U.S. DEPARTMENT OF TRANSPORTATION

OFFICE OF THE ASSISTANT SECRETARY FOR RESEARCH AND TECHNOLOGY

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INTELLIGENT TRANSPORTATION SYSTEMS PROGRAM ADVISORY COMMITTEE

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CONFERENCE CALL

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TUESDAY, DECEMBER 16, 2014
The Committee met by Teleconference at 3:00 p.m. Eastern Standard Time, Steve Kenner, Chairman, presiding.

PRESENT

STEVE KENNER, Chairman
SHERYL WILKerson, Vice Chairman
SCOTT BELCHER, Member
ROGER BERG, Member
JOSEPH A. CALABRESE, Member
ROBERT P. DENARO, Member
GINGER GOODIN, Member
DEBRA JOHNSON, Member
J. PETER KISSINGER, Member
SCOTT J. MCCORMICK, Member
TINA QUIGLEY, Member
BRYAN SCHROMSKY, Member
SUSAN SHAHEEN, Member

ALSO PRESENT

KEN LEONARD, Director, ITS Joint Program Office Director
JOHN AUGUSTINE, ITS JPO Managing Director
STEPHEN GLASSCOCK, Designated Federal Official
BRIAN CRONIN, Research and Demonstration Team Leader
KEVIN DOPART
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MR. GLASSCOCK: So, as the DFO of the ITS Advisory Committee, I want to welcome everybody. I hope everyone is having a good holiday season.

Just to get an idea of who is on the call, I thought I would do a roll call, instead of everybody call out their name, it may be a little easier.

So, Steve Albert, have you joined us?

(No audible response.)

MR. GLASSCOCK: Scott Belcher?

MR. BELCHER: Here.

MR. GLASSCOCK: Roger Berg?

(No audible response.)

MR. GLASSCOCK: Joe Calabrese?

(No audible response.)

MR. GLASSCOCK: John Capp?

(No audible response.)

MR. GLASSCOCK: Bob Denaro?

MR. DENARO: Here.

MR. GLASSCOCK: Ginger Goodin?

MS. GOODIN: I'm here.

MR. GLASSCOCK: Debbie Johnson?
MS. JOHNSON: Here.

MR. GLASSCOCK: Steve Kenner?

(No audible response.)

MR. GLASSCOCK: Peter Kissinger?

MR. KISSINGER: Here.

MR. GLASSCOCK: Scott McCormick?

MR. McCORMICK: I'm here.

MR. GLASSCOCK: Joe McKinney?

(No audible response.)

MR. GLASSCOCK: Tina Quigley?

MS. QUIGLEY: I'm here.

MR. GLASSCOCK: Hello?

MR. CALABRESE: Yes, Joe Calabrese here.

MR. GLASSCOCK: Okay. Raj?

(No audible response.)

MR. GLASSCOCK: Bryan Schromsky?

MR. SCHROMSKY: I'm here.

MS. QUIGLEY: This is Tina Quigley from Las Vegas.

MR. GLASSCOCK: Susan Shaheen?

DR. SHAHEEN: I'm here.

MR. GLASSCOCK: Kirk? He's not here. George Webb?

(No audible response.)
MR. GLASSCOCK: Sheryl Wilkerson?

VICE CHAIRMAN WILKERSON: I'm here.

MR. GLASSCOCK: Hey, Sheryl.

All right. So, did someone join us after the roll call?

MS. QUIGLEY: This is Tina Quigley. I don't know if you got that.

MR. GLASSCOCK: I did, Tina. All right.

MR. CALABRESE: And this is Joe Calabrese.

MR. GLASSCOCK: Hey, Joe.

Everybody please mute your phone, please.

All right, anybody else joined us after the roll call?

CHAIRMAN KENNER: Yes, this is Steve Kenner. I was online.

MR. GLASSCOCK: Hey, Steve.

CHAIRMAN KENNER: I wasn't sure if you heard me before or not.

MR. GLASSCOCK: I did not. Thank you.

All right, who just joined us?

(No audible response.)

MR. GLASSCOCK: Once again, everybody mute your phones, please. And I am going to hand it over to Ken and then we will get rolling.

MR. LEONARD: All right. Well, I just wanted to welcome everybody. We got a good turn out here for this video meeting or telecom meeting. And I just want to say thank you for everybody for participating. We have a draft agenda that Steve and Sheryl will walk you through in a minute here. But of course, there are opportunities for all of you to add additional topics.
And with that, to keep things moving, I am going to turn it over to Steve to start the meeting.

Steve Kenner.

MR. GLASSCOCK: We just lost the phones.

(Whereupon, the above-entitled matter went off the record at 3:05 p.m. and resumed at 3:08 p.m.)

MEETING PURPOSE

MR. GLASSCOCK: Steve, did you want to say a quick few words before Susan begins?

CHAIRMAN KENNER: Yes, sure. I don't know exactly when I dropped out. At the risk of repeating myself, I will be very brief. I figure really I want to make sure today is that we have an agreement what we want to explore when we are altogether in person in February and to make sure we have the right either guest speakers or resources or information that is brought to that so that we can have a productive discussion in person. So, that is really want I wanted to say and then I wanted to make sure at the end that we are all aligned on the timing of the next meeting, make sure everyone is aware of that so that they can make the plans to attend.

So, that is what I was trying to say when the power went out.

MR. GLASSCOCK: Thanks, Steve. Susan?

MOBILITY AND SHARING ECONOMY INTRODUCTION

DR. SHAHEEN: Yes, hi. Can you hear me?

MR. GLASSCOCK: We can.

DR. SHAHEEN: Okay, great. Does everybody have access to the PowerPoint slide deck?

CHAIRMAN KENNER: What PowerPoint slide deck?
MR. GLASSCOCK: It is in the background material I sent out.

Susan, you may just have to go ahead.

DR. SHAHEEN: Okay. Yes, I just wanted to wait for just a second.

MR. GLASSCOCK: Okay.

DR. SHAHEEN: Okay. So, I was asked, based on our last meeting, to give a short overview about activities that are occurring in shared-use mobility. And so what we put together here is a brief PowerPoint presentation to just take you through an introduction to what I am calling "Mobility and the Sharing Economy." So, that is the first slide.

What I will be covering is just some key trends, things that I think are causing some of these activities to accelerate, defining shared-use mobility for you, in terms of its forms, and its current understanding, as well as some, I think, the key policy issues that we need to focus on in this space and then just concluding with a brief summary and acknowledgment.

So, the third slide just shows that we are in an era, as everybody knows, of declining revenues from the gas tax. So, we are looking, I think, for more public-private partnerships, new funding models, new opportunities to fill gaps in our public transportation system with these types of services, perhaps.

We are also seeing other trends like declines in drivers' licenses. That could be affecting people's appetite for signing up for an auto-based lifestyle.

The next slide is just a slide that Kevin Kelly, how is the founding editor of "Wired Magazine" and he actually talked about this phenomenon of sharing and how impactful he thought it could be in the future back in 2009 and he said the trend is clear. Access trumps possession. Access is better than ownership. And that the evidence of this will unveil itself over time. This
is actually a really interesting talk that he gave on this that you can see on the internet, if you are curious.

The next slide is slide five. We have been exposed to this for some time now in different formats like Netflix, TaskRabbit, Zipcar, the Airbnb model, Citi Bike, which is an example of public bike sharing. So, this idea of subscription- and membership-based services in contrast to ownership. So, how do you gain access to these things without having to own them?

And then user behavior and preferences do seem to be shifting a bit. We are seeing that convenience and cost are driving a lot of people's decisions to use alternatives and green is a perk but not necessarily a driver.

We also see that people are really interested in looking at transportation as a way to meet multiple needs at the same time, so, essentially multi-tasking. So, how can I access the internet, while I am traveling on a train. Or how can I get exercise while I am traveling to work, for instance, through bike sharing?

And then there has been a number of reports that I don't know whether or not any of you are familiar with. There has been a series, actually, put out by U.S. PIRG and Frontier Group starting last fall. Well, actually, a spring ago and then the fall. So, one is A New Direction, looking, basically, largely the Millennials and the relationship with the car. And then a second report that followed in Fall 2013 that looked at the role of apps and vehicle sharing. And since then, this space has just continued to proliferate. We are actually cataloguing mobility apps right now and I think we are at close to 300 and counting.

In the next slide, there is another study. I was actually an advisor to this particular study on Millennials and mobility. And we looked a lot at how they perceive their mobility and how
they think they are going to move into the future when they have kids. And there are many of them who are currently living in urban areas very much want to stay in urban areas as opposed to buying a house in the suburban area.

And then the final slide here is this is the latest U.S. PIRG/Frontier Group study. I think it came out about a month ago looking at Millennials in Motion and opportunities for public policy. So, I encourage you to take a look at those things just as background.

Now, the definition slide. So, essentially shared-use mobility encompasses a range of mobility services that are shared. In terms of my definition of this, I actually include traditional forms of public transportation like buses and trains. Some people don't. Other categories include vanpools, carpools, shuttle services. We are seeing a lot of activity in the employer shuttle space. And what we are now calling ridesourcing services or transportation network companies, services like Uber, Lyft and Sidecar.

Also, we see carsharing, which has been very popularized on a national basis by a company called Zipcar, we see public bike sharing services, and even scooter sharing services here in San Francisco and in Barcelona. And also, the idea of moving into flexible goods movement. Could people actually deliver goods to their neighbors and pick them up? These models could be both business to consumer or peer-to-peer based.

The next slide is carsharing. So, many people don't realize that carsharing is quite diverse. So, there are several different business models. The classic round trip carsharing model is the one that we are most familiar with, we know the most about. This is what Zipcar really made famous in the U.S.

There is also peer-to-peer carsharing. This is the idea that people put their own private
vehicles into a fleet managed by a third party.

One-way carsharing is the idea that you have point-to-point trips that are by the minute in terms of payments.

And finally, fractional ownership. This is the idea that individuals can sublease or subscribe to a vehicle.

CHAIRMAN KENNER: Susan, did you say -- you said for the first one it was Zipcar. Where are the companies that are represented by the other three?

DR. SHAHEEN: Oh, sure. Absolutely, I would be happy to do that. So, peer-to-peer includes companies like RelayRides, Getaround. Those are sort of the big name brands there. One-way carsharing you can see actually the little picture we have there, Daimler's Car2Go system. There is also the DriveNow system. And we are, very soon, going to be seeing BlueIndy enter into Indianapolis with an autonomous-based model coming to the United States in I think the first quarter of 2015.

And with the fractional ownership, I was just going to tell you that Audi announced its form of fractional ownership just about two or three weeks ago called Unite.

So, carsharing continues to grow and I will be talking a little bit about that in the next slide.

So, one of the things I have been doing in my research, I have been studying this space for about 17 years, is actually tracking these. So, these are actually precise numbers collected from the Americas and you can see, as of July 2014 we were at 1.6 million members. These numbers include both the round-trip model and the point to point, or one-way model. They do not include the peer-to-peer numbers. I am not able to access those, due to proprietary reasons but I would say that just from a recent number that I saw in a press release from I believe it was Getaround,
they are estimating that their membership is around a million. So, you can see how that would alter those numbers right there.

MR. GLASSCOCK: Susan, I'm sorry. Susan, this is Steven. I'm sorry to interrupt you. Just to refresh everyone, the file was too large to send you the background information. I tried. So, I sent another email out to everyone with a link to the website. And under the December 16th heading are all the materials of Susan's presentation and the other background information.

So, sorry, Susan.

DR. SHAHEEN: Sure thing. No, no problem.

MR. McCORMICK: Is this what emailed?

MR. GLASSCOCK: Yes, Scott, I emailed it out and it has got a link to the website and it also has a link to the strap plan.

MR. McCORMICK: Steven, this is Scott. Just a quick question. Where do you fit kind of the ride share companies in like Carma or the share companies?

DR. SHAHEEN: That's coming. I will do them all.

MR. McCORMICK: All right.

DR. SHAHEEN: So, this is just one segment. Right? So, this is the carsharing segment. This is the idea that people are gaining access to a vehicle on a short-term basis that they don't own but they are driving themselves in this model. But that is a great question.

So, the next slide I am moving into is slide 13 in the deck. And this is just to show you the size of the fleet. You can see, as of July 2014 collectively we had about 24,200 some vehicles across the Americas and this does not include peer-to-peer carsharing. And that would, undoubtedly, be a much larger number if a company like Getaround, which is a peer-to-peer-based
model is carrying a million members.

So, in terms of understanding, this is something that I have pretty much dedicated my career to is trying to understand what are the impacts of these types of services on our transportation system? What type of benefits might they be yielding in terms of its social and environmental impacts?

This is a really famous study that we did of round-trip carsharing, so sort of the Zipcar model back in 2010. And you can see here that we demonstrated through this study, which had about 10,000 respondents and all of the top companies in North America participating that each carsharing vehicle was responsible for removing from our streets about 9 to 13 vehicles. And this included both cars that were sold as well as postponed car purchases.

We further break that down for you. And out of that 9 to 13, 5 to 6 of the vehicles are actually sold vehicles.

Most of the shift in behavior that we see in terms of environmental benefit comes from the one-car household becoming carless, followed by the two-car households become one-car households.

One of, I think, the most notable things from this study that I always emphasize is about 50 percent of that sample either sold a car or postponed a car purchase. So, in terms of transportation demand management, this particular innovation is very, very powerful and is yielding approximately a 30 percent reduction in vehicle miles traveled, as well as a CO2 reduction of 30 percent.

And when we factor in impacts, what I call the full impact of what people would have done if they had purchased a car, that goes up to as high as 43 percent. I will say that all of these
numbers are comparable to studies that have been done in Europe.

The actual study that was funded by Mineta Transportation Institute with funds from US DOT are available to you to access for free and to download.

Then there is scooter sharing, which is filling the niche between cars and bicycles. This is both a round-trip model and a one-way trip model.

Next, I am moving into public bikesharing. I have to move really rapidly for you guys to get the full intro.

We see public bikesharing, which probably most people are very familiar with. This is point-to-point mobility, on-demand mobility, so people don't have to do round trips. They can do round trips and we see a lot of that but we also see the majority of trips are actually Point A to Point B.

There is closed campus bikesharing. This is really starting to gain some momentum in terms of an employer-based solution. And we are even seeing peer-to-peer bikesharing, believe it or not, where people are actually renting out and loaning their own personal bikes, which is facilitated through companies like Bedlock. And there is a lot of growth occurring in this area. And these are some worldwide numbers that I obtained from Russell Metty, who does tracking.

You can see this is having a very explosive effect right now. Over 772 cities with these systems and 62 cities just within the U.S. alone.

The next slide, which is, I believe, slide 19 are bike sharing statistics from our research. And this is the first time this had ever been calculated where we actually look at the total number of users, as opposed to the total of members. The reason why that is important is that a lot of people who use these systems actually use them on a short-term basis when they are visiting. So, then
they are not taking a rental car into a city but actually probably using public transport plus other
types of shared-use modes, along with bikesharing. You can see that there is almost an order of
magnitude more casual users using bike sharing than there actually are members. So, this
breakdown comes from data we worked really closely with all of the operators to create this
synopsis. And at that time, there were 28 operators and about 1.2 million users.

The next slide, and Scott, so, this is the question you were asking about carpooling and
vanpooling. So, ridesharing, I define in a classical old-school fashion that is carpooling,
vanpooling, services like Carma, real-time ridesharing services. So, this is not Uber, Lyft, and
Sidecar. Although, Uber, Lyft, and Sidecar are gravitating more into what we, I think, would call
classic ridesharing.

And, as many of you know, this is covering about like 11 percent of our commute modal
shares today and we are continuing to see more and more innovations.

So, here I wanted to just present briefly, going back to the bikesharing in slide 21 that these
are some results. And what we see here is that across the cities that we surveyed, which include
two in the U.S., two in Canada, and Mexico City, that about 50 percent of people are saying that
they are driving less, due to bikesharing.

And we can see in the subsequent slide, slide 22, that we actually see here the majority of
people using bikesharing as members, about one to three days or more per week. So, there is a lot
of usage of these systems.

And in the next slide, 23, you can see that also just released a report, again, funded by the
Mineta Transportation Institute and U.S. DOT available for you for free. It is quite -- it includes
everything from understanding business models to industry trends, to just user understanding.
Now, moving back to ridesharing. I apologize for that. I must have like been shifting slides and separated the bikesharing and carsharing impacts. Now, moving back into the ridesharing. So, I am defining this as carpooling and vanpooling.

You can see that we did a synopsis of this and we had a catalogue around, I think, collectively, about 638 carpooling/vanpooling services. Some are both carpooling and vanpooling services combined and have both online and offline services, although the most popularized form is online-based.

Next, moving into ridesourcing, our term for transportation network companies.

MR. McCORMICK: Susan?

DR. SHAHEEN: Yes?

MR. McCORMICK: This is Scott, again. You said something about ridesharing that I didn't really track. You said that ridesharing accounts for 11 percent of the commute?

DR. SHAHEEN: Commute modal split, yes. That has actually declined a little bit over time. But it is holding fast, per my last look at those data at about 11 percent.

MR. McCORMICK: What are the other major pieces of the pie?

DR. SHAHEEN: Oh, single-occupant vehicles and public transport.

MR. McCORMICK: So, it is 11 percent that use ridesharing?

DR. SHAHEEN: Yes, carpool and vanpool.

MR. McCORMICK: Wow, that is much higher than I would have though. Thanks.

DR. SHAHEEN: Yes, and it is much lower than I want to see. I would love to see us grow those numbers or double those numbers of filling those empty seats.

And so the question is, is there an opportunity rate that lies with information
technology-based systems to create those connections, create the trust, create the convenience and 
reliability, make the transfer of money easier for people.

Now, moving into slide 25, we have what I am calling ridesourcing here at UC Berkeley. We developed this term because we felt like transportation network companies didn't really 
capture what they were doing.

So, basically the idea of ridesourcing is that you have community drivers, so, these are not 
professionally trained drivers, who are using their own personal vehicles to transport people from 
Point A to Point B. And they have been relatively controversial and disruptive in terms of the 
transportation ecosystem.

We have recently completed a study and so what I am going to do here in slide 26, will give 
you some of the key highlights from this exploratory study we conducted in San Francisco in 
Spring of 2014. So, this is a very fresh study.

So, what we wanted to look at is what types of trips are Uber, Lyft, and Sidecar replacing. And you can see here that about 40 percent of the trips are taxi trips; about 33 percent are public 
transportation-related trips, bus or rail; but we also found that about 4 percent of the trips that we 
studied were actually serving its first mile/last mile; 20 percent were avoided drinking and driving 
trips when we did this survey.

The next slide also shows something that I thought was quite notable in terms of sort of the 
old taxi-style models. This is not the E-Hail, which is coming on very, very strong with Flywheel 
and Curb and they are advancing at lightning speed relative to what we have seen in the taxi 
industry before, largely because of this competition. But this research shows when we did a 
matched pair analysis that with ridesourcing, on average, people were waiting less than ten
minutes and, in most cases, closer to three to five minutes 90 percent of the time.

When you look at the same trips that were being made in that same location that we were studying in San Francisco, you can see with respect to taxis and street hails that people were being served within ten minutes or less, just upward of 40 percent of the time as low as 16 percent of the time. I think this is a very explanatory factor as to why these ridesourcing services have become so disruptive and potentially competitive with the taxi industry.

And the next slide just shows that we released a white paper on this. If you go to that link, it is actually an older paper. I can send to Steven an updated paper that actually includes now a public transit analysis. We will be presenting this research at TRB. There is a lot of interest in that.

Now, we will move into slide 29, which is taking us into the shuttle service area.

MR. MCCORMICK: Susan?

DR. SHAHEEN: Yes.

MR. MCCORMICK: So, on the services like E-Hail, that is a distributed service where taxicabs are being distributed out as opposed to Lyft, or Sidecar, or Uber. Right?

DR. SHAHEEN: Right, so with a street hail, the person is just standing out there with their finger in the air, right? And so the taxis are circulating looking for people. With the E-Hail model, this is where an app is being used to call a cab and I highly encourage you guys to download Curb or Flywheel and start testing it.

I have been testing it and it is a very similar experience to Uber, Lyft, and Sidecar. The apps aren't quite as on it, which should be expected because they are just deploying them, but they operate really similarly. You do the reading system, payment, all that.
MR. MCCORMICK: And the difference is that you are actually driving in a licensed taxicab.

DR. SHAHEEN: That is correct. It is a licensed taxicab. The other thing I would say about it that is different is that there is no surge pricing. You know, you are paying, based on the standard taxi model.

So, with more E-Hail technology coming to the forefront, I think this space is going to become even more competitive, not just with the taxis. I mean, I can tell you there are so many services coming online, I have difficulty keeping track of all of the services. And the blurring of the space between what we would call ridesharing, vanpooling, and carpooling, ridesourcing, and taxis, it is so gray and blurred, I really fear for people who are trying to sort this out from a regulatory standpoint because many of these services have elements of the other that we are starting to see on the roads today. And this is just coming really, really quickly.

So, with the shuttle services, this is something that is changing our landscape today real-time, you know, employer-based shuttles. I am sure you guys have heard about the Google and the Facebook shuttles. There is also shuttles that serve multiple employers, like RidePal. We are seeing the local shuttles, which we have seen for more time but these are also growing. And we are seeing services like Bridge come online that are studying OD patterns and offering what they call a higher-end type of public transportation.

So, buckle your seatbelts because I do really think this is just starting to really diversify and change.

So, moving into the policy piece, some of the work I have also been involved in is discussing what are the policy issues here. One of the things that I think is really challenging is
that there is a lot of activity in the space. There are definitions but some of those definitions are confusing. Some of the operators call themselves things that they are really not. And so the media have been calling Uber, Lyft, and Sidecar ridesharing for a couple of years now and I think it has caused tremendous disruption for the ridesharing business by basically blurring those lines and people's understanding of what carpooling and vanpooling actually is and that has implications for policymaking.

And I think one of the best things we can do is focus more on the social and environmental impacts and understanding of what these services are doing to help us with our policymaking.

There has been a lot of discussion about whether or not public funding could be directed towards expanding shared use mobility, understanding better the role of job creation, increased efficiency, economic growth, how these services might fill gaps in our transportation network, how they might help to offload the peak at public transit agencies.

Moving to slide 31, I think public transit integration is something that we still need to work on. I don't think we are really there. I think there is a lot of partnerships but we haven't fully integrated these services in terms of data, logistics, fare payment, that type of thing.

I also think there are issues either with equity, are we leaving anybody behind if we rely on the services that are largely app-based. You can see in the picture to the left, TransitScreen, which shows a picture of shared-use services and transit schedules so that it doesn't have to be limited to the smart phone app. And also, TransitScreen has developed these projectors that can actually project this information onto any surface. So, that can help with equity but this, I think, is an area that we need to focus more on. It also includes taxation and credits.

Other key issues, which appear in the next slide, include social equity. How do we
mainstream this? How do we bring it to other people? Why aren't people using bikesharing from other sociodemographic classes. This has been in the media a lot. Just overall, what are the challenges to mainstreaming and scaling this? Parking and insurance remain obstacles to shared mobility, data sharing and privacy at both the corporate level, as well as the individual basis, the personal identifiable information create both opportunities but challenges with respect to data management.

And also just preparing for the future. You know what types of models do we need if we are going to have planning models for the next 15 to 20 years that don't include shared-use mobility and it is coming very quickly very now. You know what does that mean for our models and for our understanding? And how are we going to handle autonomous vehicle technology?

So, to conclude, these services continue to grow. It is now becoming a great body of work for us at our research center to just track this. Challenges are remaining. I think the blurry of the lines concerns me a lot in terms of the policy landscape. And you know we are seeing more and more of these new services that focus only on providing shared-use mobility, but also on the integration of all of these services overall. So, companies like RideScout -- RideScout just got bought out this fall by Daimler -- are a part of Moovel and their idea, along with TransitScreen, is to integrate all of this into a Point A to B solution that tells you what your options are, based on your geographic location.

We need to focus on public transit integration, data sharing, and privacy, and preparing for the future.

So, with that, I would just like to conclude thanking all of the funders of this work over the last 15 years and colleagues that contributed to this particular presentation.
CHAIRMAN KENNER: Well, Susan, this is Steve. I mean just outstanding. It is really helpful and I appreciate you putting this together to kind of help us to get into the right mindset as we transition into the next part of the discussion, which is what are the kinds of topics that we want to explore when we meet in February that then we would want to make a part of not only what we studied but then, the area of focus where we provide then recommendations as we work together.

DR. SHAHEEN: Great.

CHAIRMAN KENNER: Susan, that was awesome.

DR. SHAHEEN: Oh, well thank you. I hope it was helpful.

MS. GOODIN: Yes, very good. Susan, this is Ginger Goodin. I just have one question. Did your research cover the demographic characteristics of the users of these different services?

DR. SHAHEEN: Yes. Yes, I mean I could easily do about an hour or longer presentation for you. The sociodemographics across all of the shared-use modes show the same type of user base. It is a little more diverse than bikesharing but, overall, it leans towards young, Caucasian, upwardly mobile well-educated people who live in urban areas. That is why I think we have got some work here in terms of acceptability, as well as mainstreaming and scaling these solutions to other sociodemographic groups.

MS. GOODIN: Perfect. Perfect. That was my question. Thank you.

DR. SHAHEEN: Uh-huh.

CHAIRMAN KENNER: All right, any other comments or follow-up questions for Susan?

(No audible response.)
DISCUSSION OF POTENTIAL TOPICS

CHAIRMAN KENNER: All right. So, then, I think, at this point we want to move into the next part of the agenda and talk about some of the things that are coming up.

ITS STRATEGIC PLAN 2015-2019

Ken or Steve, I wasn't sure if you wanted to do just a quick reminder of the strategic plan and its content because I certainly think going over that in some detail will be important.

When we met last -- there was what would you call it -- it was going through an approval process, I guess, is what we would say. And so you couldn't share with us, I think, all the details. But could you sort of give us an update and then what would be the expectation in the February time frame?

MR. LEONARD: Well, Steve, I have great news. This is Ken Leonard. I have great news. The Secretary signed out our strategic plan. As a matter of fact, I imagine Scott Belcher was there, so he can confirm this, but we sent Greg Winfree off to speak to a TIA group today and the content of his speech was all about the strategic plan, unless he substituted in talking points on a different topic at the last minute.

So, I will give you the 30 second highlights of what Greg would have covered in terms of what are the six elements of our strategic plan. And so there is, of course, connected vehicle, which we feel we have a lot more work yet to do to get through the regulatory process. We are starting major activities around automated vehicles.

The third area is enterprise data and the whole data analytics and big data questions associated with transportation.

Fourth, a focus area is interoperability. And by that, we mean it in many different senses
of the world, both in terms of how connected vehicles interoperate but also how transportation
systems interoperate, rail to bus, bus to single-vehicle. The whole interoperability of the
transportation system.

The fifth area is technology assistance and deployment and adoption. And then the final
area would include emerging technologies. And so those are the things that we will be talking
about ten years from now as our major focus areas but that right now are just seed money activities.

CHAIRMAN KENNER: All right, great. Now, I noticed that you had included an
attachment that had the ITS strategic plan. Is that the actual approved document or is there
something beyond that?

MR. LEONARD: No, that is the approved document.

CHAIRMAN KENNER: Oh, great. Okay.

MR. LEONARD: And that document we have got it at the printers. We are going to
make some major announcements around the TRB in January but it is on our website now and we
are -- the link is at our website and we are doing outreach to bring it to everybody's attention.

CHAIRMAN KENNER: Excellent. Okay. Looks great. So, a lot of progress since
we met.

MR. LEONARD: Yes, indeed.

MULTIMODAL TRANSPORTATION

CHAIRMAN KENNER: All right, excellent.

Now, I noticed if you look at the topics that we had talked about last time and to say what
were areas of focus, the next topic that we had written down was multimodal transportation and
then we included in that public transportation, also shared-use, which is really sort of a subset of
the totality of what Susan just shared with us and then also freight.

So, any comments or thoughts is (A) that something we want to continue to pursue and then, if it is, what would be the information and/or people that maybe we would want to have help us to investigate that further.

MR. BELCHER: Steve, this is Scott. On freight, if you want it to be updated on a couple of things, one, I believe Randy Iwasaki is now the chair of the Freight Advisory Committee and he is also the chair or the co-chair of the technology subcommittee. And I also believe that ITS America has recently completed a study on the deployment of ITS technologies in large fleets.

And so between those two, you might be able to get some information about the state of deployment and then cogitate on what are those areas or what is preventing greater further deployment.

CHAIRMAN KENNER: All right, well, thanks, Scott. So, any other comments or thoughts about that?

VICE CHAIRMAN WILKЕRSON: Well, this is Sheryl. I agree with what Scott said. The other thing is we may want to keep an eye on what is going on in Europe with the SARTRE Project, S-A-R-T-R-E, with respect to platooning and freight. Just something we may want to think about, too, along the way.

But I whole-heartedly support the two approaches that Scott recommended.

CHAIRMAN KENNER: Okay. I would also suggest that relative to the shared use that if we wanted to have Susan maybe take a little deeper dive in some of the areas that she included in her introduction. Did anyone have any other thoughts or areas that they wanted to explore in some more detail?
MR. McCormick: This is Scott McCormick. With regard to Susan's body of work, I think one of the things that would be useful is, you know the purpose of this committee is to make suggestions and recommendations to the direction and the funding and the research that the Department does.

Susan, obviously, has a good handle on where she is, in her perspective, things that are adequate or inadequate.

So, I think it would be useful for her, if she wouldn't mind, to give us her thoughts, even if it is just an email on the areas that she feels are worth considering.

Chairman Kenner: So, Susan, so it sounds like we were sort of soliciting you to say hey, if you took the kind of phrase we always use here at Ford is when we talk about news or the business environment that we are dealing with, a lot of times we say well, so what, to Ford. Right? What does it mean to Ford? And I think one of the questions would be your perspective on what do we think the implications are, the research that you have done, are that would be leading to recommendations for research that we think that we should recommend or gaps that exist today that you think perhaps we could fill with some more research.

Dr. Shaheen: I would be delighted to assist with that. I mean, clearly, I think it is important. It is moving so rapidly, I think it would be a challenging task for me because I think this report occurs over like a two-year period.

Chairman Kenner: Exactly.

Dr. Shaheen: Yes, so where we are today, in two years it could be vastly different, honestly, given the pace of change that has just happened over the previous two years. But I would be delighted if the committee is interested in pursuing this further to provide any type of
MR. McCORMICK: This is Scott McCormick. Just a question, particularly as it relates to demographics. Is it your perception that shared-use mobility applications aren't being taken up by minority groups because of exposure in terms of being priced out of the system or because of technology barriers?

DR. SHAHEEN: I think it is all of the above. What is refreshing that is starting to happen, if you follow the space in any way, is you are starting to see discussions about this and across every shared-use mode. But I don't think we have a handle on it at all. I think we are developing these services for ourselves, in many ways, or young people who are creating services like Lyft are creating a service that's hip and groovy to them but haven't thought about how best to market it to other populations, or how it serves society more. But I think there is this dialogue that has begun that wasn't there two years ago.

MR. DENARO: This is Bob Denaro. The other connection, of course, is that there is a very important relationship between automation and carsharing, ridesharing, all of those, so much that I think automation becomes an enabler for even more robust as a service and more incentives for companies to get into that.

The other way around is we just saw that the popularity of these kind of services is probably just going to be a big pull for automation as well. And so, I think that aspect of those two converging is very important to our considerations for the future.

DR. SHAHEEN: I agree.

VICE CHAIRMAN WILKERSON: This is Sheryl. I had a question. It looked like you said when you were discussing the demographics that the trend is more towards urban areas. Is
anyone working on sort of model or best practices for certain types of communities new or old?

DR. SHAHEEN: Yes, a great question. So, this is another new development in the shared-use mobility space is there is a service called Carma Hop that is targeted at ridesharing. So, carpooling, essentially, in rural areas. And the woman who developed it, Jenny Lawrence, was so successful that Carma actually bought her company and now she is Carma Hop. And that happened within the span of 18 months.

And I have been privy to a number of conversations about government even thinking about like what could be done to extend services like Uber, Lyft, and Sidecar into the suburbs to provide first mile/last mile connectivity.

Here is something that just happened yesterday. I mean, just call me on a given day and I will probably tell you five new things. That is how fast this is happening.

Carpooling.com was just the largest long distance carpooling company hugely popular, doing millions and millions of rides per month, I think 20 million or more in Europe, has just, as of yesterday, entered the U.S. market with a partnership with Uber. The idea is that you use Uber for first mile/last mile connectivity to the long distance carpool.

So, these like blending of these models and these services and these changes, I think, are going to enable us to potentially move shared mobility services into a more mainstream market, more diverse market, and a more geographically diverse location.

VICE CHAIRMAN WILKERSON: I think that is a great issue but I am not sure who just, was it Bob, who talked about automation being an enabler? I have a question about whether it might also not be an enabler in the sense that once automation comes, people might be more encouraged to, again, go back to driving their own vehicle autonomously.
CHAIRMAN KENNER: That is a good point but we need to fold in the opinions of Millennials about owning their vehicles and that sort of thing. And I think there is a distinction between rural and urban is an important one, too, and how that might change.

So, these are all good questions, I agree.

DR. SHAHEEN: Okay, super. Thank you.

MR. GLASSCOCK: Okay, I don't mean to be a stickler but we are about a half hour behind on the agenda.

DATA POLICY

CHAIRMAN KENNER: Yes, so at this point, at least the agenda I have, says we are going to talk through these various elements.

So, I think we have talked about the multimodal transportation and the three things below it with some recommendations on the people that could come in and give us updates on that.

So with that, we can move to the data policy, where we talk about usage, privacy, ownership. Is there still continued interest in that being a focus that we would -- something that we would continue to focus on in this committee?

MR. KISSINGER: I think so. This is Peter Kissinger.

VICE CHAIRMAN WILKERSON: Are these still areas that we want to, these subcategories, ones that everyone still support?

MR. McCORMICK: Well, this is Scott McCormick and I spoke to this the last time, at the last group that we had. And I read through the presentation that was very well done that is on the index that Steven had sent out.

The real issues, and they make the point in that presentation, and we made it before, is that
the U.S. has no personal data privacy law. And given the socioeconomics we operate under, we
probably never will.

We have 24 regulations that govern things like health records and financial transactions but
they are all non-mandatory and they all recommend industry oversight, which is problematic when
we are now talking about an industry and two or three major business sector that are operating
OEM communication, backhaul data processing in their group.

And the final issue is that our data privacy laws shouldn't be specific to the connected
vehicle. They should be the device, my personally identifiable information should be immaterial,
whether someone is harvesting it from my car, my marine radio, my airplane, my internet
connection.

So, the question is what could we possibly do in this state with respect to data ownership or
privacy? And I predict very little. I think it will add very little to the party. And I have done a
survey in the OEM a number of years ago and each one of them had a different idea about what
information they thought that the car generated would belong to the car operator. So, there is not
really a consensus there. They are working to try to figure it out. And I think there will be an
association with a paper that said you will abide to best practices.

And in terms of what the ITS pack can bring to the party, I have some serious reservations
that we will bring anything of value more than the work that is ongoing than what the DOT has
already been described as its position on. That's my opinion.

MR. DENARO: This is Bob. I think data and big data is important to this whole area but
it also begs the question, I mean the ITS JPO, as far as I know, will not get involved in policy. So,
the question is should we be looking more from a technology direction instead of policy. It's just
MR. McCORMICK: So, I would ask are we going to have use in terms of technology. I mean I have been in the process -- I have read all of the responses to the proposed rulemaking and I wrote a white paper on what some of the things were under the processes during that now with the security certificate management system and I am not clear that from the body of this group what we were going to bring to the technology aspect that has to do with data progress and ownership. I mean remember we did that during the security stuff. We brought in people from a number of different parties to talk about where we were with the security of the vehicle, how we were opening up pipelines to it, et cetera, et cetera. And our summary recommendation was we needed to pay more attention to this. And I don't mean to make light of it, but that is what our summary recommendation was and we think this is an important area. And by the time we actually made the report, they already had funds of ten million dollars to do the autonomous vehicle safety certificate.

So, when we look at the arc and fall of this committee, which runs for three years and we will make an interim recommendation and we will make a final recommendation, I have to kind of go back to ask the question is what are we thinking we will be recommending with regard to data, ownership, or privacy that is not already stated. I don't have the one slide up, but it is on the link that you set out, have on there the presentation that somebody had made with regard to data privacy.

I would urge everyone to go read that first and then revisit. Possibly in February we can revisit where we think we can add value. We have a finite amount of time with this group to sit together and a finite amount of time that we can apply to address certain activities. And I'm pretty
sure there is no privacy experts on the committee. And I'm pretty sure that somebody that is in the
technology, with the exception of possibly Bryan Schromsky, in the technology of addressing
security people's information.

So, the question is, where, at a policy level, do we think we can add value. My
recollection we had last year was that there is 24 of those regulations, they all plagiarize one really
good one. You guys go plagiarize it. So, recharacterize it so this is how we think it ought to be
and work on something we can actually add value to.

And the other thing, I believe privacy is a very important topic and I believe the data is a
very important topic. But the data ownership is going to be defined by the people that both create
and convey the data. Okay? I buy a TV set with a remote control. I may not want the
government or the TV manufacturer to know what shows I watch. That doesn't give me rights to
IP streams that is coming out of the end of that infrared remote because it is a very, very complex
issue that we have looked at for quite a bit of time, not in this committee, but we have looked at it
externally. And I would just lay in the survey that everybody has to read the report. And Steve,
you know what I am talking about, right? I could look it up, I suppose.

CHAIRMAN KENNER: Yes, so basically, it is my understanding that Scott, your
basically saying that hey, we are probably spending a lot of time on the data policy is maybe not,
(A) not consistent with what our mission is and then, (B) probably not a lot of fertile ground for us
to make some recommendations.

MR. McCORMICK: Correct. The ITS privacy connected vehicle briefing is the one I
am talking about, which it is the one that is on your ITS webpage. I think that pretty much clearly
summarizes the whole position.
And hey, I am open. If somebody thinks that we can have value in this space, I just want to know where that is.

CHAIRMAN KENNER: So, other thoughts? Is there general agreement that that is probably maybe not an area we want to spend a lot of time on?

VICE CHAIRMAN WILKERSON: Remember we had a long dialogue about this during the last meeting and I did not refresh, did not look at the transcript to review this, the dialogue.

MR. DENARO: Well part of our mission is to recommend what the JPO should be doing in this area. So, it really, as opposed to us making a contribution ourselves, either based on the backgrounds that we have and based on the amount of time we have available to work on this, we are not really working problems. We are really recommending research that the JPO needs to be involved in.

So, I think the real question is is there any research or other involvement that we believe, or recommendations that we believe the JPO should do with respect to data. And maybe not.

MR. McCORMICK: Well, we did make a soft recommendation last year. I mean I sent Ken a list of all 24 of those regulations and the FTC rule is 95 and said we ought to just plagiarize it and create a guideline. That would be the recommendation is that if we think that the Department of Transportation needs to have a privacy guideline but a recommendation being to say hey, once the research has been done and do it. But the HTML document that I just referred to on the ITS privacy for connected vehicles, we are going on the position that connected vehicles don't need a separate privacy policy in other spaces and I have to agree with that.

MR. KISSINGER: You know I think in the last ITS PAC, I mean we were briefed once by NHTSA that talked as if they were doing some study in this area, I guess I am just curious as to
whether there is any ongoing DOT research or study of the issue, including, Ken, in your
Department.

CHAIRMAN KENNER: Is there anything specifically going on on privacy?

MR. LEONARD: DOT does have a privacy officer and I am sure she is doing some
broader work across DOT privacy issues.

I don't think we are specifically funding a research proposal on privacy at this time but I
would have to look through the portfolio. I wouldn't swear to it but nothing jumps out. Nobody
in the room is shaking their head that they can think of a specific proposal that we are funding right
now.

MR. AUGUSTINE: Right. Well, I guess, what I would say is we funded some work in
that area prior to and leading up to the ANPRM that NHTSA did. The working group is still
meeting and Claire Barrett involved and still is engaged with some of the legal working teams to
ensure that we are adherent to the privacy principles as we complete the work and as NHTSA
completes its rulemaking effort.

So, I think we can provide an update on exactly what they are doing but I don't think there
is an ongoing effort right now to do more public privacy research. It is more of how are we
implementing the privacy policies that DOT established and how does the ultimate end state of the
V2V system comply with those privacy principles? I think that is probably an accurate way of
describing what the activity is.

MR. LEONARD: Does that help clarify?

MR. KISSINGER: Yes. It seems to support Scott's recommendation, too.

CHAIRMAN KENNER: Any other discussion on the data policy and the three items
MR. SCHROMSKY: Well, there is one that I think if we eliminate privacy and ownership, that has the three-body problem, the unsolvable problem, usage management is an interesting category. And I think that work is largely the work, and correct me if I am work, that is going on now determining whether or not the deployment requirement is something that falls under that category of if we are harvesting data how is it going to be managed. Does this really lend itself to the SGMS?

I am curious where the usage management data policy comes in. One of them says it has got to be private. The other one says it is going to say somebody owns it. But usage management implies that the DOT or some public sector, well, maybe it is some private sector, has some at least temporary ownership of some data that you are now having to manage. So, I am curious as to where that is coming from.

And the reason that I am curious is because I remember about seven years ago there was a place to put in a data czar in place that was going to ask for the harvesting and look into all this stuff, which that has kind of gone away.

I don't know if Ken, or Steven, or somebody can clarify what your view of the usage management is.

MR. LEONARD: Well, let me clarify a different topic, which is the Department has put in place a data czar.

MR. SCHROMSKY: All right.

MR. LEONARD: I don't think we call him the data czar. Dan Morgan's title is the DOT Data Manager. I'm not quite getting his title right but it really is essentially somebody essentially
to look at all of the data issues across DOT. So, this is a position in the Office of the Secretary. So, it is an area that the Department continues to view as important, important enough that within about the last six weeks, they have hired a permanent person to address that role.

MR. SCHROMSKY: Well, I guess what I would like to recommend to Steve or Ken is that perhaps we can get him to come to our February meeting and give us a little briefing on the use of the data in this ecosystem so we understand where we are going and what they are thinking. Because I don't know if there anything we can add about being educated in terms of where they think they are going or doing.

It could be that that could be an area that all of us can weigh in with some value to it. That would my suggestion.

MR. LEONARD: Okay, we can certainly do that. And I now have, courtesy of Google, we have Dan Morgan's title is Chief Data Officer.

MR. SCHROMSKY: Okay, I promise I won't call him a czar anymore.

(Laughter.)

MR. LEONARD: Too Russian.

MR. SCHROMSKY: Right. That would be great. I think then we can table this topic until we meet in February and see if there is an area that, even if we don't decide to pursue it, that I think that will educate us all.

MR. LEONARD: Okay.

INSTITUTIONAL ISSUES

CHAIRMAN KENNER: Joe, do we want to talk now about some of the items under the next category, institutional issues, funding, administrative, implementation, and deployment
And similar to what we just talked about, we had, in the first category, Scott Belcher mentioned a couple of folks that could give us updates on freight and ITS deployment, and Susan, maybe some more, and then I was just talking about Dan Morgan. So, consistent with what we said before, even though whatever information might we want to have and then what might be a way to have it, even if it is having someone come to present it for us in February.

MS. GOODIN: Well, this is Ginger. I think one of the things that we talked about at our last meeting is having someone come and talk to us about the AASHTO footprint in our report. And you know from my perspective, you know working in the policy area from the state and local level, I think there is a real need for some understanding about what the strategy is for deployment and what the role of state and local agencies are, particularly as it relates to funding and other kinds of issues of that nature.

I have not reviewed the footprint analysis in detail but I take it that it is going to get to some of the questions of what is required of state and local government. How do we get from here to there? How do we get from concept to deployment? What does that transition look like and how is the funding -- you know -- what are the funding options on the deployment side? So, that is my input.

MR. McCORMICK: I think this the one area where a collective body with our makeup can really probably add the most value because we have the public entities as well as the private industry. We are looking at a period of time in front of us. We are two years out before the ANPRM but we are looking at a period in front of us that says now there is going to be places that they are being deployed, whether that is vehicle-to-vehicle or some vehicle-to-infrastructure, or
one of the hearings of opportunity. I think when we start talking about incentives, deployment incentives that is reasonable and plausible that we could obtain, I'm not really sure where we go with the funding issue because that is kind of out of our hands. And there is only so much you can redeploy. You can only slice the pie so many different ways. Right? So, and Ken has given us guidance on that in the past.

And I think this one topic area, when I look at it more than any others, seems to best fit the demographic of our committee in terms of storing it in more detail and making some recommendations in terms of how to move this entire environment forward.

MR. CRONIN: This is Brian Cronin from District Program Office. A couple of things, as you look at the deployment issues and implementation.

So the AASHTO footprint was completed back in May. But since then, there is a follow on project we are starting, Federal Highways issued the first round of draft guidance for comment. AASHTO, ITS America, and ITE, are setting up a deployment coalition. So, a broader discussion, I think that Federal Highway and AASHTO lead, you know, like we can bring in FTA and APTA to get the multimodal perspective about implementation is a very good topic. And just don't limit it to the footprint.

CHAIRMAN KENNER: So, did we have any recommendations or did we want to have someone come in and talk to us about some of these topics, subtopics?

MR. McCORMICK: Well, I think it is multidimensional. I think we have got three aspects, as I see it.

One is, we have got vehicle-to-vehicle. One is you have got vehicle-to-infrastructure. And one is that then you have a deployment readiness capability. In other words, we have done
this. You know, the Connected Vehicle Proving Center has gone out and wirelessly outfitted both DSRC and the Wi-Fi to a rest stop in Michigan. And then we did the same thing with a single phase in timing back in 2007 and 2008.

So, there were so many issues that came up. You had to talk to the county, you had to talk to the city, you had to do -- but there wasn't actually a framework, there wasn’t a template that says to go do this. Because, largely, it could vary by state, it could vary by region.

So, I think if we go in and have some people come in and talk with us, I mean it is good to have AASHTO come in and talk about a footprint analysis. I read the document in detail and there is a lot of good knowledge in there to be gleaned but I also think we ought to have a thought exchange, a thought experiment, where we can collectively sit there either in smaller breakout groups or together, collectively and start white boarding well what do we see as the issues from a transit viewpoint. What do we see as the issues from a state viewpoint, from a policy viewpoint, in terms of moving deployment forward? And start addressing what the issues are what the opportunities are so out of that I think we can isolate the areas that we may have some good thoughts or that we can provide some suggestions for where the JPO might want to do more research in the coming years.

It is just, I guess, I just would like to see the collective intelligence of this group utilized to its maximum and I think this is a topic around which it could.

MS. GOODIN: This is Ginger. Can I go back to the funding question and something that Scott said?

Is the funding topic completely kind of off the table because there is nothing that can be done about that? Or is that when you get down fundamentally to deployment, if there is any
investment that has to be made a state, for example, the pie is not getting bigger but you have got to figure out how to carve up the existing pie in a way where you reinvesting or you are investing in a different way. And right now, those funds are so tight, you can't even do what we need to do to just maintain the system.

So, but is it outside of the purview of this committee to talk about those kinds of issues?

MR. McCormick: No, we can talk about those. Those are great -- that is a great issue to talk about. I was just talking about at a federal level with respect to this JPO budget, not globally how the whole excise tax is redistributed and what it can be used for and whether it should or shouldn't be mandated. And all of those things, I think, are worthwhile exploring.

MS. GOODIN: I would agree with that.

MR. CRONIN: As the committee thinks -- this is Brian Cronin again -- about deployment, one of the key things to remember is while we have research, we also have a pretty robust knowledge and text transfer progressional capacity building program. And that is a big area that we are just delving into. We are creating a sort of strategic sub-element of this plan looking at what connected vehicle training specifically needs to happen over the next several years. And so I think that would be an area that is not just about what research but what education and training does an industry need to have a robust connected vehicle environment.

MS. GOODIN: I think that is really important. I would be interested in hearing more about that.

VICE CHAIRMAN WILKERSON: Yes, I thought that was in the administrative issues where we talked about DMB training, education, consumer expectations.

I recall that we had a list of some of those issues.
CHAIRMAN KENNER: Any suggestions if we wanted, again, to have anyone to come in and brief us on this versus just having a discussion with the committee?

MR. McCORMICK: Well, I have been in conversation with Tyler Poling, as well as Elena Farnsworth. CBCA is launching the connected vehicle professional course with certification by SAE, which they had inquired about listing that within the professional capacity building.

I think it would worthwhile to have the professional capacity building people come and talk to us about the entire breadth of what they need, about what they would like to have in that. And I think all of us can contribute to what we think belong in those things. I mean we have got the CEO of the Telecommunications Industry Association with us now. And he is going to bring a perspective as well as what the other entities see as being needed at a public level, as well as a private level.

So, I think that will be a good thing just to have somebody come, PCB come in and talk to us and have a discussion.

MR. SCHROMSKY: Hey, Ken, this is Bryan Schromsky here. Maybe suggesting, I know the GSA is looking at auto share. I don't know if we have you or from government to government on the federal level, maybe somebody from that organization. I know they are looking to offer this and develop some programs and actually have some pilots going on for federal government users to use. I think, I forget who made that comment before, and say hey, are there maybe state and local that are using these services today that we can learn from but maybe somebody from the GSA, since they are looking to do this for federal government. Just throwing it out there.
MR. LEONARD: We can look into it.

CHAIRMAN KENNER: So any other comments regarding the institutional issues that we have listed there?

MR. McCORMICK: I don't know if it is an institutional issue but we are about a year into the affiliated test bed and it might be worthwhile to have just a short briefing on how that whole effort is going.

CHAIRMAN KENNER: Scott, can you stay that again? There was a noise when you were talking.

MR. McCORMICK: Yes, sorry. I think somebody dropped offline or joined. You know we are about a year into the affiliated test bed efforts.

CHAIRMAN KENNER: Oh.

MR. McCORMICK: And between all of the things that have been going on, I think it would be nice to get a summary to look at of how that is moving forward.

CHAIRMAN KENNER: Any specific person you think that could provide this?

MR. McCORMICK: I think Walt Fehr could probably give an update on it. I mean I attend those monthly briefings on it but I think for the committee, it would be worthwhile to know about what the affiliated test bed does and how many you think of these are now participating and how may programs, how many deployments, pilots, whatever, are being brought into that. And that is a valuable resource.

FUTURE + 10 YEAR – U.S. DOT SECRETARY’S 30-YEAR BRIEFING

CHAIRMAN KENNER: Okay. Other comments?

Then, how about the next section, the future, sort of ten year, more than ten years out. So,
a lot of times the research programs are within a five-year planning period but then also there is
sort of a directional sense of out into the future. And we had talked about what do we think the
future holds and things that maybe we don't understand or things that we are working on that are
assumptions that aren't correct that could be disrupted.

Any specific suggestions on follow-ups relative to that?

MR. BELCHER: I had an idea. As you know, I have those all the time. Most of them
aren't very good. But maybe you have probably read the article "The Long View" by Peter
Schwartz and one of things that she did when he was doing this long-term strategic planning for
companies and still does, was they go in and they will okay, figure out what all of your
assumptions are and let's take the reverse. Let's say that oil prices drop to a dollar a gallon or oil
prices go to $10 a gallon. Let's look at our assumptions are that we made about what we are going
to be doing in deploying this space, whether from DSR. If you want a DCRC depth or can we use
5G, how long before we think 4G is going to be ubiquitous in 20 years and what if it is not?

And what does that really get you a number of scenarios to address that says well, okay,
what if our underlying assumptions are false? It doesn't have to be that something disruptive
occurs. It can be that something disruptive occurs but more than that, what I think we need to do
is we have been going down this path for ten years now, with the JPO and the US DOT. And I
think that probably if we don't do that at some point, and I think this is something that we ought to
get the JPO to participate in this discussion on is say well, okay, what is it that we have assumed
here? What is it that we are assuming is not going to happen that possibly could? It could be
from terrorism. It could be an energy crush. So, whatever that is.

And I think we have done that before with Susan. And Susan has done that with her
centers, the Capability Center out there to look at what are all these possible scenarios about what
if we do have a flying car. What if we do have major climate change? How does that effect what
we are looking at going forward?

I don't know that that gives us something of value you recommend but I think it might be a
worthwhile endeavor, at this time, as well as the cost of moving into deployment.

You can tell me I'm crazy, if you want to.

VICE CHAIRMAN WILKERSON: No, I don't think you are crazy. This is Sheryl.

I think part of looking down the road is looking at some of these assumptions but also
things that have a nexus to automotive that it could be the convergence of all the technology, what
is going on in the telecom sector, what is going on in the energy sector. You know anything that
might touch this space we might want to have a broad whiteboard, or dialogue session, or have
some other folks who are not necessarily in this space talk about some of the trends that are going
to be taking place for the next ten years. I think we had alluded to that in our discussion.

DR. SHAHEEN: This is Susan. I did read a study that Scott was one of the contributors
to for the Federal Highway Administration a couple of years ago on integrative active
transportation systems. And you know, essentially, we use a scenario analysis approach because
there was no other way to do it because we were looking at 30- to 40-year timeframes out.

But I think because things are changing so rapidly in so many different fields that ten years
is really difficult to predict now because of how rapid the change is. So, I think an exercise in
scenario planning that is a little bit more near-term than a 30- to 40-year forecast would be really
helpful. Because all you have to do is have an energy breakthrough or some kind of external
factor and it could be a really significant game changer.
VICE CHAIRMAN WILKERSON: Right. I think we are on the same page.

DR. SHAHEEN: And it is fun.

VICE CHAIRMAN WILKERSON: And it is fun.

CHAIRMAN KENNER: So, help me, Susan. So, what do you think would be the best way to bring something then into the February meeting?

DR. SHAHEEN: Well, you know a scenario planning workshop can take two days, it can take one day. I don't know if it is something that can be done really well in just an hour or two segment.

You could consider breaking it up across a couple of meetings to use these different phases of this scenario planning process but just spending time determining what the question is and what the potential external forces are that you really want to examine, according to different trajectories.

The exercise itself has several phases that you could use different types of experts to contribute to, which is what we actually did on this previous study, where we actually had different experts sort of handing off one exercise to the next group of experts, who are looking at it fresh, which I thought was kind of a cool approach.

So, there are several different ways to do it. But like to do a full-on scenario planning exercise, you are looking at some probably like closer to a day and a half to two-day commitment.

MR. McCORMICK: I actually wasn't thinking about actually solving world hunger. I just wanted to point out who was hungry.

What I wanted to do in ITS -- because what we have done historically in the past is, remember, we didn't have the entire ITS PAC or if you have any single topic and you find people that were interested in various or feel that they could contribute to certain areas. And yes, I will
work on that offline and we will reconvene with it.

And so, we can do this in a couple of ways. I was thinking more that we were going to have this roundtable discussion on what is scenario planning, how it would be done. Because the recommendation that we would make would be for the JPO to do one of these. If it takes them a week to do it, fine. But I mean that would be the end point is to provide a recommendation to the DOT in terms of what we think they ought to be working on and things that they are researching, of which this could possibly be one of those things we recommend. But in order to make that an adequate recommendation, I think we would want to allocate about an hour to explain what this process does, how we go about it, and then possibly form a subcommittee just to frame it out a little bit for suggestions of what they ought to be considering and looking at.

So, we wouldn't be doing the actual serial planning but we would be possibly making a recommendation that the JPO do this scenario planning for these disruptive or the power of some opposition.

VICE CHAIRMAN WILKERSON: This is Sheryl. I do think, though, that given the expertise that is on the Advisory Committee, that participating in some small exercise would be useful.

DR. SHAHEEN: I agree.

VICE CHAIRMAN WILKERSON: And I have done some of them that don't take very long. If you provide, present the questions, and you give them to the members on the Advisory Committee to actually conduct on their own time and then you could use the time wisely when you meet to facilitate and expand on some of those issues, that we might end up finding a couple of scenarios that may be worthy of further discussion or to propose to this JPO.
Anyone else have any comment on that or am I barking up the wrong tree?

DR. SHAHEEN: I have a gut instinct. This is Susan. I will just say it really quickly. I have this same kind of instincts that I think there is a lot of expertise on this panel that it would be great to somehow engage the panel in at least some stage of a scenario plan.

CHAIRMAN KENNER: Other thoughts on that? What do you guys think?

MR. DENARO: This is Bob. I think just because there is so much disruption and change going on that I think it is valuable to step back and look at these various possibilities of future scenarios. And I am pretty familiar with scenario option planning as well, I have been through several sessions of that, but to do it in an abbreviated form and maybe focusing a little bit near-term or mid-term, I think would be of value.

DR. SHAHEEN: Right.

MR. BERG: This is Roger. The JPO has the strategic plan for the four-year time plan. So, I think it would be best if we looked at that and maybe not that much will change within that framework. So, maybe ought to come up with some recommendation on what the next strategic plan elements are to be included by doing some of the scenario planning.

MR. DENARO: Well, actually, a look like that also would be a metric then to look back at the strategic plan and say is the strategic plan addressing the right issues going forward that maybe have implications in the longer range. So, I think that is a nice tie.

VICE CHAIRMAN WILKERSON: Good point.

REVIEW OF ACTION ITEMS

CHAIRMAN KENNER: All right, any other comments on that category, you know, ten years' out, even though, as we just said, it may be five to ten, that people wanted to bring up?
So, at this point, it seems like we have kind of gone through everything and the next thing we have listed on the agenda is Sheryl to see if, not just you, but if we can collectively sort of capture what we want.

I would suggest that probably Sheryl, we, you and I and Stephen and Ken probably need to set up a follow-up meeting to make sure we have captured everything. But, at this point, if people don't object, we could move into that to see if we can kind of capture what we want to do that will then help us to formulate the specifics of how we want to spend our time when we are together in February.

VICE CHAIRMAN WILKERSON: There are other topics of interest underneath that one. I know that Scott had raised some questions about whether this would afford enough time for people to propose other topics. I just wanted to make sure that we opened the door for that, before we summarized.

Well, okay. Do you want me to, Ken, just highlight the ones that I have noted?

MR. LEONARD: Sure, that would be great.

VICE CHAIRMAN WILKERSON: Okay. The first one is multimodal transportation. We had talked about, I think all three of those topics we would keep. There were recommendations from Scott and others about Randy Iwasaki, the upcoming ITS report, possibly looking at having Susan Shaheen as well look at some of the implications of the research findings and possibly some gap analysis; what is going on in this space in Europe and others and the impact of automation.

Under data policy, we talked about having or tabling privacy and ownership, and following up on usage management by having the DOT chief data officer do a briefing on usage
management.

We also talked about, let's see, I think that was it for that one.

Under funding, we talked about an exploration of the funding issues. I think Scott had talked about Tyler, was it, Poling from CBCA, PCB. Someone also alluded to the fact of possibly having GSA brief us on their efforts and looking at --

MR. McCORMICK: Tyler actually works for Booz Allen as a contractor to DOT.

VICE CHAIRMAN WILKERSON: Okay.

Under those other three issues, I believe we said we would keep, that was administrative issues, implementation issues, the AASHTO footprint, deployment, et cetera. There was a special note that we should not limit it to the AASHTO footprint, looking at the strategy for deployment, transportation and funding options from a very broad perspective, and then bringing experts in to discuss multimodal issues not limited to that footprint.

There was also some discussion about an affiliated test bed, getting an affiliated test bed update, and getting a summary of the program and its test bed, potentially what is there.

A future discussion, we have talked about scenario planning, cross-connecting and abbreviated scenario planning exercise with some recommendations on possibly the next strategic plan and then looking at the current ITS strategic plan, looking at a five- to ten-year range.

That is what I took away. Did I miss anything?

MR. McCORMICK: I think that was all of it, from my notes.

MR. LEONARD: Ken Leonard here. I made note, I don't know who said it, about getting Mack Lister in to talk about the PCB program.

MR. McCORMICK: Oh, yes. I didn't say Lister by name but we talked about Tyler
instead. But yes, Lister would be the right guy.

MR. LEONARD: But Tyler or Lister or some combination.

We also, in terms of the AASHTO footprint and the FHWA guidance, at least tentatively, we are thinking maybe Bob Arnold from Federal Highways might be someone to bring in.

And then there was a mention of GSA AutoShare. We will have to look and find out more about that. So, if anyone has -- you know Brian, I think this might have been your point, a contact there or some background on it, we can try and find the right person. But those were just some of the notes I had here about some potential people to bring in.

And we had originally been thinking about providing a privacy update from Claire Barrett but my sense of the conversation was that you are taking that off of your investigation list, so I am scratching now off the notes here.

MR. CRONIN: Yes. And one of the things I thought I heard the committee say was when we talk about deployment, it is also about the auto industry deployment. So, the question is, do you ask is it the global automakers, or the Auto Alliance, or do you ask Steve, or one of the automakers, or one of the tier 1 suppliers to come in and talk about deployment into the vehicle platform, not just infrastructure deployment.

MR. MCCORMICK: Or maybe somebody from the Alliance, which would give sort of a non-company-specific view. And they are in D.C., so that would be convenient for them.

MR. GLASSCOCK: So, this is Stephen Glasscock. So, I think I will suggest that I will work with Steve Kenner and Sheryl, and Ken and we will get together a list of speakers that we think will be of interest. And then we will circulate that to the group to make sure that is who you want to hear from and then we will make arrangements for those folks to speak to us in February.
Does that sound like a plan?

VICE CHAIRMAN WILKERSON: Right. Can I ask a question? Who was the other person who said that they had also participated in scenario planning exercises? Was it Bob?

MR. GLASSCOCK: Yes, Bob Denaro.

MR. DENARO: It was me, Bob Denaro. I am sure Steve Kenner has, haven't you?

VICE CHAIRMAN WILKERSON: Yes, I just wanted to have a list to know that we kind of -- the group to maybe discuss how that might work.

MR. DENARO: Yes, that's fine. I would be glad to do that.

CHAIRMAN KENNER: And then the other thing, not only do we want to determine who we would want to have come talk to us but we need to fit it into an agenda that then progresses our understanding and sort of helps us to focus on the areas that we want to address.

MR. GLASSCOCK: Correct. Yes, and it is a two-day meeting. So, I am hoping that you will have some ample time to breakout in subcommittees, if that is what you want to do.

VICE CHAIRMAN WILKERSON: That would be great.

MR. LEONARD: I think the committee needs to think about how much time they want to spend ingesting information from speakers versus deliberating it either as a committee as a whole or in subgroups.

MR. GLASSCOCK: Right. We don't want to dominate your time.

VICE CHAIRMAN WILKERSON: Right. Do you have any -- I know you will probably get into this. Do you have any idea about the time frame for this meeting? We have the dates.

MR. GLASSCOCK: Yes, it will start at probably 8:00 a.m. on the fourth and adjourn 4:00
p.m. on the fifth.

VICE CHAIRMAN WILKERSON: Okay.

MR. GLASSCOCK: So, 8:00 to 5:00 or 8:00 to 4:00 on the first day and 8:00 to 4:00 the second.

VICE CHAIRMAN WILKERSON: Okay.

MR. GLASSCOCK: Or it if flexible. Whatever you want to do.

VICE CHAIRMAN WILKERSON: Okay, great.

CHAIRMAN KENNER: Yes, so I was planning on traveling in on the Tuesday afternoon or whatever. And then probably not leaving until Thursday night.

MR. GLASSCOCK: Yes. So, for those who are new to the committee, we met in this facility previously and it is very conducive. There are rooms that you can break out into some private conversations. It is a nice meeting facility. So, I think you will enjoy the availability of all the different things that we can do there.

VICE CHAIRMAN WILKERSON: Okay, 8:00 to 4:00, Wednesday the fourth and Thursday the fifth?

MR. GLASSCOCK: Yes.

CHAIRMAN KENNER: Yes.

VICE CHAIRMAN WILKERSON: Okay.

MR. GLASSCOCK: Go ahead, Ken.

MR. LEONARD: Well, I don't know if the committee has more business they have to conduct. I wanted to share one bit of news out of the JPO before we adjourn. And it is with mixed emotions that I am going to share that John Augustine is moving from the JPO to the Office
of Policy. He is going to be working with the TIGER Grants Team. He is getting a promotion into the Senior Executive Service. And so while we are incredibly happy for John, we are going to miss him because he has really been an incredible contributor to the JPO and everything we do here.

So, John, do you want to just mention anything about the organization that you are moving to?

MR. AUGUSTINE: Sure and thanks, Ken, for those kind words.

And I would just like to say thank you to the committee. It has been great working with you and trying to incorporate the guidance we get to make the research more effective. I have really learned a lot from dealing with this committee. So, thank you, personally.

As Ken mentioned, I will be moving still within the Department to the Office of the Secretary Policy Group and it is the Office of Infrastructure, Finance, and Innovation. And as Ken said, it is the main workload there is the administration of the TIGER Grant Program.

So, like I said, I have repeated often I am moving offices but I am not moving away. I still look forward to working with folks in the future. I am sure paths will continue to cross. And it has been an honor and a privilege to support the program and I hope to be able to continue to support it in my new capacity.

VICE CHAIRMAN WILKERSON: Congratulations.

MR. AUGUSTINE: Thanks, Sheryl.

SUMMARY AND ADJOURN

CHAIRMAN KENNER: Well, I think if there is nothing else, although, Sheryl, and Ken, and Stephen, we will try and hopefully set something up so that we can pull the summary together.
But other than that, I think this concludes the business. I want to wish each and every one of you a Merry Christmas and a Happy New Year. Hopefully, you will be able to spend some relaxing with friends and family and then be ready to come back energized in the New Year.

(Whereupon, the above-entitled matter went off the record at 4:45 p.m.)