. Hopefully, that kind of attention to detail and level of discipline and design will help reduce the number of those kinds of things that we see in the press. But as long as anybody is doing something out there, somebody is going to figure out a way to mess with it. That is just human nature and what everybody has to realize. The thing you can do is make it as
difficult as possible so it is less likely to happen, takes much more resources in order to accomplish it, all those kinds of barriers. You know it is just bigger and better locks is the only realistic way of dealing with something like this.

Are there any questions anybody would like to put on the table around that particular topic? It is doing to be something that is very much scrutinized in any of these pilot projects that we have going forward. Nobody is going to be able to get away with sloppy practices. Somebody is going to be checking this aspect of it and helping people tighten up, wherever there might be weaknesses in any of these things.

MEMBER DENARO: Just a comment that the infamous Jeep incident happened during our Automated Vehicle Symposium in Ann Arbor a few weeks ago, a couple of weeks ago. And we had a whole breakout -- we had 17 breakout sessions and one of the breakout sessions was on cybersecurity. And I made a point at that meeting that there are two consequences of that event. One is the fact that it happened, and now I'm quite certain there
is a massive recall and has to fix the problem and now others have been implied to have the same problems and so forth.

But the other very important aspect I think has to do with all this ITS technology, Connected Vehicles, automation, is the intensity of the public press reaction to that and diving into that and diving into that and, therefore, the immense crisis management task that that company had when this occurred. And the more technology we get into in vehicles, the more this is going to become a popular thing to grab onto and publicize and is, frankly, back to your original comment, about you not getting rear-ended and the rest of us, these are the things that can delay, massively, things happening.

So, it is really important to, first of all, acknowledge that it is not just a technology problem or safety problem. It is a public perception problem and very important to get on top of it or it is going to take a long time for the technology to get there.

MEMBER MCCORMICK: Yes, there was a
solicitation for an RFI a couple months ago about
people wanting, allowing input on how the public
-- the infrastructure would be managed. I didn't
hear any results from any of that. I could have
missed it. It was how the certifying entity would
actually be managed.

MR. FEHR: Oh, not the certifying
entity, the cryptographic entity, the public key
infrastructure.

MEMBER MCCORMICK: Yes, did anything
come out of that solicitation of significance?

MR. FEHR: I don't know, to be honest
with you.

MEMBER MCCORMICK: Okay, I didn't see
anything. I just wondered.

MR. FEHR: I don't think anything has
been published yet.

MEMBER MCCORMICK: Okay.

MR. FEHR: That would come out National
Highway Traffic Safety Administration, if it were
to be published. I don't know, to be honest with
you, if we learned anything we didn't already know
from that.
MEMBER MCCORMICK: I didn't think it would. I was just curious did anything new came out.

MR. FEHR: Any other? Sir.

MEMBER KISSINGER: Peter Kissinger. Is the current generation of Connected Vehicles that are out there on these demonstration sides or whatever, can you characterize their level of security? Is it better than the average car that is out there right now or is it worse?

MR. FEHR: I characterize it as Swiss cheese but don't tell anybody outside of this room.

Again, what we have got to do is improve the state of the practice. You know in that old research environment that we were working in, as we add people and independently analyze some of the stuff that was brought into the Safety Pilot: Model Deployment, you find things. Like people are building stuff off of -- based on Linux boxes that got four-year-old distributions with well-documented, well-known vulnerabilities. And it took a skilled party about a half an hour to go from roadside equipment to right into the
enterprise business IT infrastructure of one of the subcontractors that was contributing to that project. And within a half an hour, they had administrative passwords to email systems and file storage things, and everything else, just because they just took the textbook step, by step, by step walkthrough exploit this vulnerability, which gets you to the next vulnerability, which gets you to the next vulnerability, which gets you to the next vulnerability, jumped all sorts of boundaries that nobody even knew were there. And that is the kind of stuff that we can't really have going forward.

So, again, what is out there in these pilots projects, virtually every one of them out there probably is not a good example. Because I don't know if anybody is actually -- and mine own included. I'm over there with Kirk because that stuff is in his stage. And I wouldn't trust any of the stuff that I put out there any farther than I can throw it.

MEMBER MCCORMICK: So, that brings up an interesting question.

MR. FEHR: Pardon?
MEMBER MCCORMICK: Go ahead.

MR. FEHR: Body-on-frame Fords was one I had the most involvement in. I actually got in a taxi a couple of weeks ago to go to the airport and damned if it wasn't a 2003 Lincoln Town Car. The stupid thing had my parts in it. It had 100,000 mile design life and the odometer in that car was getting close to 300,000.

MEMBER MCCORMICK: So, it makes it an interesting question. Just yesterday they had five different physical attacks on the Northern California internet infrastructure, they kept getting in the manholes and cutting the lines. When you look at the stuff that is going to be resonant in the roadside partnership, in the NEMA enclosures that are on the side of the road, those happen a lock but, obviously, they can be penetrated well.

And so the question is, has anyone looked at how secure, if somebody were able to open that gate and tap those lines, how secure that was?

MR. FEHR: I have no idea. I was out touring the facilities of a well-known toll highway
authority one time and looking at some of their stuff and I wouldn't even have to break a lock. All I needed was a 7/16th-inch socket wrench and I would have had access to their communication backbone in very isolated locations. It is just not part of people's awareness right now.

MEMBER MCCORMICK: Well, I remember when Kirk asked us to put in the wireless frame gauges and communicate with vehicles on the Mackinac Bridge and then Greg came and sat down. He said now, you have to camouflage any of the equipment you put out there. I said why? He said people will stop on the bridge and pull off shiny things. I'm like, seriously, they stop in the middle of the Mackinac Bridge? He goes, oh, yes.

MEMBER STEUDLE: Just before they jump.

MEMBER MCCORMICK: Just before they jump, yes or go back to the cabin.

MR. FEHR: So, anyway, again, part of what we are trying to do with this pilots project is use it as a teaching opportunity. It sounds kind of trite but that is exactly what we are going
to try to do because we know that in a lot of cases,
the state of the practice needs to be elevated.
So, the only way we can hope to do that is by
educating people so that they make the right
decisions.

People who did all of this stuff in the
past, myself included, didn't do it for malicious
reasons. We did it because we just didn't know any
better. And now we need to get people to the point
where they do know better. And that stuff that we
saw at Safety Pilot: Model Deployment was done
because done because people just didn't simply know
what they were doing in a lot of cases. And they
made decisions but they weren't well-informed
decisions.

So, that kind of leads into the third
topic that I was going to talk about here. But
before I get to that, the second thing I wanted to
try to bring out here is a significant effort that
we are going to try to put in place during these
next round of pilots to actually get some kind of
uniformity to the implementations. You know in
Kirk's backyard there, in Michigan, there are
probably a half a dozen or more installations right
now and no two of them are alike. No two of them
are interoperable. All of that kind of stuff was
done because people just hung stuff up and used it
for their purpose and didn't really think about
what the next step was.

So, we don't have any huge grand
ambitions in this next round of pilots but we have
a few modest ambitions for uniformity. And we are
going to try to build this up step-by-step, from
the bottom, and get these to the point where at
least certain very fundamental things are done
uniformly in any one of these installations that
are part of our pilots or other people are doing
contemporaneously so that whatever they are doing
can participate in the pilots activities.

And it is as simple as coming up with
decisions for this continent-wide deployment of
stuff that we are working on that are of the same
order magnitude that everybody drives on the
right-hand side of the road. All of the stripes
down the middle of a roadway are yellow. All stop
signs are red octagons. We are at that kind of
basic fundamental level of interoperability. And so we are going to try to get those kinds of things in place now so that we get people moving toward that notion of doing things uniformly as part of these deployments.

The first two things, and I will consider this to be a measure of success of these pilots is if by the end of the pilot's period, we have everybody understanding time uniformly and how to describe a location uniformly.

If you think about it, it took those poor people from the National Transportation Safety Board over three days to figure out if that train operator in Philadelphia was talking on his cell phone when he went off the rails or not because all of the evidence they had, all of the log files and records and whatnot related to those telephone usage used different units of time. And it took them that long to reconcile all of the differences in that understanding of time to figure out whether the phone was turned on or not when that thing went off the rails.

That tells you something right now that
something that fundamental, that universal understanding of what time it is needs to be pervasive in a system like this. The next thing that needs to be pervasive in a system like this is the understanding of a report of a location. Location is so critical to everything that we do in transportation, its location and time derivatives of the location that are every useful piece of data out there. So, coming up with a common understanding of how to report a location and what does the report mean. What is the precision, the accuracy, the performance requirements of those kinds of reports?

So, if by the end of the pilots we at least have established a well-understood notion of what time it is, as dumb as that sounds, that is something that has got to be part of this and how to report a location, we will consider these pilots a success. Anything above and beyond that is just icing on the cake.

So, above and beyond that, we are going to start work with some of these uniform,
universal, ubiquitous data units that are part of a system like this. And this is another one of these things that takes people a long time to have that aha moment. But transportation, in its history, has been extremely good at distributing trillions and trillions of extremely uniform data units continent-wide that are available for everyone. Any competent practitioner can provide them. Everybody has seen a red octagon stop sign, knows exactly what it means. You can go all the way from Quebec, where it may have a different word in the middle of it, to Guadalajara, where it may have a different word in the middle of it. But everybody instantly recognizes that data unit and can instantly make use of it as they are going about their transportation activity. That is the kind of uniformity we have to have at these fundamental units continent-wide.

How many of you paid your subscription to the Traffic Signal System this month? Did that stop sign out there only work if you were driving a Lexus? That is the kind of uniformity and ubiquity that we need to have at a fundamental level
of these communication-based technologies, if we ever hope to have any kind of useful outcome from it.

So, that is another one of the things. Once we get past time and location, we are going to work on red octagon stop signs and traffic lights and a few of those other fundamentals. And again, if we get those in place at the end of this pilot's period, I will consider it a major accomplishment because right now that doesn't exist out there. There is no understanding of which side of the road we drive on. You have got to buy a particular brand of equipment to use this one particular feature that should be universally available, that kind of stuff. We have got to get past that. So, that is going to be another one of the subtexts of a lot of these pilots that we are working on.

Does anybody have any questions about that? It seems pretty straightforward to me but you would be surprised at how difficult of a concept that is.

MEMBER ALBERT: Walt, this is a stupid question but isn't there other industries or other
agencies who have been through something like this, like an FAA? That is probably the wrong example.

MR. FEHR: Well actually, transportation is probably the industry segment/government agency segment that has had the most experience with this.

If you kind of turn around and look behind us, because of the vast nature of transportation and the amorphous organization of transportation and the importance of that to all civilized human activity, we, in transportation, have probably had the most experience of figuring out how to do that.

If you look behind the covers of things like phone systems and computing systems and other things like that, you are going to find a real rat's nest. It is not as clearly, as simplistically, and as ubiquitously deployed as something like a red octagon stop sign. So, what we are hoping to do is actually help teach the rest of internet of things world out there how to actually accomplish this. Because there is a certain level of these kind of activities that need to be as pervasive as
some of the things that we do every day in transportation. We figured out how to get that red octagon stop sign from all the way up in the farthest northeast in Canada all the way down to the lowest southwest in Mexico uniformly deployed. There is tens of thousands, if not hundreds of thousands of people out there putting those things up.

And they are out there. We figured out how to do it. The organization, the practices, the policies, the incentives, all of that kind of stuff, we figured out how to do in transportation. We just need to figure out how to translate that very basic, very important skill set to this new computing and communication and intensive technology. I think the cell phone company is going to teach us how to do that. They are going to figure out how to take more money out of our wallet and that is as far as they go. We, in transportation, actually know how to do that. We need to teach the rest of them people how to do it.

Any other questions on that particular point?
So, this is going to be the fun one for me. Again, if at the end of the pilots I could have everybody telling time in the same units, I will be pleased. If I can get everybody to report locations with the same level of integrity and precision and usefulness, I will be pleased. Everything else, like I said, is icing on the cake.

How do we get there? Because one of the things that we have to understand and we have to be prepared to do and everybody needs to make sure that organizations such as my office and the rest of the resources that are brought to bear here are actually properly put in place to help people do this.

This is a lesson from those of us that have come from the electronics/technology area learned over and over again that if you want to be successful with a new evolution of technology, you have to teach your customers how to use it. Nobody is going to buy that stuff. Nobody is going to use that stuff if they don't know how.

So, you can tell very clearly. I came into the electronics world about the same time
microcontrollers were invented, back in the late 1970s. There was dozens of companies building microcontrollers. You can tell the ones that were successful from the one that fell by the wayside simply because of the level of support they provided. It wasn't necessarily the elegance of their designs or the abilities of the devices, it was the companies that had the cadres of people out there and the support materials out there to teach the customers how to use them that succeeded. Look at that company that has got their logo probably on the laptop that you are typing away at right now. They were masters at doing that. That is why their logo is on every laptop in this room. They knew how to do it. They taught their customers how to use this crap because it wasn't going to fly off the shelf by itself if nobody knew how to do it.

So, we are trying to borrow a few things from that kind of a mindset and bring them into this area. Those of you that are closer to transportation practitioners know that very well. You know bridges, and asphalt, and concrete, they understand. They know how to do that. They know
how to put up those red octagon stop signs. But they are going to need a lot of help putting this communication-intensive stuff out there.

So, we are trying to figure out in our office and elsewhere within the Department of Transportation and then even outside of the Department, how do we start to marshal those resources and get them active and engaged and ready?

One of the things I am personally doing here is creating a tight-knit support organization for our pilots projects. You now for years and years, I ran the Test Beds. And one of the biggest things I found that people didn't really want a place to do something, they wanted help putting their project together. So, all of those people that I trained up running those Test Beds are now part of the support staff I have available to help people build up their project. So, it is a complete shift on my part going away from operating a physical site to providing somebody that can answer a question.

We are also developing a lot of the
support materials. Those of you who have been following along with our affiliated Test Beds Project, one of the biggest things to spin out of that is a publicly accessible place where people can get design information. That is one of the things that we, as a government entity don't do very well is engage actively with people who are interested in a technology topic that we are working with. So, one of the things that we have been experimenting with as part of that organization is how do we actually share stuff with people on the outside. You know the classic pattern was that we would do a research project, we would hire a contractor. They would do it over the period of two years and then maybe a year later, after it had gone through some kind of an approval process, a report would be published. By then, it is stale.

If you weren't that contractor, you didn't get the benefit of all of that active back and forth that goes on during the buildout and operation of a research project like that. So, we have been experimenting with how to do that much
more actively. How do you actually let people watch what you are doing? So, we have developed that share site. I just gave access to the 201st person to that share site yesterday. So, there is a lot of people who are kind of poking around out there, digging through the material that we are accumulating, as we put together our reference implementation of our architecture. And hopefully, those people are going to be the ones that are a little bit higher up the learning curve, if they are involved in one of these pilots projects or a little bit higher up the learning curve, if they are going to put together a project on their own.

And so that is another one of the things that we are going to try to fold in. How do we take some of those ideas that we have been working on, maybe make them part of our own internal infrastructure as a resource, start to build out that kind of capability for delivering support within the Department of Transportation, and then also we have been engaging with some people to help us try to figure out how to do this for all of the
people who need to contribute to this but are outside of the traditional transportation boundaries. And that is another one of the things that we have been doing kind of behind the scenes here over the last year is engaging with some people who have created developer communities in other contexts.

We found some people who have been reasonably successful with doing that and they are giving us a guidance on how to create a developer community, the kind of people who have the data analytic skills or the data movement skills and all the rest of that kind of stuff don't even know how to spell DOT. They have never dealt with us before. So, how do we create an organization to provide support for them?

And then kind of going forward, how do we create, bring all these ragtag collection of things together in a much more uniform presence so people understand where to get the resources they need, whether they are inside of transportation, outside of transportation, but want to be part of this? How do they actually figure out how to
connect up to it and use it?

Just as a side comment, this chart that you see on the back with this stuff kind of overlaid on it, is a planning tool that we are experimenting with in our office. We are trying to come up with a uniform kind of time frame and how do we map out all of the different aspects of the work that we are doing within this kind of uniform time frame so that we can much better coordinate all of these things that we are doing.

Before everybody did their independent track within the research topics and they have their own time scale. In their mind, they knew when they needed to achieve results and nobody really looked at it from an overall perspective. So, one of the things that we are fiddling with right now is what kind of a common kind of scale to put these things on so that we achieve realistic goals in a realistic time frame. We know that we are sitting here at 2015 right now. Ten years from now, we should have a significant portion of this deployment in place. Twenty years from now, it should be running at a significantly high level,
achieving the benefits that we are all hoping for.

So, that is the kind of uniform time scale that we are starting to try to put things in place here.

So I know, as far as support services, I need something right now that can help with these pilots that we are trying to get out of the gate. That has got to be there right at the beginning. So, I need to have something in 2015.

I know that by about 2017 to 2018, I need to get this institutionalized inside of Federal Highway Administration or wherever in the Department, so that it will have the kind of institutional support it is going to need to be there in the long-term. By 2025, that has to be really operational because you are going to have this big buildout of this stuff going on. So, I need to have that completely staffed up and completely operating by about 2025.

And then by 2035, that has to be well-integrated into this overall support network that is out there for all of the people, not just the people who are the direct clientele of the
Federal Highway Administration or whomever within the Department but everybody that is contributing to this.

So, all of those people out on the West Coast that never heard of the Department of Transportation before but are going to be the important data analytics people or whatever, they need to know that we have this one uniform place for engaging with developers. So, that is another one of the things that I am working on there.

Are there any questions about this particular topic? We know without support, the whole thing will never get off of the ground because you have thousands of people out there going off in all sorts of different directions and somebody has got to help herd them up and get them moving in the right way. This stuff is not going to put itself in the ground. It is going to have a lot of hand holding that is going to be needed.

MEMBER STEUDLE: Walt, I think you bring up a great point because there is a lot of people that are trying to put their own stakes in the ground and my fear is that there is a lot of
Betamaxes being put in the ground that people are going to have a lot of egg on their faces on why did you do that.

I know we have been trying to stay very closely connected with this so that we are not one that is putting Betamaxes in the ground.

CHAIR WILKERSON: That was I just said. I was like but it was superior in many ways.

MR. FEHR: So anyway, we know that for everybody around the table here and all of the constituencies they represent to be successful, somebody has got to help them along. Nobody is going to do this all on their own. It is just too unrealistic to expect.

MEMBER KISSINGER: Well what is your personal best estimate for implementation if you look at five or ten years, even if it is off the record?

MR. FEHR: Well I am sort of on and off the record but my best estimate is up there on the screen right now.

I expect, you know my crystal ball tells me that if you kind of divide up all of these
benefits, safety, mobility, environment, casualties, capacity, combustion, I would expect maybe about at ten percent improvement in ten years is a sort of realistic expectation.

Then 20 years, maybe those numbers that you see up there are a realistic expectation. If everybody gets their act together and gets in line and gets stuff done. So, that is kind of what I would predict.

MEMBER CAPP: Specifically, in terms of DSRC implementation. That is what you are referring to.

MR. FEHR: No, the architecture. The SRC is one small piece of the complete architecture.

MEMBER CAPP: That is why I was wondering what assumptions you had in mind with that. It's all the stuff you are talking about.

MR. FEHR: Yes, it has got to be the complete system. It isn't one little piece of it. It is the whole thing.

So, if ten years from now I am ten percent less likely to be hit in the back end at
a traffic light, I will be happy.

So, does anybody know any good whiplash lawyers out there that operate in this part of town? I have a case for them.

MEMBER WEBB: Walt, and I understand this from the federal aspect, but when we starts dropping down, where -- are these same expectations out there for the locals?

MR. FEHR: Well, again, if you look at it from a continent-wide perspective, I would expect the aggregate to look like this. There will be places that are better, places that are not as good, you know all that kind of granularity when you get down to the local level.

MEMBER WEBB: We have heard comments as far as statistics about how much of the country is rural and whatever. So, the idea is all of this will be covering geographically a certain percentage or we going to say that this is going to be for the more populous areas?

MR. FEHR: Okay, now you start to get into the weaseling and waffling opportunity in something like this.
MEMBER WEBB: Fair enough.

MR. FEHR: Because if you have this overall continent-wide goal and you have got some really easy wins in a particular area, it is kind of like the game that car companies play with CAFE standards. You know my big four-wheel drive SUV is a real gas hog but if I sell a lot of little cars along with it, I make my average number. So, people can play games with this and the net effect has to be looked at in aggregate. It is the only way you will ever make sense out of it.

MEMBER MCCORMICK: My view from the last 15 years of doing this is that we tend to think linearly about how the future will unfold, when it actually changes parabolically. You know to ask us ten years ago if what are the insurers' part of this, you got a shrug. What does the mobile environment play in this, you get a deer in the headlights.

When you talk about the rural areas, you tend to find the limitation and the ability for infrastructure. But if the cars have capability and if the cars' capability evolves not just to DSRC
but Wi-Fi, cellular and satellite, there is a number of different opportunities that I believe we will see arise that will bring value. It may just be commercial value but all of those things, it is like anything that goes through adoptions, as long as you have got -- once you have put a stake in the ground and said here is where we are going to go and what we are going to do, it will and it has, in this case, taken on a life of its own, in terms of these people start putting different sets of thoughts on it.

Ten years ago, nobody asked the question what happens in the rural. Five years ago, nobody asked it. The first time I heard it raised was basically in the 2012 first ITS PAC meeting by you guys. So, you know my view is that that is a great forecast but I guess that -- I honestly believe that we are going to see, over time, faster adoption and a broader adoption and many more things come into play than we see right now.

MR. SPENCER: I'm going to reflect a little bit what Susan said earlier, this dynamic
about destruction is going to drive a lot of it. And when it comes to change, you are either driving change, reacting to change, or you are a victim of change. All you have got to do is decide which paradigm you fit.

MEMBER ALBERT: Walt, it would be nice, being the rural guy in the room, it would be really nice if you had one of your demos that wasn't just interstate and that interstates are four times safer than secondary roadways and really look beyond the interstate onto the two-lane rural highway. Some of it is demonstrations.

MR. FEHR: As a guy that grew up in corn country in Illinois --

MEMBER ALBERT: You know.

MR. FEHR: -- that intersection at the corner of our farm was the place where some really deadly things happened.

MEMBER BERG: And you didn't have the octagon that is red. Right?

CHAIR WILKERSON: What was that?

MEMBER BERG: And the intersection didn't have the red octagon there.
MR. FEHR: Actually, growing up on the farm, the first stop sign you would get to when you got to the edge of this town that we live close to, there is actually a yellow octagon. I can remember that. It was yellow.

MEMBER BERG: That means to slow down.

MR. FEHR: So, it took transportation 40 years to get to the red octagon stop sign. We have an opportunity to jump a lot further faster with this, if we just pay attention to that.

MEMBER DENARO: We've all seen those movies of a future automated intersection only cars in intersections whether there is no traffic signals or anything else. They are kind of leading and so forth.

I, in the great NHTSA, at least had an intersection near my home on the commute, that is the way we did it. There were no stop signs, red or yellow and we just kind of weaved through. The problem was when there was some non-local person there that screwed everything up because they stopped.

MEMBER MCCORMICK: Or for the
non-vehicle road users. You may end up with more
types of signage and signals.

MEMBER CAPP: If you have been to
China, all the intersections are kind of like that.

MR. FEHR: Is that right?

MEMBER CAPP: It's amazing how most
people don't get killed. It's amazing.

MR. FEHR: Yes, or you just walk on the
platform of the metro station at rush hour and
nobody runs into each other but they are going every
which way. Well, unless it is people like you that
don't know how to use public transportation.

MEMBER DENARO: It's those people who
are doing distracted walking now.

MEMBER MCCORMICK: That is the other
interesting thing. I have seen a study recently,
it's not totally fleshed out, it was in process but
the advent of advanced technologies in vehicle like
adaptive lane-keeping and cruise control is
actually generating more distraction issues
because people were paying less attention to the
thing that has been offloaded to them now, where
they still needed to have attention.
MR. FEHR: I can remember when my grandfather bought his 1963 Ford Galaxy 500 and my grandmother refused to let him get a radio installed in that thing because she didn't want him fiddling around dialing the radio and getting into an accident because he was distracted.

MEMBER MCCORMICK: Well, in the early '30s when GM put the first rearview mirror in a car, they had to take it out. It was legislated that they had to take it out because that was the first use of the term distracted driving because the people were looking in the rearview mirror to see what was coming up and not paying attention to what was going on in front.

MEMBER DENARO: Walt, we were talking in the Data Subcommittee, we were talking about all kinds of policies and so forth with data that might come from data pools and that sort of thing. And you guys don't, I don't believe, get involved in policy. But I guess it is just a general question. Where are you in considering how much of this data gets made available and how do you protect privacy and things like that? Have you been giving that
some consideration?

MR. FEHR: Yes, we don't necessarily write the policy but we have to put the things in place that would give somebody the ability to implement policy.

MEMBER DENARO: Okay.

MR. FEHR: And so those are very much in the forefront of what we are thinking is how do you put in provisions and designs that have the ability to achieve the level of privacy that a policy might dictate. Another one of the big things that we know about is that it is not so much the data but the recovering the value people add to data as it moves along. So, we put in provisions to actually help people accomplish that because we know that if this data are ever to be moved, it has to be treated much more like a real commodity industry, where nobody owns a commodity. That just doesn't make sense. People own the value they add to that commodity as it moves along. And you have to have the practices and provisions in place in the design to actually accomplish the recovery of that value.
So, if you look at our reference implementation, the thing that is running there in southeast Michigan, you will see the details of how every unit of data can be accounted for, which is the beginnings of giving people the ability to recover that value.

So, we are very much interested in making sure that design provisions are in place to actually accomplish the policies that somebody put in place. That is going to be one of the biggest, the totals in these next round of deployments is how do we actually preserve the privacy that people are expecting with their crash avoidance technology. Then the situation we are going to have in place is the General Motors products that have these basic safety messages going out that are constantly changing their identity. In the very same vehicle, it has got a fixed MAC address on their freaking Wi-Fi gateway. It is probably built on the same piece of silicon. And one completely negates the privacy practices that were put in place for the other. Sorry, General Motors.

But it is those kind of knucklehead
things that we are going to have to figure out how to get through. How do we actually put the design practices in place to preserve that privacy that everybody expects or wants with their crash avoidance technology? And that is going to be one of the more interesting things that we have to work through here in our pilots projects because the knee jerk instant implementations that people are thinking of right now are just going to throw that privacy protection right out the window, literally.

CHAIR WILKERSON: Well, thank you. Any other comments before we go to Scenario Planning?

Thank you, Walt, for that summary on security concepts and the uniform implementation.

MR. FEHR: Okay. Well, I always appreciate this opportunity to interact with this particular group. It is always refreshing to get out of that little hole in the ground where we normally live and see what other people are thinking in the outside. So, thank you.
SCENARIO PLANNING DISCUSSION

CHAIR WILKERSON: We hope you will stay around. Thank you. Thank you so much. So, we are on time. It is 12:59. At 1:00, we said we would turn to Scenario Planning. I know there were a couple -- I think, first of all Scott asked to take a poll of everyone who is going to be around to go to dinner. So, I don't know how many people might be around. He wanted to make a reservation if there were any folks around. How many? Anybody? Okay.

I know when we had the Shared Use discussion you had to be out of the room for an important call but I didn't know if you wanted to reiterate the concept for that, Susan. And then I think there was one other that came up. The other issue that came up was the fleet issue. And I think that was it. Those are the only ones I have in my notes, if anybody else has any thoughts.

MEMBER SHAHEEN: So in the context of the discussion of Shared Mobility, it came out, I think Jeffrey Spencer mentioned that Scenario Planning might be a good tool to look at future
planning needs. So say with Shared Mobility and possibly convergence with automated vehicle technology.

MEMBER MCCORMICK: The fundamental premise behind doing Scenario Planning is essentially to question your objectives, question what your underlying truths are that you are holding in this place. An example would be what the DSRC doesn't work. To look at the collateral things that may occur. What if there is another major recession or massive fuel prices, that changes the deployment issue but what else could possibly change?

To ask even real questions, I mean we haven't actually ever physically tested how any vehicle with DSRC in it behaves during an accident. You know it could be that it sends out spurious signals. It could be a lot of things.

And the purpose isn't so that you have to actually plan for the implementation of what your recovery programs would be but so that you have an awareness of what the potential threats might be if, in practice, something didn't make it to
execute on anything, turn out to be inaccurate or opposite or, if conditions occur that fundamentally may destroy one of those underlying foundations for it.

So, and I think there has actually been some work and the purpose, of course, isn't to do that Scenario Planning. The purpose of what our charter is is to decide whether or not to recommend to the JPO whether it should consider doing Scenario Planning, in what areas and to what end result.

At our first discussion of this at the last meeting, everybody was kind of like yes, it is probably a good recommendation but we really didn't have a meeting to decide any further than that. And I guess I questioned whether we need, I mean other than weighing in right now on it, my fundamental statement would be that the ITS JPO should undertake Scenario Planning on all of the aspects of the deployment that, if rulemaking occurs, in order to determine if there is areas of -- in order to be made aware of opportunities, how we would address those challenges. And then we can
give examples, we can acknowledge the ones I just did.

CHAIR WILKERSON: Any comments?

MEMBER SHAHEEN: I think Scenario Planning is a really worthwhile tool. And I think it is something that JPO should consider doing on an annual basis, create a scenario analysis and then revisit it, which is what a lot of companies do.

CHAIR WILKERSON: Is there one that we want to specifically recommend for purposes of our --

MEMBER SHAHEEN: The global business network model I think is pretty interesting, Sheryl.

MEMBER MCCORMICK: We are also working on the assumption that we will solve the security issue and we may not. We are making assumptions about public key encryption, which may not prove true.

So, the answer would be to say well what if that doesn't approve, is there another mechanism or methodology we would be prepared to investigate?
And we already know the answer to that because they have looked at a variety of different ways of doing encryption over the years. But it is like anything. You have studied something five years ago that is sitting on a book on a shelf in a warehouse somewhere and the people that are currently working on a program are not aware of it. So, it is a horrible litmus test for making sure where you are going is properly vetted.

CHAIR WILKERSOHN: Any other comments?

Did you want to add something to that?

MEMBER BERG: Is that not what Strategic Plan is?

MEMBER MCCORMICK: No, interestingly, it is not. Because if you read the details for Strategic Planning it says here is what we are going to pursue studying and doing. It doesn't have any fallback plan when it discovers that what we are studying isn't going to work.

MEMBER BERG: It is research. Most of it won't --

MEMBER MCCORMICK: Right.

MEMBER BERG: So, that is the learning
that takes place, what is appropriate to move
forward on. What was a mistake?

MEMBER MCCORMICK: Right, but my point
is is that when Ken Leonard, when we briefed him
on -- when he was here at the last one, he said yes,
we don't do that and yes, we probably should.

So, my thought was that it is a viable
recommendation to tell them that they should do it,
not to do it for them.

MEMBER BERG: Right.

MEMBER MCCORMICK: Yes?

MR. SPENCER: Jeff Spencer. When you
talk about Scenario Planning, I had kind of one
thing in my mind and what you have given me is much
higher and I understand that level because both the
implications that it is giving. But my question
is, how do we get into more granular levels?
Because in my thinking when I was going through what
I thought was scenario, when I mentioned earlier
modeling and things like that, we bring that down
to some granularity as well. So, how do we build
the support that is A to Z, rather than just looking
at the pie.
MEMBER MCCORMICK: Well, typically what happens is you execute on the different level -- you know the depths of doing this analysis as it becomes more relevant and appropriate to do it.

So, in my example that they haven't crashed a car, they actually are in the process of figuring out how to do that and what they would test. Okay?

I just was at a meeting three weeks ago with people that are producing one of the two million dollar certification program tests. We were reviewing what they were doing and we asked the question well, are you testing these boxes and creating your metrics for it based on a generic antenna and they said well, yes. And I said well, then if you have LIRA antenna, which might have better capabilities or a stronger reception or whatever, I says, do you need to validate the box against a specific antenna because you can't measure the box's performance without an antenna and the likelihood that anyone is going to put in a generic antenna, you know the simplest one that AnLar or whoever provides is pretty unlikely. So,
they have added that now into this scenario that says okay, yes we probably do need to test that and just figure out a way to validate it.

So, sometimes the asking of questions as are you doing this or doing that forces people to say yes, that is probably what we need to do next and that is when you expend the resources to do it. But you certainly don't want to take the meager budget that JPO does and have them redirect doing something but they should be prepared to do that, was kind of my point. And it should be part of their operations, standard method of operations to enact that when scenarios dictate.

MEMBER BERG: So, if they have a $100 million budget, they will be doing Scenario Planning, instead of actually executing on what they said they were going to do.

MEMBER MCCORMICK: Well, if they take it that way. My intent is to say be aware that you need to do Scenario Planning, that you should be prepared to do it when it is necessary to do so.

MEMBER BERG: When it is necessary to do so I think is the operative phrase there.
MEMBER SHAHEEN: Yes, but once you developed say a scenario -- I'm sorry.

CHAIR WILKERSON: No, that's okay, go ahead.

MEMBER SHAHEEN: Well, once you develop -- because I have been involved in this process. Once you develop the base Scenario Plan, that is where you put some investment, if you go revisit it every year shouldn't be as challenging to update it. I don't think it is a multi-million dollar effort.

MEMBER KISSINGER: I mean is there a baseline scenario, a best case scenario that takes into account --

MEMBER MCCORMICK: The best case scenario is what Walt laid out is what we are doing. That is the best case.

MEMBER KISSINGER: Well how detailed is that? That seems -- I couldn't tell if it was very detailed from his presentation. But does it take into account cars V2V, V2I?

MEMBER MCCORMICK: Yes.

MEMBER KISSINGER: And how detailed is
that?

MEMBER MCCORMICK: It came out -- well, yes, it took $54 million of government funds, ten years of the VI Consortium. I don't know how many years of camp, how many millions went into that camp doing the more detailed safety essential work between OEMs but everything from policy level to developing the premise for the PKI infrastructure was developed over that decade with the VII Consortium, which had the bulk of the automakers participating in it and I don't know how many suppliers.

MEMBER KISSINGER: No, I guess I understand all of that. But I mean in the real world, we are having trouble funding the existing physical infrastructure.

MEMBER MCCORMICK: Right.

MEMBER KISSINGER: So, I think there is -- I mean an honest question on the table is will we ever have the money to fund all of this new infrastructure for some of this new technology? I don't know, does the current assume oh, yes, that is going to happen?
MEMBER MCCORMICK: Here is the problem. We have never had the ability to articulate the value proposition broadly enough right now for either V2V or V2I. We can articulate the safety benefit for it. But what that actual value is, because it is kind of -- in all of the analysis, like the analysis Volpi does, when you read it it says okay, if half the accidents -- half the patients in an emergency room on a weekend are accidents; if you eliminate all accidents, you eliminate this cost. But on the other hand, now you get to lay off half the doctors, the nurses, the ambulance drivers, and staff because it is an inelastic commodity of people that do things.

MEMBER KISSINGER: And the chop shops.

MEMBER MCCORMICK: And the chop shops and all the other --

MEMBER BERG: Is it DOT's responsibility to do that?

MEMBER MCCORMICK: I'm sorry.

MEMBER BERG: Is that DOT's responsibility to analyze all of that?

MEMBER MCCORMICK: No.
MEMBER BERG: Okay, so then what do we --

MEMBER MCCORMICK: But his question was -- I was trying to say that in the question is that their objective was to do one thing. Quite frankly, you know, whether or not Kirk is going to put more wireless sensor straining gauges on other bridges has to do with whether or not I have budget for them and whether or not there is perceived value for it. Do I just do it on the ones that I have decay issues on or age issues on or whatever. So, there is a whole other set of dimensions that go into making a decision whether you are pursuing technology. And then it is down to -- or pursuing a solution. And then it comes down to okay, this isn't the only way to get that information. And so in that case, it is one of those well, okay, what if I do it by using hardwire technology? Is that cheaper? If I don't have to outfit vehicles to drive over it, is my responsiveness faster?

So, there is a whole set of conditions that determine whether or not a technology is appropriate, even before you get to the question
of whether or not it is economically effective to do it. And we don't have an economical effectiveness answer for this. We have faith. We believe that it is going to reduce a lot of crashes and accidents. In the last ten years, the number of deaths have gone from 43,000 to 35,000. You know because of things like ADAS, because of things like traction control, because of the technology that has been put into the vehicles, because of awareness that public entities have done with roadway and safety, and signage and everything else. I don't know, is a road sign worth the investment, Kirk? It depends on where you put it and what you say on it.

MEMBER DENARO: So, the question I have is, where are we going with this. What is it where you were coming from? In one of my career stops, I was training scenario option development and I facilitated sessions on this. And I recently redid this whole thing with the automated vehicle symposium two years ago or something we did it. And the whole point, I think this is kind of what you were saying, Scott, is that the whole point of
scenario option development is to anticipate futures that you wouldn't normally think about. So, the scenario planning is not about oh, here is a cool scenario. It is to force yourself to come up with strange scenarios that you wouldn't otherwise think of. But you know what? They may happen.

So, the whole point there, the process is coming up with critical uncertainties. And then you kind of match these against each other. So, for example, when we did this for automation, critical assertions, I have got presentations on me here, we considered vehicles might operate on all roads or they might only be on dedicated roads. The driver might be engaged or the driver's not even in the loop. It might be urban. It might be rural. It could be individual ownership or it could really move to mostly fleets or automated vehicles and so forth.

So, you come up with the uncertainties and then when you cross them together, that is when it gets interesting. Because if you have the combination of it is operating on all roads and
maybe it is individual ownership or centralized fleet, that gives you very robust defined scenarios.

And the point of Scenario Planning, and I think you were getting at this, Scott, is to come up with the implications. What if this -- forget about whether you believe it is real or not, if this scenario should emerge, what are the, first of all, early indicators that say wow, you seem to be going to Quadrant 4? So, what are the early indicators?

And secondly, then what are you going to do about it? So, that is the whole point of a plan is if we end up in the scenario, I can't for the life of me, understand why that would happen but, if it were to happen, what would we do in that case?

So, that is Scenario Panning as I know it. My question, though, is, what are we going to do? We are not going to do Scenario Planning in this group, at least not today we're not. I don't think we are going to do it. So, we are not going to do it for the JPO. And if we are going to tell them to do it, what is it -- are we going to help
them define critical uncertainties or what is it we are really asking them to do?

MEMBER MCCORMICK: Let me put it in more real terms.

MEMBER DENARO: Okay.

MEMBER MCCORMICK: Federal highway, under Dr. Kunik Lee gave an award to Susan and Virginia partners and, I believe, another entity to work on their scenario planning for a number of scenarios.

One of them was what happens in major climate change. What happens if the power grid goes completely down? And you know, on the surface, it may be well if the power grid goes down, I guess we are all walking or at least getting stuck at not red lights.

But the reality is, is that a lot of other things occur of which are important to Federal Highway because once you understand here is where this scenario is, if this scenario occurs, they still have to move goods, and people, and services. They still have to have -- if the grid goes down, that affects, severely most of the West
Coast's major forms of transportation. Right?

So, the federal government does know when to do that and they don't necessarily do it but they contract with entities that do know how to do it.

My only point was that in talking with DOT, they didn't do it. JPO didn't do it. And when I talked to Ken, I said don't you think that would be of value to do that? He said, yes, we probably should.

So, I said well, then, what I am going to do is recommend that -- I haven't figured out the wording of this yet but that we should recommend the Joint Program Office be able to initiate a Scenario Planning activity opportunistically as it is needed and should do one now just to question the underlying assumptions they have made before rulemaking occurs.

MEMBER DENARO: So, are we going to suggest the issues that they may need to address?

MEMBER MCCORMICK: No.

MEMBER DENARO: You guys might agree going down.
MEMBER MCCORMICK: No, I don't think we should suggest that. I think that there is a smart enough bunch of people in JPO that they know what their underlying assumptions are.

CHAIR WILKERSON: And I think when we had the earlier discussions we weren't sure out of all these issues whether there might be one that would be more appropriate than the other. I think that was -- we said it could apply to all of them or none. Do we make none, no recommendations or --

MEMBER MCCORMICK: And I am perfectly happy if the Committee has no consensus that this is a valuable recommendation and we can move on.

MR. SPENCER: Just a suggestion to insert multimodal scenarios because if you just let them go, they might come back pilot scenarios.

MEMBER DENARO: I mean we have talked about a lot of critical uncertainties. We just had a discussion before lunch about whether or not Shared Use impacts the number of vehicles on the road and hurts public transit, for example. I didn't state that exactly right but those have been
-- and we all said who knows. I have seen studies from both sides. That is a clear definition of an uncertainty that would be addressed by Scenario Planning, potentially. So, --

MEMBER MCCORMICK: Yes, I don't want to solve world hunger, I just want to point out somebody might be hungry here.

MEMBER DENARO: Yes. Yes, well, I am still struggling for what -- are we simply going to say gee, JPO, you have got to do Scenario Planning?

MEMBER MCCORMICK: I would recommend that they do Scenario Planning on the baseline assumptions that they have made in order to advance the rulemaking. They have made, fundamentally, a number of them.

MEMBER DENARO: Okay.

MEMBER MCCORMICK: Okay. That takes them a few hours to actually do that because there is basically four or five fundamental assumptions that they have made that we don't know if it is true or not. We think it is true but we don't know if it is true. And that they consider having the
structure and ability to implement Scenario Planning going forward, if warranted.

MEMBER CAPP: That is fairly narrow.
CHAIR WILKERSON: Yes.
MEMBER MCCORMICK: Yes.
MEMBER CAPP: It's not multimodal.

It's not --
MEMBER MCCORMICK: Well, we can add multimodal if you want.

(Simultaneous speaking.)
MEMBER MCCORMICK: Well, the JPO doesn't --
MEMBER CAPP: Maybe the scenario is what if that isn't the right approach in total?
MEMBER MCCORMICK: And what if it is not the JPO? If it is multimodal, it is not necessarily the JPO.
CHAIR WILKERSON: Right.
MEMBER MCCORMICK: So, I mean we could address it at a higher level. I think the fundamental question I have for this group is it something we should wordsmith into a recommendation or drop? I don't know if hearing
none is by acclamation or not.

MEMBER KISSINGER: I think I am generally supportive of doing what you are talking about. Until just recently you said well, we have four things that we are going to look at. It would take them an hour to do. I mean it seems like if it is no more complicated than that. I mean, I'm not even sure it is worth making --

CHAIR WILKERSON: I think it is a little bit more complicated than that.

(Simultaneous speaking.)

MEMBER DENARO: In a sense, though, this hits at the center of what we are supposed to do as a committee. In other words, identify gaps that you guys might be blind to in this thing, you know we need to look into this.

CHAIR WILKERSON: Right.

MEMBER DENARO: So but that is going a little bit beyond just saying do Scenario Planning. I think if we were to provide value in a recommendation, we would have short-lived scenarios of where, I mean I'm sure you considered this possibility and what you would do about it.
CHAIR WILKERSON: I think that is where our subject, we have looked at it with respect to the five areas that we looked at, fleet mobility, and all the others, and said it is not clear which one we would pick for scenario planning. So, is there some way after we have had a discussion about these other topics that there is one that we believe, one particular scenario, that we need to propose. And that is what is on the table.

MEMBER CAPP: Yes but the way to put it is some of these different scenarios that have been talked about here, somewhat hypothetical, who knows, and just say plan these against -- with that change, we will add it, with that change, what they are doing research and work on or not.

CHAIR WILKERSON: Right, exactly.

MEMBER CAPP: Some of it won't matter and that would be good to know.

CHAIR WILKERSON: That's a good way to put it.

MEMBER DENARO: So maybe what we need to do, I'm thinking out loud, you might not like this, but maybe we do need to brainstorm some of
the areas which we think are blind spots and see
if we can come to a consensus on five or six that
--

CHAIR WILKERSON: So, for example --

MEMBER CAPP: What if everybody is
sharing cars does that matter? It may not but you
guys took a look at that. Take a look at it. It
takes two hours. Take a look at it and see if it
changes your plan.

CHAIR WILKERSON: Exactly. So, for
instance, you talked about impact if it is adopted
globally and not here, or if they move a lot faster,
we are behind the ball, what are the implications
for policy and regulations.

I think Joe mentioned what was it the
fleet -- workforce. Right? There was a workforce
issues saying what if we don't address these
issues? What are the implications on these other
issues we are trying to address? Fleet mobility
came up as another. So, I think it is open for
discussion. I don't know which -- whether there
is consensus on one particular topic or another.

MEMBER SHAHEEN: I think it is just a
very useful methodological tool and you can apply
it to all different types of topics. And you know
maybe the recommendation is that from the research
side, that this is something that they more
seriously integrate into their toolbox for future
research on a regularized basis.

Because I was engaged in this project
and Scott was part of it for Dr. Kunik Lee on
Integrated Active Transportation Systems. So, it
was the whole idea of everything being connected
all the time. And we spent $1.5 million doing a
very serious scenario analysis and we developed a
strategic research plan that went alongside of some
of those scenarios but it wasn't executed upon.
So, it is not meaningful to do that exercise, unless
you follow up on it or revisit it. Because if we
did that now, gosh, probably, what four years ago
now, and we never revisited.

MEMBER MCCORMICK: And I would point
out that there was political reasons. Not
political in terms of governmental but there was
departmental issues that it wasn't executed on.

MEMBER SHAHEEN: Some of the things
that were discussed and I don't know if you remember this, Scott, but some of the things that were discussed have actually come to pass.

MEMBER MCCORMICK: Yes, they have actually come to pass, which was interesting.

MEMBER SHAHEEN: Yes.

MEMBER MCCORMICK: But that was only four years ago when they had a document in front of them so this could happen. So, that was worthwhile.

MEMBER SHAHEEN: Just I think advances and the role of the mobile phone, robotics, remote printing technologies, a lot of the things that -- medical health, a lot of that stuff was forecast in it.

MEMBER MCCORMICK: Yes, a lot of the global health stuff was in there.

MEMBER BERG: So, Susan, is your point that we shouldn't give them the areas that we think are -- that we just say integrate this into your normal process?

MEMBER MCCORMICK: No, I think we should give them a starting project of what we would
recommend they look at and then I said that they
should continue that process scenarios of
opportunity. And we may have different -- it could
be that somebody wants to have them look at
multimodal but that wouldn't be the JPO. Somebody
may want to look at rural but that is not JPO.

JPO is fundamentally concerned about
the rulemaking and the deployment and that is the
model. I think if we started there, that model,
if useful, if they find utility in it, in using it,
it will get populated within the organization. I
mean, we have seen that in the past, right, Stephen,
that somebody has gone off and done something --

MEMBER BERG: It may or may not; the
example Susan just gave you.

CHAIR WILKERSON: Right.

MEMBER MCCORMICK: Oh, there were some
personalities involved in that.

MEMBER BERG: Whatever. I'm just
saying it may or may not.

MEMBER MCCORMICK: Right, it may or may
not. But it is kind of like, it is kind of like
what General Lee said, having ordered in a
restaurant doesn't satisfy your hunger but it gets you going in the right direction.

MEMBER SHAHEEN: Well, I know that when Dr. Lee envisioned the project, he really wanted the scenarios to be aligned with the Strategic Research Plan so that if something happened, we would have research going on in these areas. So, we would not be like oh, shocking. Oh, precious metals are important? Oh, China took over that. Right? My husband is in that business so I know a lot about it.

But that is actually what happened to us in this country. For example, precious metals are really important to transportation now and to electronics and everything we do and we didn't invest properly in that. So, Dr. Lee's vision was like if we did these scenarios, we could develop a strategic research plan, revisit it annually but make sure that we had lines of research going.

CHAIR WILKERSO: Or we do sort of subtract from those that are irrelevant today.

MEMBER SHAHEEN: Yes, so that the U.S. government -- his big concern was like the U.S.
government was going to be taken by surprise by something. You know some like -- he was really keen on tremendous energy breakthroughs that could take us off petroleum fuel, for instance, and how that would cause just international disruptions but also what could it enable here, in terms of the economy and that we needed to at least be looking at things like this.

CHAIR WILKERSON: It makes sense.

MEMBER SHAHEEN: Yes, I mean I don't think it is something that requires a $100 million or $200 million commitment but I think it is saying we need to think about the future and we are in a disruptive space now.

MR. SPENCER: If I may, it is part of your system engineering process is establishing your needs.

CHAIR WILKERSON: Right.

MEMBER SHAHEEN: But like going back and reassessing, too.

MR. SPENCER: Part of system engineering is the need to go back and reassess, right, too?
MR. SHEEHAN: But we really are on the fun side of V, is kind of where we are looking at now is the process. And I think part of this could be adopting best practice in developing systems, which is agile. A lot of times we don't follow that process, which maybe gets you in these predicaments.

CHAIR WILKERSON: Kirk.

MEMBER STEUDLE: So, it seems to me, listening to the presentation, that an appropriate action for this committee is to, in the recommendation, recommend that they engage in some scenario planning, and then, parentheses, such as, but not limited to, just such as this topic and this topic, without a whole lot of extra in it.

Some of the stuff that you guys have already said, they are not full paragraphs of doing it in this form. Look at this piece, this piece, and this piece in one sentence. And then give them the direction that says now, go do this because those might be the relevant ones to look at.

But another group of people like this may come up with three other ones that actually may
be better. But we give it to the Secretary and said you need to think about those. You really need to do Scenario Planning and do some Scenario Planning around the Scenario Planning.

MEMBER SHAHEEN: That is kind of where I am more coming from is that it is just a way of opening up how you are thinking about the world and then looking at your Strategic Research Plan and seeing do we have gaps here.

CHAIR WILKERSON: That's a good way of explaining the rationale for doing it.

MEMBER SHAHEEN: It's a gap analysis in many ways.

MEMBER STEUDLE: And I think that is a valuable thing that the Committee can point out.

MEMBER SHAHEEN: Yes, that is one of the reasons I put this as my number two is I just think it is a gap in terms of the research program, with the exception of that great project I got to do, which was very fun and cool and I am happy to share it with you. I think, Sheryl, I sent up a copy of that to you last year but nothing got done with it. And that is sort of the part that we have
got to be careful about is commissioning Scenario Planning that doesn't get executed relative to the strategic research plan.

MEMBER STEUDLE: Well, but even if it doesn't get published, the staff is working on it. As long as it is not done by completely people outside of the Agency but if it is done and involves staff that are working on it, it becomes part of their knowledge.

MEMBER SHAHEEN: Yes, see, and our project didn't do that, Scott. Ours was an external with the exception of --

MEMBER MCCORMICK: There was reasons for it was being external.

MEMBER SHAHEEN: -- of Dr. Lee, yes.

MEMBER MCCORMICK: I mean this is orthogonal to our discussion but Federal Highways called me in said we put out this RFQ for this planning and they wanted us to look at all the responses they got. And nobody submitted a response that was more than probably 30 percent of what they were asking for.

And so Gail Julius and I sat down and
rewrote it and said this is what you need to have them ask and then it went out to bid. And we had to get these universities that were bidding on it to bring in people like Scott, and whoever, so they had balance in their program of what they were addressing.

So, there was some external -- well, a lot of external, and there was some internal to help provide a little bit of guidance. But I don't know that Scott Andrews or myself carried into that and came out smarter on our part of it. We came out smarter on being aware that hey, somebody thought of this and they had nothing to do with this industry or this sector. And that was very valuable.

MEMBER SHAHEEN: But I think it would be really helpful if members of the Department went through that exercise.

MEMBER STEUDLE: That's my point, at least engage in the conversation because then the knowledge, even let's just say again, get some small P or big P political problem through the process. The knowledge transfer has already
happened.

MEMBER SHAHEEN: Yes.

MEMBER MCCORMICK: Plus the process becomes ingrained. I now know what to do when addressing them.

MEMBER DENARO: Yes, I think my observation for the most part is whether the JPO is working is that they are picking directions to go and for very good reasons become advocates for that and may not consciously look at the reverse side. So, that was very abstract. I will give an example. You have already told them the DSRC. There are a lot of really important reasons why that is a good choice. There is another scenario but that reason is becoming more and more real than A, it could be not DSRC. It could be cellular technology, not the current one but the future one, and secondly, it may not be that involved with the government. It could be done private sector because there is a great reason for that.

I'll give you another example, automated vehicles, which you guys face and OEMs is what if Google, UberX, guys like whoever got
approval to operate anyplace at all times with automated vehicles as long as it is under 25 miles per hour. What does that mean? So, my point is then, our advice would be the JPO you need to consider what would be its role or what it would need to do research-wise, should this scenario occur.

So, I like your suggestion, Kirk, is what we would say is here is some meaty examples of what you might look and these are not necessarily all of them, but if you're not thinking about these, it ought get you thinking that you ought to be getting into this. So, is that what we want to do?

CHAIR WILKERSON: So, right now it seems like there -- is there a consensus that we should continue to have this as a topic or included as a recommendation and then maybe put a couple of people together to synthesize?

MEMBER BERG: We may not need to or be able to do it in the preliminary draft.

CHAIR WILKERSON: Right but I'm saying we should certainly explore it. Right?

MEMBER DENARO: I don't think we
should. I think it should be in the next.

MR. FEHR: I am just going to reiterate one of my earlier points on your comment, Bob. We are starting to become very agnostic on communication media there that are going to be used to accomplish our transportation goals. The analogy I like to use is that it really doesn't matter whether you put that red octagon stop sign on a wooden post, or a metal pole, or at some time in the future, somebody creates a hologram that they project. It is the same meaning. And that is the kind of thing that we are trying to work through right now is how do you transport these very uniform daily units using whatever medium is appropriate.

CHAIR WILKERSON: Or you get rid of them altogether and put them on a display on your windshield.

So, I think George was first and then Jeff.

MEMBER WEBB: Just a question. Scott, you said you had a conversation with Ken who says oh, yes, maybe we should be doing this. So, here
is the head of the JPO who has got in his head that
maybe this should be. So, is this discussion aimed
at the Secretary for the entire Department of
Transportation to involve all the various --

MEMBER MCCORMICK: Well, there are two
ways you can do it. If you want to include rural
and transit and multimodal, then we should address
it higher up the food chain.

MEMBER WEBB: Is NHTSA in this
discussion as well?

MEMBER MCCORMICK: So, it's really up
to the committee what it wants to do.

MEMBER WEBB: So, I'm just trying to
understand how big and broad this issue can get when
we are trying to identify you need to be thinking
about doing this or do we want to narrow it in some
fashion. So, that's all.

CHAIR WILKERSON: Jeff.

MR. SPENCER: Well my question is, we
have heard a couple questions, we do it anyway.
Does the outputs come back to this body as an
advisory group for prioritization and direction?

MEMBER MCCORMICK: No.
CHAIR WILKERSON: No, it's just an exercise that they use internally. Predictive modeling.

MEMBER MCCORMICK: We are just their make work team for them.

You know so my point, my answer to your question would be if the group wants to include, like we said, multimodal or rideshare or rural or transport or whatever, then we should direct the recommendation higher up the food chain. If it is just a recommendation for the JPO, then it is fairly well focused. That is something this group needs to decide what it want to do.

CHAIR WILKERSON: Okay.

MEMBER MCCORMICK: And what I would recommend doing in the interest of time is, since we are not going to put it in this level, this past recommendation, or since I recommend we spend more time on it going forward, maybe we close it out and see if we can't get a reconvening of that telecom for people that are interested in talking about it.

CHAIR WILKERSON: Thoughts? Is that okay? All right, so that will be an agenda item
for the next discussion. So, we will table that.

Is there consensus that that will not be included in this round of recommendations?

Okay.

DISCUSSION OF ITS TECHNOLOGIES IN GOVERNMENT FLEET VEHICLES

All right, so now it is 1:35 and we were going to go to the subcommittee updates. We can start with those updates.

MEMBER BERG: Can we finish the thing on the postal vehicles?

CHAIR WILKERSON: Oh, the fleet?

MEMBER BERG: Yes.

CHAIR WILKERSON: We can talk about that. We can add that now, if you would like.

MEMBER MCCORMICK: Well, that one, I think we can and should put into this report is that the recommendation to the Secretary of Transportation not to the JPO or anybody else, but that requirements for -- in the solicitation or purchase of fleets of vehicles for the government should include -- I haven't really well thought this out yet -- should include the ability to
upgrade those systems to accommodate future mandated requirements. Or should we be specific about the V2V?

CHAIR WILKERSON: What is the goal?

MEMBER CAPP: If you are going to call it specification, it will have to be specific.

CHAIR WILKERSON: What kinds of specifications? What is the ultimate goal that we want?

MEMBER MCCORMICK: Well, the ultimate goal is I don't want somebody buying $100,000 to $200,000 worth of postal vehicles over the next five years and completely ignoring the fact that there is going to be a rulemaking requiring automakers to put in capability. If there is an opportunity to put it in a massive amount of a fleet near-term, that --

MEMBER CAPP: You might have to put effectively, aftermarket integrated systems like we are not in the safety pilot. Is that what you are --

MEMBER MCCORMICK: Well, since --

MEMBER CAPP: They could specify that
they can't go buy right now. The rulemaking you are referring to is just starting. It won't be done for a few years.

MEMBER MCCORMICK: Right but --

MEMBER CAPP: They have to buy cars in the meantime.

MEMBER MCCORMICK: But they are not going to be buying them all tomorrow. They are going to be buying them in stages over time. And as you know, it is a model upgrade for future models beyond the first acquisition that they consider putting --

MEMBER CAPP: I guess my point is I don't know what they would do different if they can't go buy one today. There all sorts of -- the Ann Arbor Safety pilot that were updated all different brands, and sizes, and shapes, and trucks, and buses and everything that were modified to add V2V devices on them. Right?

MEMBER MCCORMICK: Right.

MEMBER CAPP: I am not picturing what they would do different in their shopping over the next couple of years.
CHAIR WILKERSON: They have to deliver the mail.

MEMBER MCCORMICK: Well, I don't know that -- in reading the procurement spec, and it was several hundred pages long, so I'm having to go by my failing memory, aside from the fact that it had no mention of any road, weather, or traffic sensing capability -- it doesn't have a temperature gauge. It doesn't tell you what the outside temperature is. It doesn't have an architecture that lends itself to even through OBD extracting useful information. And so, it may be that that is fine, that that is going to evolve away, whatever.

MEMBER CAPP: I don't know where to go to buy a car that doesn't have a temperature gauge anyway.

MEMBER MCCORMICK: Well, it is a postal vehicle.

MEMBER CAPP: That would be hard to find.

MEMBER MCCORMICK: It is not one that is displayed on the dash. Let's put it that way. It may measure temperature in some way, shape, or
form but it doesn't have an output reading. I don't know what the answer is. I just would like to see if the government is going to buy fleets of vehicles, we have to figure out some way to --

MEMBER CAPP: I like the idea of targeting government fleets to help learn and gather more data, to do all the stuff that we are talking about. I am just trying to think how do you make that happen through this procurement process. Or is it some broader recommendation we just made to really work hard to identify using government fleets to advance the things that we are talking about. Maybe it is a broader recommendation.

MEMBER MCCORMICK: How would you do it, Kirk, for your vehicles?

MEMBER ALBERT: It could also help with the market penetration issue in rural areas as well. So, some general statement that says this helps you through the last mile should be put in for future considerations.

MEMBER MCCORMICK: Kirk, if you are buying 100 new snowplows or something, how would
you approach it?

MEMBER STEUDLE: We are doing it aftermarket. We are putting our own stuff on.

MEMBER MCCORMICK: But you don't require it when you acquire the equipment.

MEMBER STEUDLE: No, you can't buy it. We can't specify it. But we are putting our own on.

MEMBER CAPP: That is why the general suggestion would be upgrade it. Whatever postal trucks you buy, up it.

MEMBER STEUDLE: I mean that is what we are looking at in Southeast Michigan with our own fleet of cars that are either GM, and Ford, and Chrysler cars, though it would be updated with the basic safety message transponders, the safety power CAP. Just the low end. They are not fully integrated. We don't want them fully integrated. We just are trying to populate the area with cars with basic safety messages. And then the people that are developing them are driving around and now there is a fleet that is out there that they can talk to.
MEMBER MCCORMICK: Well, and your snow trucks also broadcast their position locations through other technology so that people know where roads have been cleaned.

Walt, you look like you are pensively waiting to say something.

MR. FEHR: Well, one thing you might be able to do here and this might actually be a significant incentive, my private sources are telling me that certain automakers are already putting product plans in place to build retrofit devices for their existing fleets, going back to model year '96. Other automakers are probably not doing that.

So, maybe one of the things you could do is put in a requirement that they at least be from one of those automakers that does have that part in place.

MEMBER CAPP: Basically this is the same thing on plan to upfit those vehicles.

MEMBER ALBERT: Yes, the language was a little more generic. Certainly those vehicles, that won't be available.
MEMBER CAPP: Or we can specify, I would be alright with this, that all those postal vehicles be 2017 Cadillac Sevilles.

(Laughter.)

(Simultaneous speaking.)

CHAIR WILKERSON: Okay, so you will take that upon yourself to draft something to circulate, Scott, and put to the committee?

MEMBER MCCORMICK: Yes.

CHAIR WILKERSON: Okay. Were there any others we missed? What about the workforce issue? That was outstanding. Joe or --

MEMBER ALBERT: Yes, I don't know what the recommendation is. I recognized the problem but not material language for the solution. But maybe it is something that is as general as JPO should be encouraged to look at addressing the workforce development issues, whether it be through greater training or opportunities like that.

MEMBER MCCORMICK: Actually, if I may, they already are.

CHAIR WILKERSON: Could that be rolled
into the Scenario Planning as an example?

MEMBER MCCORMICK: They already do have that. They have a professional capacity building program and they have just this year launched a separate professional capacity building for connected vehicle technologies.

MEMBER BERG: Maybe they could make it more well-known.

MEMBER MCCORMICK: Yes, right now, the problem is right now they have a contract, I believe it is Booz Allen through an IDIQ, to develop what needs to be in there. And just as late as last week, they were in touch with Elaina Farnsworth on how do I incorporate the connected vehicle professional course.

So, they are now building that repository of training. They are just now doing it. And I only happen to know about it because they called to ask about a particular program. So, they are doing that.

I would offer, though, that the only thing they are doing is basically stuff relevant to V2V and V2I. And if they are not doing stuff
that might be relevant to all the other areas represented in the room, for the transit, for the rural, for whatever.

MEMBER ALBERT: Well, maybe you could retool what I have just said. Instead of it being more focused on delivery of training, be involved in maybe what should the future transportation professional, what skills should they have to address connected vehicles. Something along those lines might be more appropriate. I could draft something up and send it to you.

CHAIR WILKERSON: Okay, that would be great. It also falls into Scenario Planning.

MEMBER ALBERT: Exactly.

CHAIR WILKERSON: It is one of those little elements that falls into that bucket. That is a perfect example.

Scott, maybe you can also maybe tweak that in your recommendation, as an example, potentially.

MEMBER MCCORMICK: Okay.

MEMBER ALBERT: And Scott, recognize, I am saying about these work force development
centers of excellence but we manage ten states. The rest of the states are also managed by other universities as well and none of them knew about this course that you have mentioned.

CHAIR WILKERS: Okay.

MEMBER MCCORMICK: Well and AASHTO also its nationwide deployment map and all of that information but I am assuming AASHTO is socializing that through the states.

MEMBER ALBERT: Well, what we are looking at is what kind of more future casting looking at what transportation will look like in the future and the skills to support that.

MEMBER GOODIN: I think the skill set is really an important part of this, too. As we were talking about earlier, agencies are unable to salaries that are needed for these positions. And so having clearly-defined skill sets helps with that argument of raising or of establishing those positions and the appropriate pay.

CHAIR WILKERS: Okay. So, we have that. I will add that as an action item. So, Steve, you will look at drafting that and you will
also look at incorporating in a future discussion for what we might do for Scenario Planning.

    MEMBER ALBERT: Yes.

    CHAIR WILKERSON: Any other topics we missed? Thanks for raising that.

    MEMBER DENARO: Scott, is that the credentialing program that you were talking about?

    MEMBER MCCORMICK: Yes.

SUBCOMMITTEE UPDATES TO COMMITTEE

    CHAIR WILKERSON: Okay, so we are 15 minutes early. We were going to, then, as a group, talk about what the committees discussed and how we are going to proceed from there. And then we can go into -- we will take a break and then we will discuss the action items, the next meetings. And then, Scott, you also had suggested possibly talking about what we wanted to do next for our future meetings.

    MEMBER MCCORMICK: Right and I think we have done a lot of that discussion already.

DATA

    CHAIR WILKERSON: Okay, I think it will go pretty fast. So, do you want to start with an
update? We can at least get through one of them, the next one or two of them in the next 15 minutes.

MEMBER DENARO: Why is everybody looking at me?

CHAIR WILKERSON: No, you have got data. So, why don't we go with public funding? Who had to leave early? You have to leave early, right? So, why don't we go with --

MEMBER DENARO: We can do data if you want, I was just teasing.

CHAIR WILKERSON: Okay, go right ahead. So, Bob will start and then we will go with Funding because you have to leave early. Is that okay? Great.

MEMBER DENARO: So, I don't want to spend a lot of time on this because basically, what we decided is it is hard to rewrite recommendations or whatever as a committee. So, I took all the inputs. I had to go away and do a draft, send it out to my group. We will kibitz and come back and we will end up with something in September.

But generally walking through here, we are going to add some specificity to our data policy
consistency question, giving more examples. So, for example, we said current policies between the states with data sharing vary. Rather than just leave it abstract like that, we are going to give some examples: liability, privacy, ownership, security. So, again, trying to make it specific so JPO gets what we are getting at and they answer the question we are really asking.

The same thing with data decomposition, where we talked about there might be different levels of policies that would apply to different types of example. Three examples, we mentioned this earlier, with road information, weather and traffic.

We simplified some wording on some of ours to get our recommendations be nice and concise and to the point but it would depend on the descriptive paragraph before that, as we agreed in the template, to flesh that out and make sure we understand that. But I think our goal was to make recommendations as concise as possible so there was a clear question being asked through a recommendation we had made so we get a clear answer.
to that.

I'm trying to read my writing here. On data policies, again, we are going to enumerate some of the other industries that seem to have solved to a reasonable extent the problems of data policies and recommend that, at least as a startup list, the JPO ought to benchmark those solutions there. Let's see.

CHAIR WILKERSON: There was on with Raj. Remember, we said we were not going to break out. Raj, I believe you had suggested that we do a separate category.

MEMBER DENARO: Yes. Yes, thank you. Thank you. Raj, you had a good comment that they were related but we decided to leave them separate because we want to make sure that each one gets addressed and gets an answer. If we make them subsets, we were a little concerned that they might kind of answer the major area but not specifically address each of the sub ones.

MEMBER RAJKUMAR: But some of them went to different people.

CHAIR WILKERSON: Right.
MEMBER DENARO: But you are exactly right that they are related. And then I think in a lot of our areas, we had this ambiguity between whether it is a JPO role or a NHTSA role. There is no ambiguity between them about this role. It is just that some of our recommendations might have bridged the two. So, where that happens, we are going to make sure we mention NHTSA where it is appropriate and mention our focus on JPO, where that is appropriate.

And then we are going to tighten up -- Scott had a good suggestion on if we are going to say hey, you ought to have all these people in and tell them what kind of technologies they have. Well, what are they going to do with that? We are not just saying they should listen well. We are saying they should come up with some results. So, that is kind of a general view of what we are doing. You will see the results.

CHAIR WILKERSON: Okay, thank you so much, Bob. Ginger.

FUNDING

MEMBER GOODIN: Okay, so the group is
in general agreement to start with how we have structured this and keeping the two recommendations we have but doing some tweaking to what was there.

So, on the first recommendation, which is the deployment assistance, we want to modify the language to make sure we are clearly saying this is about supporting deployment, accelerating deployment. And we had a lot of discussion about the dollar amount. I think you would agree let's put a dollar amount in there but what should that dollar amount be.

We know that the Connected Vehicle Pilot Program is the $100 million. So, we have that as kind of one benchmark. We also, George had looked up the Senate proposal, which was the $30 million deployment assistance. For example, we had those kind of two benchmarks. So, kind of the consensus of the group is that the wording would be to continue with annual deployment grants of a minimum of $100 million a year. So, that is what we would propose.

In addition to that, we want to
emphasize opportunities for multiple agencies and regions to be part of this deployment assistance. We want to include a component for rural deployment of the program, not specifying an amount, a percentage, but that that be appropriate, considering safety issues in rural areas and the technologies that can support that.

And then finally, when looking at the Senate proposal, we noted that there was a 50-50 match. And so we wanted to put some language in there about match requirements. We kind of all were kind of taken aback by that.

So, rather than specifying what that match amount is, just describe what kind of what the concerns of being potential barriers for some agencies and coming up with a 50 percent match. And then maybe there should be a lower level match at the beginning and that that match changes over time. But we want to have some discussion in there about that particular issue.

On recommendation 2, which is the P3s, just a few things here. We want to include an example, which would likely be communications back
hall or Kirk had an example of an example of working with or being approached by a private sector entity about that, just to kind of provide a little bit more information about what we are talking about here. There could be others that we include.

But we had some discussion, too, about kind of the economies of scale of having a bigger scale public-private partnership, multistate coalitions, multiagency coalitions. So, we want to mention that.

And I think beyond just doing research, the idea of actively bringing together groups, public and private together, to talk about what the opportunities and the challenges would be would be something else we want to highlight.

CHAIR WILKERSON: Great.

MEMBER GOODIN: Did I capture everything?

PUBLIC TRANSPORTATION

CHAIR WILKERSON: All right. So, while we have a few minutes, how about public transportation?

MEMBER CALABRESE: I think most of the
group was here when we had the discussion, so we kind of combined. I think I am going to rewrite what we have. The one thing I'm really waiting for is the format of the template to try and fit everything in. And then the other discussion was do we workforce development separately, which I think we are going to do.

**SHARED USE MOBILITY**

CHAIR WILKERSON: Okay and then shared use, do you want to reiterate just for the record?

MEMBER SHAHEEN: Sure. So, for the committees, you already have my revisions in your inbox. So, we have four recommendations. Let me pull those up for you now.

CHAIR WILKERSON: You're making us look bad.

MEMBER SHAHEEN: Yes, I don't have time to spare. I have got to like do without even pooling what I am getting from the engineering department about my life that is about to happen. I have a couple of meetings I need to attend, et cetera.

Okay, Recommendation 1 is going to be
federal policy guidance. Recommendation 2, engaging FTA in the public transit agencies. I also have a note here Bob, since you are with us, that this framework should be integrated with FTA and the ITS Joint Program Offices for each program and I just said e.g., mobility. So you will see that.

And then third is focusing on accessibility and shared mobility deployment. And you will, for those of you who opened up your inbox, it is much broader now. It includes equity, accessibility and urban, suburban and rural locations. And then the fourth is dedicated sources to planning issues in shared mobility. And it looks a lot like Bob's format now. It is two pages.

CHAIR WILKERSON: Okay. And for the Scenario Planning, you are going to come up with one potential draft.

MEMBER MCCORMICK: I am probably going to draft a couple of versions --

CHAIR WILKERSON: Okay.

MEMBER MCCORMICK: -- and send it out.
And I will probably just send it out to everyone or send it to you and you can disseminate to everyone. And then I think because it will be two scopes, it will be either just one for the JPO or one that might encompass a number of areas.

CHAIR WILKERSON: Survey Monkey.

MEMBER MCCORMICK: Right. And then whichever one we have consensus on, then we can wordsmith. That one, however, we are going to continue that discussion into our next session. So, I think the other thing that I am going to work on is the fleet one. And I will do the same thing with that. I will put together some straw language and then we can have --

MEMBER CAPP: The scenario one, though, I thought we said we weren't including it in the --

MEMBER MCCORMICK: Are we going to include that one?

CHAIR WILKERSON: That is going to be deferring. That was deferred.

MEMBER MCCORMICK: Right, that one we are deferring. So, the fleet one is the one we are
going to --

CHAIR WILKERSON: The fleet one is the one you are going to draft.

MEMBER MCCORMICK: Right.

CHAIR WILKERSON: You are also going start thinking about that for future sessions.

MEMBER MCCORMICK: Right. I will send it out to the committee members ahead of whenever we can schedule a call.

CHAIR WILKERSON: That's fine. You can say non-recommendation. It doesn't mean we can't multitask and have it on our tickler list.

And then Steve is going to draft one for workforce or future tasking for skill sets, which will be circulated.

So, I think that is a great summary. Do you have questions or is there anybody around the room who has questions?

We were going to take a break. And then what I recommend is we come back, think about our action items, what we want to do next, and then come up with a time line for all this.

And I have a few potential -- I think
if we work backwards, saying that if the worst case scenario is September 25th, that we plan to send that. Then, we can work backwards and figure out how much time we all need to have the review process with the committee.

So, we will take a ten-minute break and then we will come back. And then my hope is that we will be done by 3:45.

(Whereupon, the above-entitled matter went off the record at 1:58 p.m. and resumed at 2:13 p.m.)

CHAIR WILKERSON: Okay, I think we had a very -- one, I hope everyone had an opportunity to weigh in and feels comfortable about the progress we have made. Again, if there is any thoughts or comments, or additions that we need to make, please let me know.

REVIEW ACTION ITEMS

I have got some notes here. Okay, so we are now at a point where we can discuss our -- we discussed our action items around the table just a few minutes ago but there were a couple of comments that came up.
We also need to form either a small
group or prepare these draft finals to be submitted
to the full committee.

So, I think the most difficult issue
will be working on the time line before we go to
look at what else we are going to do.

So, our last -- we had an advice memo
report that was circulated to everyone earlier in
the year. It was a 2014 to 2017 time line. We said
September the first advice memo was due and
February it was submitted to Congress, pending the
Secretary's signature.

We said that by September we would draft
the second advice memo and that it would be due to
the ITS JPO.

So, the last time it took quite a bit
of time for it to circulate because it has to go
to the JPO four to six weeks or so on. So, the
sooner we get it to them, the more time they have.

We have a September time frame. So, I
am looking at the end of September, if we were to
work backwards. And based on that date, if we have
to extend to October, we can. But in the interest
of the momentum we have, it might be great to go ahead and try to do as much as possible.

If you have your calendars, one suggestion is that if we look at that Friday, September 25th as the final final that would be given to Stephen Glasscock, that would require us to have that circulated as the final final well before then. I'm going backwards.

I was assuming maybe we could have a final edit made the week of September 18th. We could get all comments from the full committee sometime around September 11th. We could have a combined draft that would mean once the subcommittees have revised their draft, they would then give that to me or a small group. We would then combine all of them together, dot i's, check t's and then circulate that to the full committee sometime around September 3rd.

So, that would leave the week of maybe September 28th that the subcommittee would be able to draft the full comments and that would be August 28th. And I don't know if that is too soon. Does everybody follow me?
So, what is your thought, based on what the subcommittee leaders have to do in terms of reaching out to their subcommittees and getting -- is that a doable date or do we need to push this further down into October?

MEMBER SHAHEEN: Well, if we can do the comments by email, I can totally handle August 28th. But if we need to arrange a call, that is a different matter.

CHAIR WILKERSON: Right.

MEMBER SHAHEEN: Because I am back in D.C., then I am in Vancouver.

CHAIR WILKERSON: So, based on --

MEMBER SHAHEEN: If we can agree to do the exchange and the documents, editing documents by email, I think I could do that.

CHAIR WILKERSON: Okay, anybody else? Ginger, do you feel okay with that? Bob, what about you? Do you feel okay about September 28th if we use -- August 28th, I'm sorry.

MEMBER DENARO: Yes, I'm going to do the changes on the airplane on the way back. I'll send it out. I don't think we are going to have
a meeting. Like Susan said, I don't think that is practical but hopefully -- well, we will just set a deadline. If people comment back, that's great. If not, you use my words.

CHAIR WILKERSON: Okay. So, that would be -- as long as there is consensus.

MEMBER DENARO: Yes, that's true.

CHAIR WILKERSON: So, that would give us August 28th that I would take all of them. And then I will put them in order and format them, dot i's, cross t's, and then send that to the full committee the week of September 3rd.

Okay and then that would give everyone an opportunity to get comments from the full committee by September 11th. That would give you a date. By then, you probably won't have a whole lot of edits, unless you have got some new ideas. But, that would be September 11th.

And then another seven days to make any final edits, based on those edits, September 18th. And then what I would do is circulate a final final, meaning everybody eyeball this, make sure there weren't any glaring edits to be circulated to
Stephen Glasscock by September 25th or no later than the end of September. Does that make sense?

MEMBER DENARO: So, wouldn't you say that after September 11th, we are going to have the final draft to correct --

CHAIR WILKERSON: So comments will come from the full committee September 11th.

MEMBER DENARO: Right.

CHAIR WILKERSON: So, it would take a week to make sure I got everybody's comments, from the whole team, and then circulate that back out and say are your edits in here. Are there any last minute changes? Maybe get a few people to just read it back, eyeball it, to take a deep dive on it one last time before it would be circulated to Stephen. Is that fair?

And if anyone wants to have a greater role in that editorial process, I welcome.

MEMBER GOODIN: I think the only question I had is the format. I think to make it easy for you, that the subcommittee should have a similar format in the way that they --

MEMBER SHAHEEN: I followed Bob's.
CHAIR WILKERSON: I think we agreed that we sort of follow the data recommendation.

MEMBER SHAHEEN: So, I just looked at how he did it.

CHAIR WILKERSON: So, and the gist is that you have a short summary paragraph before your recommendation that would justify the recommendation. Sort of short and succinct and factual. And then there would be a --

MEMBER SHAHEEN: She is on a subcommittee. So, you will see mine.

CHAIR WILKERSON: So, then there will be a recommendation. And then we will number them all or not have them numbered or whatever. We will make sure that the font and everything looks consistent.

MEMBER GOODIN: Okay.

CHAIR WILKERSON: Is that fair?

MEMBER GOODIN: Yes.

CHAIR WILKERSON: So, do we have consensus that this is our time frame? There is some room to breathe. So, if we need to move a little longer or if some people are a little late,
we will try -- these are the target dates that we will look to and we will circulate to the team. And we will make sure that those folks who are here are well aware of that.

And then I will lean on the subcommittee leaders to kind of double check to make sure we have made all their edits.

MEMBER MCCORMICK: And if there is one of them that you can't get the consensus on, we can push that to the next session.

CHAIR WILKERSON: Okay.

MEMBER MCCORMICK: There is no reason -- I mean if we can't get a consensus and it doesn't look like it is going to make it, it is not abandon and we just move it to the next session.

CHAIR WILKERSON: Right. Okay, so that is the time line.

John, do you want me to reiterate what we proposed?

MEMBER BERG: I'm Roger.

CHAIR WILKERSON: Roger. I'm sorry.

Sorry about that.

MEMBER BERG: That's Scott.
MEMBER MCCORMICK: Do you want to let Roger know what you signed him up for?

CHAIR WILKERSON: See, you switched names. Right?

So, right now we are looking at having revised subcommittee drafts by the 28th. Those drafts will be combined, edited, and formatted and sent to the full committee the week of September the third. And then they will be circulated and comments will be provided to the full -- the full committee will provide their comments by September 11th. Final edits to those, any last minute tweaks, September 18th, with a final, final circulated to the committee on the 23rd to be sent to Stephen Glasscock before the end of the month.

MEMBER BERG: Great. Can I just make one --

CHAIR WILKERSON: Sure.

MEMBER BERG: -- suggestion. If people make a comment, don't say I just don't like the way it was written. (Laughter.)

CHAIR WILKERSON: I agree
wholeheartedly. No comments, then if --

MEMBER MCCORMICK: Yes, I prefer to see comments redlined, so I know what you actually changed.

CHAIR WILKERSON: We will try to do that as best we can. I agree. I'm sure that would have come out at some point.

MEMBER MCCORMICK: You don't find that helpful when somebody just says I don't like the way it is worded?

MEMBER BERG: Oh, of course it is helpful.

(Laughter.)

CHAIR WILKERSON: So, the other thing is I know we have until February, I guess, for this to be submitted to Congress.

Do you have any comments about how that process will work?

MR. GLASSCOCK: When you give it to me, you are done.

CHAIR WILKERSON: Okay.

MR. GLASSCOCK: So, I take the -- I make it -- turn it into the report to Congress. I won't
give you the chances of it in there on time if you
can give it to me September 25th but we will see.

Because in the JPO, we all concur. We
all get together and concur or not concur,
whatever. And then it goes up to the Secretary's
office and there is five different offices that
review it and then it also goes out to OMB. And
that is usually the hang-up, when it gets out. I
mean if the building is not slow enough, sending
it to OMB is the kiss of death.

MEMBER MCCORMICK: And just in
general, then, subsequent to this, what is the
timing for the next year?

CHAIR WILKERSON: So, we have -- no, go
ahead.

The only other -- we have a third, final
advice memo due in June of 2016.

MR. GLASSCOCK: Your term expires in
June.

MEMBER MCCORMICK: In June of 2016.

That is the date I was looking for.

CHAIR WILKERSON: And then there will
be another February 2017.
MR. GLASSCOCK: Now that that comes up, you are going to be hearing from me shortly about the next meeting.

CHAIR WILKERSON: Okay.

MR. GLASSCOCK: Because it takes nine months to get the committee appointed. The reports to Congress February 1, 2015 was the first one in the five years I have been doing this that it got there on time.

CHAIR WILKERSON: Okay.

MEMBER MCCORMICK: So, you got a raise.

MR. GLASSCOCK: One out of five.

CHAIR WILKERSON: So, is there anything else we should be doing in-between that? I know that there were other topics that we have tabled.

MR. GLASSCOCK: You can -- I mean because you are going to meet once, twice, three times between now and June before your term ends. So, you can start thinking about your next set of recommendations.

MEMBER MCCORMICK: Yes, that is what I kind of wanted to do, our last item.

CHAIR WILKERSON: Okay, we are at that
point. So, I just wanted to make sure that everybody was very clear about the process. You should have that 2014 to 2017 time line that was provided. I think I put it in the email as well.

**NEXT STEPS**

So, I think for all intents and purposes we are now on track and know what our marching orders are. And then goal here was just to have an opportunity to talk about next steps or other topics that we would like to raise in-between -- in preparation for the next meeting that we would have.

So, I think, Scott, you were going to make one recommendation.

**MEMBER MCCORMICK:** Well, we have got one. We are going to do the scenario planning for the next one.

**MEMBER GOODIN:** Will the Connected Vehicle Pilot Projects be announced before our next meeting?

**MR. GLASSCOCK:** Well, before your next meeting? Yes, I think I can say that.

**MEMBER GOODIN:** So, I was just
wondering like hearing a presentation on those.

MR. SHEEHAN: I think that is reasonable. And even any additional items that we haven't been able to provide in presentations, especially since now we finally have some task orders starting, so we should have some products and memos prepared. So, I think that is probably really reasonable.

MR. GLASSCOCK: That announcement is coming very soon. It has got a little hiccup but it is coming soon.

MEMBER GOODIN: So maybe by --

MR. SHEEHAN: And hopefully you'll work with NHTSA as well.

CHAIR WILKERSON: Yes. Unfortunately, we tried to get a presentation for this one but because of the offsite and some other it was very difficult to work in. So, we tried but we will make sure that that is on the list.

MEMBER ALBERT: You know much of what -- and I have been on this committee I think with Bob like four or five times. Much of what we talk about is predominately the application of
technology and how it evolves and everything. But the thing we never talk about is how is technology changing the institutions. And I am wondering if we should have or if we have dead time in-between or if we have another meeting coming up, shouldn't we be talking about does JPO have any role with somehow accelerating or adapting institutions who are deploying these things, rather than just the things themselves?

I thought we had a great presentation some while back from Cisco who talked about if we did go with connected vehicle and they were tied to pricing, how that would change financial institutions, or auto insurance, or DMV and I thought it was just fascinating. And then it just kind of got dropped. And I am just wondering if that could be a role for this group to have a conversation about changing the proverbial state DOT battleship or other things that might change because technology is being used in a variety of ways.

CHAIR WILKERSON: Right, converging into other sectors like the cross with the
telecommunication and the insurance industry and health, all these other -- sort of scenario planning again.

MEMBER DENARO: You know when it comes to automation in particular, a lot of those other industries are really starting to weigh in with a lot of quality of thought. So, for example, when you talk about insurance and automated vehicles, a couple of the insurance companies have people, senior people full-time assigned to be thinking through this. Legal is another one, and so forth.

So, there is ripe opportunity out there to have some experts which would get our thinking a little more centered.

CHAIR WILKERSON: That is another one. I know, for instance, going to the AAMVA meeting, the Automotive Motor Vehicle Administrators meeting and they are talking a lot about automation because they have got to figure out how they are going to do the drivers' education which is on the decline in funding. So, now you have got a whole other technology that could impact how people drive and --
MEMBER DENARO: I think that is a good suggestion because you know there is a lot going on in this industry that is disruptive, to say the least. And we are a federal advisory committee. For us to call in some experts, some companies and organizations that are working this area and get a little more breadth knowledge would, I think, be useful. Maybe kind of a focus for that might, for us -- we have all been through the strategic plan but maybe we want to focus on that a little bit more and start looking through there and say where are some areas here where maybe there are some questions that we might want to get some outside input and so forth. Maybe that is an exercise for us.

CHAIR WILKERSON: And the charter does provide for seminars and workshops. And to the extent that you wanted to have a forum or workshop, that is something we could think through.

MEMBER DENARO: And the charter explicitly mentions reviewing the strategic plan. So, you know, it is just a suggestion.

CHAIR WILKERSON: Okay.
MEMBER DENARO: The other area is we seem to be focused and we are talking a lot about connected vehicles, which is important and going now, we know, and via the strategic plan that the JPO is moving more and more into considerations of automation and what might be their role and so forth.

And I haven't heard us real explicitly going into the whole automation area. So, maybe coupled with a review of the strategic plan, some dedicated focus on automation might be useful.

CHAIR WILKERSON: Okay. Any other ideas, thoughts?

MEMBER SHAHEEN: Oh, I had a question. When do we meet next, physically?

MR. GLASSCOCK: That's your call.

CHAIR WILKERSON: It is pretty open.

MR. GLASSCOCK: Do you find two-day meetings productive or one-day? I mean I know how busy everyone is. So, I don't know --

CHAIR WILKERSON: But that would be between now and June, right?

MR. GLASSCOCK: Yes, I would figure we
would meet at least twice. It is up to you members. It is your call.

MEMBER MCCORMICK: One day is easier.

MR. GLASSCOCK: Is it?

MEMBER DENARO: Yes, one day is easier.

CHAIR WILKERSON: Okay.

MEMBER DENARO: However, if we do have some number of speakers in, that gets a little more difficult to accomplish in one day.

MEMBER MCCORMICK: Well, if we are going to do that, what I would suggest is that we start later and end earlier because all of us have other business and things that we need to conduct to make sure that the world doesn't fall apart when we are not there.

MR. GLASSCOCK: That's a possibility.

CHAIR WILKERSON: Say that again, that we start later and --

MEMBER MCCORMICK: Start later and end earlier, if we could do it over two days or at least accommodate longer, a two-hour lunch so that you can get some other -- like I get calls all the time and I don't want to be missing this but I can't let
it fall through.

CHAIR WILKERSON: So, between now and June we need to pick two days? Everybody is in agreement that one day works better?

Okay.

MEMBER MCCORMICK: Well, you are going to submit it February 20th?

CHAIR WILKERSON: February 20th, he is submitting that.

MEMBER MCCORMICK: That might be a nice time to recap.

MR. GLASSCOCK: No, the report to Congress -- when you give me your final to me, you're done and you can start for the next year.

CHAIR WILKERSON: We're done.

MEMBER MCCORMICK: Okay.

CHAIR WILKERSON: So, the key is to get it to them early because it is going to take several months. Nine months -- no, it will take a lot of time. So, we can keep moving. That gives us a lot of time to not have to -- moving into October or November we have the time between them.

MR. GLASSCOCK: Because you are going
to have less than a year.

MEMBER DENARO: So, we need to have George host us in the winter.

MEMBER MCCORMICK: Well, let's start from the back end. We know we are going to need one before the June date. Right?

CHAIR WILKERSON: I'm sorry?

MEMBER MCCORMICK: We know we are going to need one before June.

CHAIR WILKERSON: Yes.

MEMBER DENARO: So, we back that off two months. That's April, first part of April, last part of March, somewhere in there.

MEMBER SHAHEEN: April and May are really bad for me, given teaching and oral examinations.

CHAIR WILKERSON: The last time we did it in May. Right? The last one was May.

MEMBER SHAHEEN: Well, as long as it is after I finish finals and graduation.

MEMBER MCCORMICK: Which is when?

MEMBER SHAHEEN: Usually by May 15th, I'm okay.
MEMBER STEUDLE: How is March?

MEMBER SHAHEEN: March is better.

CHAIR WILKERSON: Any thoughts for March, April, May or just that we got some --

MEMBER MCCORMICK: Sheryl, I will send you the calendar of events I keep, so we know who might be missing.

CHAIR WILKERSON: Yes, we can kind of get just throw out a few and maybe come up with some dates and we will then go back and backtrack to see if anyone has any conflicts.

MEMBER DENARO: My opinion is that if we do one-day events, which makes sense, then we might consider like at the end of March two meetings.

I think one meeting is tough. Let's be honest, we get most of our work done in this meeting.

CHAIR WILKERSON: So, November and late March or early?

MEMBER SHAHEEN: November is good for me.

MEMBER MCCORMICK: Well, I have only

MEMBER MCCORMICK: I only four or five weeks from now to the end of the year that I am not traveling. So, November actually works well, particularly if we do it on Thanksgiving.

CHAIR WILKERSON: So, we will look at some November dates. Maybe we will do a Survey Monkey or something.

And then what about, was it March? Did you say March? Early or late March? Okay, so late March.

Okay, well, we will come up with some dates and we will look at the industry and see if anybody has conflicts or dates that they know of to send them. And we will try to work backwards. Is that good?

MEMBER SHAHEEN: So, we could presumably do some kind of a workshop.

CHAIR WILKERSON: Right, in our charter --

MEMBER SHAHEEN: Could we have thought
leaders come in?

CHAIR WILKERSON: Yes.

MEMBER SHAHEEN: Like futurists?

CHAIR WILKERSON: We talked about that.

MEMBER SHAHEEN: Yes, because I think this goes along the lines of thinking that are there gaps in the research that this committee should be keen and have an eye out for?

MEMBER STEUDLE: So what about a March meeting in California with some of the shared use discussion?

MEMBER SHAHEEN: Oh, yes, I could totally rally Google Apps and all types of people.

MEMBER STEUDLE: What is the shared use, how does it evolve?

MEMBER DENARO: Typically meetings outside of D.C. is tough for JPO staff.

MEMBER SHAHEEN: Is that true?

(Simultaneous speaking.)

CHAIR WILKERSON: Is there another forum that will be a lot of what people will be going to that we could tag onto?
MEMBER SHAHEEN: Well, if you guys wanted to do some kind of thing around disruption and automated vehicles or shared mobility or something, the place to do it would be the Bay Area because it is easier to pull those guys in.

MEMBER CALABRESE: We did one in the Bay Area three or four years ago in Oakland.

MEMBER DENARO: There is IPS World Congress in Bordeaux in October.

MEMBER SHAHEEN: Are you guys thinking about travel?

CHAIR WILKERSON: Any other ideas?

MEMBER DENARO: It might not be too difficult, given the status of this committee to pull somebody from Google into a meeting, wherever we are.

Uber is getting more and more involved in some of these things.

MEMBER STEUDLE: Yes, but I think what is interesting is even some of the smaller ones, the next Uber, there is -- the ones that are going to develop something that is a year from now that, frankly, by March, might be a slow date.
MR. SHEEHAN: So do you ever mention the event in Chicago, just the Shared Use Summit?

MEMBER SHAHEEN: Okay, so you have never been there?

MR. SHEEHAN: No.

MEMBER SHAHEEN: So, there is a Shared Mobility event in October in Chicago but I am not involved in it.

MR. SHEEHAN: Okay but it is happening. So, folks who are interested in --

MEMBER SHAHEEN: Yes, but I am organizing with MIT and London School of Economics an event called Disrupting Mobility in November that I would be happy to have you guys join. So, it includes shared mobility but it is a lot bigger. So, I come up the shared use mobility series, Bob, because I felt like it was a little too one-on-one and I wanted to get a little bit more shared mobility in the context of what is happening in the world today is more my appetite.

So, I won't be in Chicago and I am putting all my efforts into organizing this other event, which is sponsored by TRV, by the way. And
they are pretty deeply excited about it.

We are going to address issues of automation and smart cities and wearables, all sorts of disruptive stuff.

CHAIR WILKERSON: So, so far we have, just in light of the entrance, we have how is technology impacting institutions or accelerating who is going technology disruptive. You talked about maybe having some other leaders or visionaries come in.

Automation was another issue, shared use.

Are there any other shared mobility?

MEMBER SHAHEEN: I would love to hear from like wearables people.

CHAIR WILKERSON: With respect to intelligent transportation?

MEMBER SHAHEEN: Yes. Wearables that can be used to like diagnose you in the car.

MEMBER MCCORMICK: Actually, Ford has I forget the good doctor's name but Ford has a doctor working on biometrics there and I saw a presentation. He gave a presentation. I thought
it was excellent.

The question is, that you always have to ask yourself is, although lots of things are interesting to hear about, where are we going to add value to the DOT in terms of making a recommendation.

MEMBER SHAHEEN: So, the disrupting mobility event is going to be held at MIT at the Media Lab. And we are having a hackathon on the 11th and the conference itself is the 12th and 13th.

MEMBER MCCORMICK: Of what month?

MEMBER SHAHEEN: November. So maybe we can all like meet at the hackathon.

CHAIR WILKERSON: Roger you had some comments?

MEMBER ALBERT: I had my hand up. It seems like most of what we talk about, again, is technology and infrastructure and safety issues. But what we know is that if 90 percent of the crashes are really due to driver psychologies and drivers' error, should we not be talking about some of the traffic safety culture things that supplement or augment some of the technology plans?
MEMBER DENARO: What is traffic safety culture?

MEMBER ALBERT: It is really kind of looking at the driver but also the culture that they are in. So, why do kids who are 18 years old -- I'm just making this example up -- driving pickup trucks full of beer cans in the back? Is it the individual or is it society around them and how that then effects safety.

I know that we are doing a bunch of work that would have a large pool of funds, a lot of work in Europe in traffic safety. It might be another area to explore --

CHAIR WILKERSON: Okay, I will put that on here.

MEMBER ALBERT: -- of how technology marries with understanding what is going on in the drivers' heads.

MEMBER DENARO: Well, I will make another appeal that rather than randomly select something that is fun to get into, I would recommend that we focus off of the strategic planning.

CHAIR WILKERSON: I agree. We have
not talked about that.

MEMBER DENARO: Let's find some areas there that might lead to one of these things. And if it is a communication thing with Cisco or some Uber thing or whatever, fine. But let's launch it off of the Strategic Planning.

CHAIR WILKERSON: So, can we commit to maybe take a review of the Strategic Plan again and then circulate some ideas? Would that be useful?

MEMBER DENARO: Yes.

CHAIR WILKERSON: And let's pick a date and say, get all the ideas on a table and then have a list and then we can circulate and prioritize by email.

MEMBER DENARO: And so what would be the question we are asking ourselves about the Strategic Planning? What do you want to do, read through it, find gaps and --

CHAIR WILKERSON: Yes, just like you said, exactly.

MEMBER DENARO: Okay.

CHAIR WILKERSON: Revisit it. It is part of one of our objectives. It says at a
minimum, the ITS PAC will provide input into the development of ITS aspects of the U.S. DOT Strategic Plan and review at least annually areas of research being considered for funding.

MEMBER BERG: How big is that plan? Does anyone recall?

CHAIR WILKERSON: We reviewed it. We had a review at one of the other meetings.

MEMBER BERG: Sixty? Six-zero? How big is the Strategic Planning because I doubt that all these people have enough time to read through it.

CHAIR WILKERSON: No, just to refresh, we did look -- we discussed it in one of our early meetings. We actually had a walkthrough and then we had presentations.

MEMBER MCCORMICK: I think if you are doing a gap analysis on it, all you really have to read is the table of contents.

CHAIR WILKERSON: I have it here. It is 32 pages, with figures and conclusion.

MEMBER BERG: Just 32 pages?

CHAIR WILKERSON: That's what I have here.
(Simultaneous speaking.)

CHAIR WILKERSON: So, I'm happy to circulate that again or just put it on the website. So, we can take a look at that.

MEMBER MCCORMICK: Actually, just send us a link. You don't have to resend the document.

CHAIR WILKERSON: Any other? So, we will have some thoughts on that. We will come up with a date maybe by, let's say October, no later than, maybe the end of September have people -- well, no. Since we have got this going on, maybe middle of -- we do a meeting in November, that is going to be tough to try to get feedback.

MEMBER MCCORMICK: Well, if we request it by mid-October, that gives us two to three weeks to put together a document to review at the meeting.

MR. GLASSCOCK: So, the PDF version --

CHAIR WILKERSON: Well, I was just saying if we wanted to meet somewhere and have people come in and talk about some of those subject areas, it might be a little tight but we can do it.

MR. GLASSCOCK: The PDF version of the plan is not 96 pages.
CHAIR WILKERSON: Okay. Well, this is

(Simultaneous speaking.)

CHAIR WILKERSON: So, any other thoughts?

So, we are pretty early.

MEMBER MCCORMICK: You know I have a thought. I don't know if it is worth pursuing or not but as we reach a point, let's make one of our own potentially fatal assumptions is that we get a rulemaking and going down the path to deploying, is there something that the government will have or can collect that provides feedback to everyone, in terms of the effectiveness, the savings, or whatever? To my knowledge, there is not a mechanism to do that. You know because all of the stuff that the DOT puts out, puts out on our website and if you spend long enough, you can find it. But it is not necessarily something that goes out to the public. And therefore, what I am saying is it is not necessarily at an easily digestible form. And part of what drives adoption is people's understanding of the value
proposition, whether that is just more safety or whatever. You sell a car that has the capability that people want and I know we don't like talking about technology but 62 percent of the people won't buy a car if it doesn't have the technology they want in there right now. That is a huge change. So, driving adoption, sometimes you have got to create a poll for this. And the same as it creates a poll for the automakers that somebody might want to put in Wi-Fi hotspot in their car or something else, having this capability in Kirk's state infrastructure finds a way to get in the budget.

So, I am just wondering if there is not a PR function that we should recommend, as we move forward.

CHAIR WILKERSON: So, in the last recommendations you had the Outreach Communications and Promotion Plan. Is that similar to what you are recommending?

MEMBER MCCORMICK: I wasn't on that committee and I don't recall --

CHAIR WILKERSON: I can share that with
you but there was one. And the recommendation was that -- there were two. And it said that the ITS JPO should engage communication professionals and develop an overarching communication strategy and aggressively launch an effective public communications campaign and it should create a comprehensive document on safety benefits, particularly as new technologies are being introduced and improve the safety of vehicles and that NHTSA cite such a document.

MEMBER MCCORMICK: And did they agree with doing that?

MR. GLASSCOCK: Yes, do it. We are having a major revamp of our communications and our website is being redeveloped.

MEMBER MCCORMICK: Maybe that would be useful is to have a report out based on the recommendations that were accepted or concurred with back from DOT of where we are with those.

MR. SHEEHAN: Are you familiar with the work that are being developed, stood up there the V2I Deployment Coalition that we are supporting?

MEMBER MCCORMICK: Yes.
MR. SHEEHAN: Yes. Everyone else? You should know then maybe that is the thing because in there they work with just one of these guides. And they called yesterday, I think, or the day before, looking at those issues. So, it is connected to that. My point being --

MEMBER MCCORMICK: Yes, but that is not the public. I'm talking about the public. I'm not talking about the practitioners. I'm not talking about John's staff. I'm talking about the people that truly drive adoption, the people that create the impetus behind why we would want to put something up in our infrastructure or carve-out.

MR. SHEEHAN: Okay. We'll bring that back to them. I mean they are tasked with developing the recommendations, not directly left to us but we will be, I think, using --

MEMBER MCCORMICK: And I don't mean giving ITS America a contract to go do a pony show on it. I mean there ought to be this communication that is going on.

MEMBER WEBB: I sit on that committee.

CHAIR WILKERSON: Okay. I will take a
note that one of the recommendations is that we get
the ITS JPO report back on the recommendations and
accepted by the date. So, that is some oversight
and due diligence. That is not difficult.

MEMBER MCCORMICK: Just so we know
where they are going.

MEMBER WEBB: Let me just read you this
because we just talked about this subcommittee.
And the outreach committee for V2I is we have three
tasks. Provide input to U.S. DOT on version 14 of
the deployment guidance. Number two, the more key
one, identify outreach making media to increase
awareness and support of V2I among transportation
agencies.

So, again, here is trying to reach out
to the guys who will be spending the money and
provide input to U.S. DOT on additional content for
the next version of deployment guidance.

So, those were the three tasks of that
subcommittee.

CHAIR WILKERSON: Very good. Any
other suggestions? I guess we could circulate and
I will send something out. I will come back and
summarize this and then see if there is any other consensus and then we will go from there to figure out what an agenda might look like for the next meeting.

And in the meantime if you have potential companies or thought leaders or others that you think we should -- futurists or whatever that is related to this, I am happy to discuss it.

MEMBER SHAHEEN: Can we offer honorariums to anybody? You know, give them $1,000 to --

CHAIR WILKERSON: I don't think so.

MEMBER SHAHEEN: No, okay.

MEMBER MCCORMICK: Can we charge them to speak to us?

MEMBER SHAHEEN: Sometimes futurists will cost money.

CHAIR WILKERSON: There are some I could think of that could come.

MEMBER SHAHEEN: Cool.

CHAIR WILKERSON: Not in this space but are trendsetters in other areas.

MEMBER SHAHEEN: I think some outside
people would be interesting to hear from.

MEMBER WEBB: Since we are talking technology, would we be able to invest some of our time if we did some sort of web conferencing and had a speaker talk to us for a half hour during a noontime session, whether it is Central Time, or Pacific Time, or Eastern Time, or whatever, about the topic to just sort of generate thoughts and issues and so forth like that that we would take and say this one is going to be on this issue, and two weeks' later, there is going to be another one talking about this issue.

Do they have the capability of broadcasting, doing a conference, webinar type of stuff? I'm just trying to think about a good use of our time to try and get that pump primed as far as trying to think about areas of interest or whatever.

So, it is just the best way to make our time instead of having to meet face-to-face and bring everybody in, it is like okay, get somebody to devote a half hour. Most of the time, they could probably talk off the top of their head without
having to prepare anything specific or whatever to

give us that type of --

    MEMBER SHAHEEN: Well and if they don't

    have to travel.

    MEMBER WEBB: That is the other issue.

    CHAIR WILKERSON: Okay, so we will

    explore how feasible that is. Jeff?

    MR. SPENCER: I just was looking at the

    calendar for next year. We mentioned March on the

    West Coast. March 16th and 17th is the STEM Summit

    in Los Angeles. That might be a good co-location

    for something like that because those on the

    education issues.

    Just an opportunity I thought I would

    mention.

    CHAIR WILKERSON: Any other comments?

    Well, I don't see that there is anything else on

    the agenda, unless somebody else has another

    recommendation, we can adjourn early.

    (Simultaneous speaking.)

    CHAIR WILKERSON: George has a --

    MEMBER WEBB: Again, we are talking out

    private industry. And also just being able to see
this is the Deployment Coalition, the three major
groups that got together or whatever. This is one
of the subcommittees. And you can just see the
direction that they were heading as far as trying
to get out there, as far as trying to -- they had
sent out a set of slides that were there when it
was part of their discussions. Today, they were
having a teleconference to discuss doing that work.

I just thought it might be interesting
just to show up for five minutes or whatever.

(Simultaneous speaking.)

MEMBER ALBERT: Can I say one thing?

CHAIR WILKERSON: Sure.

MEMBER ALBERT: After all the years of
being on this committee, and a number of times, this
is the first meeting I didn't just have to be the
rural guy every five minutes.

(Laughter.)

MEMBER ALBERT: So, thank you all.

Thank you for bringing things up. And every time
I brought up rural, Bob would chuckle.

MEMBER DENARO: I am chuckling right
now.
MEMBER ALBERT: Exactly.

CHAIR WILKERSON: Those of us from telecom days know and feel your pain.

Thank you. Thank you for your participation. Safe travels.

MEMBER DENARO: Go back to your rural area.

(Laughter.)

MR. FEHR: Sheryl, I was going to follow-up on this comment about the psychology of the situation.

CHAIR WILKERSON: Right, you were standing up. I'm sorry.

MR. FEHR: Well it is becoming very clear to me that the make or break thing of all of the stuff that we are working on is not just communication technology, it is the human interface. And nobody seems to be working very much on the human interface.

MEMBER RAJKUMAR: You mean human factors or the interface itself?

MEMBER MCCORMICK: The interface itself.
MR. FEHR: What got me thinking about that is what happened to me last night. That woman hitting me in the back of the car was almost inevitable, given the circumstances. It was on a three-lane street at a traffic light, middle lane, two cars ahead of me, nobody behind me. The light changes to green. The lanes on either side of me start moving. The car ahead of me -- the car at the beginning of the queue moves but the car in front of me doesn't.

If you see all of that movement out of your peripheral vision, if you are the car behind me, you are going to naturally start to move. And it takes extraordinary perception and concentration on the driving task to actually avoid that accident. It was almost inevitable she was going to run into me.

MEMBER KISSINGER: We are working on it right now, specifically what is the impact on drivers as we move towards automated vehicles, including all the driver assisted technologies and the big -- it will probably be a multimodal effort.

CHAIR WILKERSON: And it is linked to
education, too, because with that technology, there is no more looking over your shoulder.

MR. FEHR: But you know, coming up with the affected -- because the data could have been there. My car was transmitting basic safety messages. It is probably the only one in Virginia that is doing that. But if she could have an effective human interface in her vehicle, she would have still done it. Because it is very human nature to see the herd moving.

MEMBER BERG: Especially if you are looking at your phone.

PRESENTATION ON V2I DEPLOYMENT COALITION TWG 4 MONTHLY MEETING

CHAIR WILKERSON: Exactly. Okay, George, you have the floor.

MEMBER WEBB: Okay, I haven't seen this so we are just going to blow through it very, very quickly or whatever. This was an hour and a half conference call I had scheduled for yesterday or whatever. So, this subcommittee was working in these particular areas and had certain things that they were trying to get done.
So, they are talking about reviewing the deployment guidance issued by U.S. DOT, trying to comment back to U.S. DOT. I think that was a significant document. So, let's go to the next one.

Elizabeth is the chair of the committee, Elizabeth Birriel with the Department of Transportation and this is just some of the things as far as their schedule, just like we were doing, as far as how to get the committee going to try to make things happen. Next.

This is what I just read, that you can get a sense of the various things of the issues that were identified. So, I will just look on the left-hand side. We have got VX and a couple means of communications, et cetera, et cetera.

The focus that my subcommittee was on was the V2I outreach. And gain, you will see some of the more interesting things. Some of them are targeted at Kirk and others like him you will see in a second.

So, the focus was okay, so here is a bunch of us interested in ITS but you know how do
we get up to that people above the decisionmaking
at the various agencies and Michigan is a little
bit different from the rest of the states as far
as doing this. Go ahead.

These are, I think it ends at 15 as far
as the various issues but these are the focus areas
that this big, major group is now working on. So
they have carved up and had various subcommittees
take the various issues and so forth like that. Go
ahead.

It'll just take a second to do this.

MEMBER SHAHEEN: Those are crazy
PowerPoints. That wouldn't fly in a lecture hall,
I'll tell you.

MEMBER WEBB: No, this is just doing it
on the computer.

CHAIR WILKerson: So that is pretty
much the same that we talked about.

MEMBER WEBB: Okay, next. So, this
one is transportation agency. Next.

Third bullet, gaps. Okay. So, the
first bullet point was the one I was talking about
as far as the committee members said, we have got
to be able to convince the executive agency officials as to why they need to be interested in connected vehicles and V2I. So, it is like what can be quipped together to get the attention of the executive agency official. For the most part, there is a lot of DOT people on this. So, they are thinking about their individual secretaries as far as trying to do that.

MEMBER DENARO: What's the third bullet mean on business case? That is for whom?

MEMBER WEBB: Again, we are back to talking about when you think about the correct level of trying to get to your State's Secretary of Transportation to say this is why we need to take some of your existing money with all these other competing needs and put it into ITS. As I said, this may be a little bit different with this emphasis on ITS but if you are out there talking to Georgia or you are talking to Texas or Florida or whatever and you are trying to understand who to go after.

MEMBER MCCORMICK: Well, that material is useful for the 43,000 counties we have in the
United States or the major metropolitan areas.

MEMBER WEBB: All right, so this is not just for one but it is to get the message out there. Okay, go ahead.

Okay?

CHAIR WILKERSON: Uh-huh.

MEMBER WEBB: So, we are talking about trying to put together individual small -- Scott, you were mentioning, it is out there but trying to find it and so forth. So, I think that the gist of the committee was well, what is out there and how can we go through to make it a fact sheet, not a 30-page report or whatever. Okay?

MEMBER MCCORMICK: V2I DC business plan? The DC stands for?

MEMBER WEBB: Deployment Coalition.

MEMBER MCCORMICK: Thank you.

MEMBER WEBB: So, each of the subcommittee chairs is part of the executive committee. So, they represent them as a work group. Okay? So, that was it. Just to give you an idea of that outreach as far as the important component in this. Like I said, I sit on that
particular committee. I have no idea what the final discussion or wording was on that but it is what it is. Okay, I think that is it. Thank you.

CHAIR WILKERSON: Great, thank you. Thank you for wording the document, Stephen. You have already forwarded the Strategic Plan back already?

MR. GLASSCOCK: I did.

CHAIR WILKERSON: Thank you so much. And another document for SEE?

MEMBER WEBB: That was the one that Scott was mentioning and I will probably just send it to you.

**ADJOURN**

CHAIR WILKERSON: Okay, great. All right, anyone else have any comments? Otherwise, we will communicate by email and the meeting is adjourned.

MR. GLASSCOCK: Travel safe, everyone.

CHAIR WILKERSON: Thank you.

(Whereupon, the above-entitled matter went off the record at 3:04 p.m.)