Meeting of the
ITS Program Advisory Committee Meeting
April 7, 2010

Meeting Minutes

April 7, 2010

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1. General

a. A meeting of the Intelligent Transportation Systems (ITS) Program Advisory Committee (ITSPAC) was held on April 7, 2010, in the Oklahoma Room of the U.S. DOT Conference Center at 1200 New Jersey Ave., SE, Washington, DC, 20590.

b. These minutes provide a summary of the meeting proceedings. These minutes, the meeting transcript, and other meeting documents are available for public inspection and downloading/copying in the ITSPAC Website: http://www.its.dot.gov/itspac/index.htm.

2. Meeting Participants

a. ITSPAC members, in alphabetical order:

Mr. Steve Albert; Director, Western Transportation Institute
Mr. Scott Belcher; President & CEO, ITS America
Mr. Joe Calabrese; Director, Greater Cleveland Regional Transit Authority
Ms. Robin Chase; Founder & CEO, Meadow Networks
Mr. Robert Denaro; Vice President, NAVTEQ Corporation (Committee Vice Chairman)
Mr. Adam Drobot; Chief Technology Officer & President of Advanced Technology Solutions, Telcordia
Ms. Ann Flemer; Deputy Executive Director, Policy; Metropolitan Transportation Commission; Oakland, California
Dr. Genevieve Giuliano; Senior Associate Dean for Research and Technology, USC School of Policy, Planning, and Development
Mr. Randell Iwasaki, Executive Director, Contra Costa Transportation Authority (by teleconference)
Mr. Peter Kissinger; President and CEO, AAA Foundation for Traffic Safety
Mr. Jack Lettiere; President, Jack Lettiere Consulting
Mr. Bryan Mistele; CEO, INRIX
Mr. Don Ostenberg; Senior Vice President, Safety and Driver Training, Schneider National, Inc.
Ms. Janette Sadik-Khan; Commissioner, New York City Department of Transportation
Mr. Kirk Steudle; Director, Michigan Department of Transportation
Dr. Joseph Sussman; JR East Professor, Department of Civil and Environmental Engineering and Engineering Systems Division; Massachusetts Institute of Technology (ITSPAC Committee Chairman)
Dr. Peter Sweatman; Director, University of Michigan Transportation Research Institute
Mr. Gary Toth; Senior Director, Transportation Initiatives; Project for Public Spaces
Mr. Pravin Varaiya; Nortel Networks Distinguished Professor, Department of Electrical Engineering and Computer Sciences; University of California, Berkeley
Mr. James Vondale; Director, Automotive Safety Office, Sustainability, Environmental and Safety Engineering; Ford Motor Company

b. Others present, in alphabetical order:

Mr. Sam Alibrahim; Federal Railroad Administration, U.S. DOT
Mr. Peter H. Appel; Administrator, Research and Innovative Technology Administration, U.S. Department of Transportation (U.S. DOT)
Mr. John Augustine; Deputy Director, ITS Joint Program Office, Research and Innovative Technology Administration, U.S. DOT
Dr. Robert L. Bertini; Deputy Administrator, Research and Innovative Technology Administration, U.S. DOT
Ms. Valerie Briggs; ITS Joint Program Office, Research and Innovative Technology Administration, U.S. DOT
Mr. Brian Cronin; ITS Joint Program Office, Research and Innovative Technology Administration, U.S. DOT
Ms. Linda Dodge; ITS Joint Program Office, Research and Innovative Technology Administration, U.S. DOT
Mr. Walton Fehr; ITS Joint Program Office, Research and Innovative Technology Administration, U.S. DOT
Mr. Bob Ferlis; Federal Highway Administration, U.S. DOT
Mr. Stephen Glasscock; Program Coordinator, ITS Joint Program Office, Research and Innovative Technology Administration, U.S. DOT (ITSPAC Designated Federal Official)
Mr. Mac Lister; ITS Joint Program Office, Research and Innovative Technology Administration, U.S. DOT
Mr. Ben McKeever; ITS Joint Program Office, Research and Innovative Technology Administration, U.S. DOT
Mr. Andy Palanisamy; Citizant, Inc.
Ms. Marcia Pincus; ITS Joint Program Office, Research and Innovative Technology Administration, U.S. DOT
Mr. James Pol; ITS Joint Program Office, Research and Innovative Technology Administration, U.S. DOT
Mr. Tom Rippinger; Motor and Equipment Manufacturers Association
Mr. Steven Sill; ITS Joint Program Office, Research and Innovative Technology Administration, U.S. DOT
Mr. Jeffrey Spencer; Federal Transit Administration, U.S. DOT
Dr. Curtis Tomkins; Research and Innovative Technology Administration, U.S. DOT
Mr. Carlos R. Vélez; Jr.; Citizant, Inc.
Mr. Gregory Winfree; Research and Innovative Technology Administration, U.S. DOT

3. Meeting Action Items

a. The JPO will coordinate to have modal administration representatives brief their ITS activities at the next ITSPAC meeting.

b. Three subcommittees will develop several-page issue papers providing input to be integrated into the committee's advice memorandum to the Secretary. The issue paper topics and subcommittee chairpersons are listed below. The committee chairpersons may

call on other committee members to help prepare the papers. The papers will be submitted to Dr. Sussman on a date to be published by him.

Subcommittee Topic	Subcommittee Chairperson
Environment	Mr. Denaro
Open platforms/standards	Ms. Chase
Policy/government role	Dr. Giuliano

4. Meeting Agenda

a. Welcoming Remarks by the Research and Innovative Technology Administration (RITA) Deputy Administrator
b. Opening Remarks by ITSPAC Committee Chairman
c. Advisory Committee Members' Interest Areas
d. Welcoming Remarks by the RITA Administrator
e. Evolution of IntelliDrive[SM]
f. ITS Strategic Research Plan, 2010-2014
g. ITS Professional Capacity Building Program/University Transportation Centers Engagement
h. Applications for the Environment: Real-Time Information Synthesis (AERIS) Program
i. ITS America Annual Meeting
j. Committee Governance – Staying Connected
k. Adjournment

5. Summary of Proceedings

a. Welcoming Remarks by the RITA Deputy Administrator, Dr. Robert Bertini

Dr. Sussman, the Committee Chairman, opened the meeting at 8:05 a.m., and introduced himself as the chairman of the Intelligent Transportation Systems (ITS) Program Advisory Committee (ITSPAC). He stated that the current committee membership included only seven of the original 20 members, so the committee has 13 new members. Dr. Sussman turned the meeting over to Dr. Bertini for his welcoming comments.

Following are highlights of **Dr. Bertini's** welcoming remarks.

- **Dr. Bertini** welcomed the committee members, emphasizing that they were appointed to the important ITSPAC by the Secretary of Transportation.
- This is the first advisory committee convened within RITA since both he and Peter Appel, the RITA Administrator, have been at the U.S. Department of Transportation (U.S. DOT). Although there is one other advisory committee within RITA, the ITSPAC is the first RITA federal advisory committee, which should be an indication of the importance of the ITS Program at U.S. DOT. The ITS Program has strong support from the Secretary and all U.S. DOT modal administrations.

- The U.S. DOT looks to the ITSPAC to represent not only themselves, but also other stakeholders who are important to the success of any transportation program or project.
- Committee members should not hesitate to make recommendations. The Department wants and needs to hear from them. The Department implemented recommendations made by the previous committee members and intends to continue in this manner.

b. Opening Remarks by ITSPAC Committee Chairman, Dr. Joseph Sussman

Dr. Sussman thanked Dr. Bertini, and stated that Mr. Appel would present his welcome remarks upon his arrival. Dr. Sussman's remarks included the following major points:

- The ITSPAC has a rather broad charter, which the committee has tried to interpret in a broad fashion. The committee's charter states that the ITSPAC should act solely in an advisory capacity, so it has no executive power, but its scope includes the study, development, and implementation of ITS. The committee is not constrained to comment only on the ITS research program. Questions on how the ITS Program should develop and how the work of the JPO and U.S. DOT should relate to what is going on externally certainly are within the committee's charter.
- In general, ITS is a leading-edge thought leader for transportation. When considering ITS in a microcosm, you have advanced technologies that we are trying to use in effective ways. There are concerns about issues such as sustainability; that is, through the mobility component to try to generate economic growth and through technologies to try to create a cleaner environment, less impact on the environment, and social equity – the famous "three Es" of sustainability. As you look at what ITS tries to do in areas such as congestion charging and road pricing as a means of advancing innovative ways to deal with the institutional changes that have to be part and parcel of any strong technology push, I have always viewed ITS as trying to be a thought leader, trying to shape and structure what all of DOT is doing.
- After each of the previous ITSPAC meetings, the committee produced an advice memorandum. Bob Denaro, the committee Vice Chairman, and I developed the first draft, which then was distributed to other committee members for comment before developing the final memorandum that was forwarded to the Secretary. We believe, as Rob Bertini suggested, that the advice memoranda have been taken quite seriously by U.S. DOT. For example, in the committee's first advice memorandum there was some "low-hanging fruit" the committee addressed because the ITS research program made no mention of the environment. The committee's argument was that in this day and age, having a major program of this sort without concerns for environmental impact was absurd. The committee was gratified to see the environment quickly added to the list of ITS Program goals, together with some related research programs. So there is a sense that if the committee has good ideas and articulates them well, U.S. DOT will respond. Although the ITSPAC is only advisory in an official sense, the membership

includes "heavy hitters" whose opinions are valued throughout the world of transportation, and the ITS world in particular.

- In its second advisory memorandum, the ITSPAC specifically addressed an additional ITS Program goal concerning accessibility to the information that is created by ITS across society. Here, the committee was concerned about issues like the so-called "digital divide" – that society's "have" and "have-nots" perhaps are further disadvantaged by not having the ability to access information that is being generated; therefore, are we creating, in a sense, an inequitable and, hence, an unsustainable system? Dr. Sussman requested that the ITSPAC be informed of the status of its recommendation that an "equity" goal be added to the four existing ITS Program goals.
- During past ITSPAC meetings, a significant amount of time was dedicated to U.S. DOT presentations on ITS Program activities. To a degree, this was necessary because the committee has some statutory responsibilities to comment on particular research programs. However, Dr. Sussman requested that the current and future meetings allow more time for open discussion.

c. Advisory Committee Members' Interest Areas

Dr. Sussman requested that each committee member take five minutes to address the following topics:

- Their individual background and focus in ITS.
- The most compelling ITS need in the U.S.
- Gaps in the U.S. DOT ITS Program.
- How can ITSPAC members be most productive in their roles on the committee?
- How can the ITSPAC measure success?

Following are highlights of committee members' presentations.

Mr. Albert:

- I have been involved in ITS for 25-30 years in Houston as a consultant, in Washington, DC, and now as Director of the Montana State University's Western Transportation Institute, where I focus on rural ITS.
- Regarding the digital divide, one of the major issues is the assumption that there will be a migratory path from urban to rural areas; however, rural areas do not have power – do not have communication – do not have ubiquitous coverage.
- The ITSPAC role should be to not only provide a reality check of the ITS Program, but also to represent "local" stakeholders beyond State DOTs; e.g., tribes, public lands, national parks, etc., that are predominantly in rural settings where technology is important, but where transportation many times is not what brings people together. In rural areas, transportation and technology are primarily about providing economic stimulus and development, employment, and improved quality of life.

- If there are topics that committee members feel strongly about, it may make sense, to make the most effective use of the committee's time, to form subcommittees to consider those topics and to report back to the broader committee.

Mr. Calabrese:

- I have 30-plus years in public transit on both the public and private sides.
- My primary interest on the committee is making public transit more attractive to more people in terms of addressing convenience, environmental concerns, air quality concerns, energy independence, etc. Transit must be more convenient, not only for current customers, but also for the next generation. Transit customers want more real-time and better information at their fingertips.
- Another of my major areas of concern and emphasis is safety. There currently is much discussion about Positive Train Control and similar systems/technologies due to some major, unfortunate accidents that have occurred nationwide, but these technologies could really slow down our system. So the challenge is to increase transit safety without losing productivity now and in the future. This could be a major focus of the committee.
- My main focus on the committee is to ensure that transit is not "left in the dust."

Mr. Drobot:

- My background is in telecommunications.
- The communications infrastructure that we have in the U.S. and around the world is much more expansive now than it was 10 to 15 years ago. For example, in 1995 the penetration of wireless in the U.S. was somewhere around 5 percent. Today, an average person has more than one cell phone.
- Current communications infrastructure technologies support what used to be considered special purpose applications, so everything from law enforcement, to transportation, to health care are likely to run on the same system. Considering this trend in technology development, the ITSPAC should take a hard look at potential solutions for integrating transportation sub-systems.

Dr. Giuliano:

- My degree is in social science, and my area of research is in transportation policy and planning.
- Since the days when the ITS Program was known as the Intelligent Vehicle-Highway System program, the program has "come back to earth" and now seems to have objectives that are much more feasible. At the same time, ITS technology has caught up to some of the ideas that were developed the 1990s.

  The meeting read-ahead materials did not make reference to the great deal of available technology that can provide transportation solutions, and that the important questions are who in the transportation community is implementing that technology; and, if they are not implementing it, why not?

- An issue with public transit is the inability to take advantage of technology. Most of the problems are institutional. They are about organizations – the internal structures of organizations – and they are about labor issues. They are about all kinds of things that are not technology, so identifying implementation solutions and implementation barriers is very important.
- In terms of opportunities, public transit is potentially a huge benefactor of technology because we have the technology to implement seamless transportation. Future generations of travelers have that expectation. Transit customers need to have as much information about the transportation system and their options on and off the system as they have about other aspects of their lives. This is doable and is a huge opportunity that should be emphasized by the ITSPAC.
- There are tremendous applications in ITS in older-driver safety. Although there was a great deal of information about safety in the meeting read-ahead materials, there was not much that specifically addressed older drivers.
- In terms of challenges, we live in a highly fragmented political, policy, and operational world, so the issue about interoperability and standards is going to become bigger rather than smaller because of where decisions are made. It will become more difficult to have common policies, so this is a big challenge that the committee should be paying attention to.
- There is also the challenge of how to work with markets. It is very difficult to move things forward if you are moving against markets. The ITS Program should consider the demand side, but that was not reflected in the read-ahead materials. Finally, the ITS Program should have strong emphasis on effectiveness evaluation. At the end of the day, what exactly was accomplished?

Mr. Osterberg:

- I am in charge of safety, security, driver training, and regulatory compliance for Schneider National, Inc. trucking company, and am a retired Army Infantry officer.
- We are shaped by the sum of our experiences. During the first day of the Desert Storm war, 18 soldiers were killed by "friendly" fire essentially because the Army had done nothing to implement research or leverage available technologies that might have prevented those deaths. At Schneider National, whenever a driver is killed in a crash, I request to attend the driver's funeral, and I have found that family members want to believe that someone in my company, my industry or, even more broadly, the transportation community will have learned something from their tragic loss. So my experience has created in me a passion and an obligation to try to be a catalyst to drive fundamental changes that will improve public safety.
- I know how transportation executives make decisions, and I know what paralyzes that decision-making process. I know that in order for research to be relevant, it has to enable better decision-making. The research is plentiful and the technologies are there, and the bridge, in my view, is that decision-making.

- I will try to provide a perspective in terms of what we need to do to enable better decision-making to get penetration and proliferation of technologies so we can actually have a material effect on improving public safety.

Mr. Steudle:

- I have been Director of the Michigan Department of Transportation for five years and have been involved with the Michigan ITS program for eight years.
- As an implementer, I believe research is nice, but I want to know how we implement it. My focus is the identification of stable technologies and how they can be deployed through agencies, whether they are transit, road, or some other agency?
- Safety is a primary driver in the ITS world. I do believe we can have a significant reduction in roadway and transit fatalities. However, I believe that ITS is also about providing information to people. For ITS to stay relevant, it must provide the public the information they want or somebody else will, and it may not be what we would like it to be.
- ITS program success should be measured by what is implemented. ITSPAC success should be measures by how the committee's recommendations or discussions and thoughts are taken into consideration.

Mr. Toth:

- I worked for 34 years at the New Jersey Department of Transportation planning, prioritizing, scoping projects, and delivering projects.
- I believe that the transportation establishment has "lost its way." We have lost our focus on community and society and goals – bridges and pavement and intersections have become more important.
- At the Project for Public Spaces I am continuing to try to work to help the industry understand that the transportation system has to be community-based. It cannot be pavement management-based or bridge-based.
- One of the most compelling ITS needs is to overcome the resistance to ITS inside the industry. Many people in the practice at State DOTs are just not interested. The political processes that direct and shape State DOTs, MPOs, and others are oblivious to ITS.
- In terms of a gap in the ITS Program, U.S, DOT, the Federal Highway Administration (FHWA), and the Federal Transit Administration (FTA) should become more aggressive in program implementation. For years there has been only guidance and a little encouragement. Way too little ITS is being deployed, and, if it is going to change, U.S. DOT must become more aggressive.

Mr. Vondale:

- I have been with Ford Motor Company almost 29 years, the last 10 years as Director of the Automotive Safety Office with global responsibility for dealing with safety at Ford. I have been working on ITS issues for quite some time

through Ford, and then through the Alliance of Vehicle Manufacturers, which brings together most of the major vehicle manufacturers. We have also formed what is known as the VIIC, which is a group of vehicle manufacturers working together with DOT on policy issues.

- Based on my background, I have a real focus on safety, but am very supportive of the broad ITS agenda.
- In terms of compelling ITS needs, the list is pretty long, but a recent example is the Toyota situation, with the public being bombarded daily with criticism and concerns about electronic controls. If we cannot get such things as electronic throttle controls right, how are we going to get something much more complex right? So I think we really have to understand where the public is going to be on all of this.
- Gaps are similar to the needs. One gap has to do with the policy side of ITS. There has been a tremendous focus on technology, but policy issues are going to be more challenging than technology. Just to list a few policy issues: privacy, liability, patent, intellectual property, data ownership, who will enforce DSRC standards, certification of DSRC safety devices, who will operate the certificate authority, and how will individual vehicles be able to communicate with the certificate authority. There has been a lot of discussion and some work on these policy issues, but I think we really have to have a clear plan for policy issues, just as we have a plan for technology.
- Another gap is the hand-off from research to implementation. I believe that fleet implementation phase-ins to gently deploy technology into the marketplace are a good thing. Obviously, just like other safety features, standardization should be completed as quickly as possible, but given the costs and given the challenges that we have in the technology, I believe that is going to be something we need to focus on.
- From a vehicle manufacturer's perspective, we should focus on 5.9 GHz, and we believe that standardization is extremely important. However, it has been related to me that a lot of States are implementing ITS-related technologies that may be inconsistent with 5.9 GHtz. And I think there are lots of reasons why that is.
- Some thought should be given to how quickly we can move to standardization. Maybe the Federal government, when it grants funds to States, should put some strings on how that money is to be spent.
- Another issue is globalization. The rest of the world has moved to European standards or European-based standards. I believe that it is very important that our research and standards be developed globally. To a vehicle manufacturer that produces and sells vehicles globally, it is of critical importance that we have global standards and a global reach of what we are doing here.

Mr. Varaiya:

- I am a professor of electrical engineering at Berkeley. My involvement is principally on the telecom side and started almost 20 years ago with participation in the national ITS architecture effort. Currently, my project is on active traffic management.

- I believe that the field lacks research, and that transportation research is extremely underfunded. You can see this in transportation research or transportation programs in academia. Most transportation students in engineering do not have the foggiest notion of what technology is or what ITS is. We can see the lack of research it in the ITS Program. When comparing IntelliDrive and the focus on DSRC with what is happening in telecom outside of ITS, you realize that IntelliDrive is now 10 years behind the times. The band is 5.9, but otherwise it is nothing new. In the meantime, you can see what has happened in the private sector with cell phones and PDAs (personal digital assistants) about the information that is available, which is far more than ever will be available with DSRC.
- When the ITS Program was initiated 10 years ago, it was a very, very good idea, but by now it is really been outstripped by technological developments elsewhere. One disconnect from a research viewpoint is that there is virtually nobody from the telecom area participating in these technologies.
- My own observation, working with Caltrans in particular, is that there has been a gradual diminution of funding in the transportation area.
- Silicon Valley is ahead of academia, and transportation is 20, 30, 40 years behind, even when compared with other countries.

Dr. Sweatman:

- I am Director of the Transportation Institute at the University of Michigan. My previous experience in my home country of Australia was in freight innovation.
- I believe one problem in ITS is that we haven not been thinking clearly about what we are trying to achieve long-term and then getting actions aligned with that. For example, between 2006 and 2009 we saw a reduction of about 6,000 fatalities from 43,000 to 37,000, but we do not know why. We know that travel is down. We know that high fuel prices and unemployment have had an impact, and we know the impact is being altered by the fact that various groups are traveling less than others. We are trying to track this at Michigan, but we have to wait for databases to be updated.
- In the future, we are still looking at personal transportation and probably a high degree of autonomy in the transportation system. The freight side needs to be intermodal, a system for which ITS is essential. There is no doubt that personal vehicles will be very different. They will be electrified, a lot lighter, and will be owned very differently.
- Looking at the long-term, safety will be much more than just avoiding risks. We need to get to a situation where we can understand how autonomous vehicles can coexist with human-controlled vehicles in a system. Unless we understand how this is going to happen, we really do not understand how to deploy something like IntelliDrive because IntelliDrive is really one step in this long process ahead of us. Being able to emulate the way humans operate will be an important part of that.
- Once we get IntelliDrive deployed, I think the U.S. DOT ITS Program is very apt in terms of thinking about how the density of deployment will change over time. It is absolutely essential if we are able to measure what is going on. Not only will

IntelliDrive bring about changes in our system out there, but the vehicles themselves are going to change. The drivers and operators will be very different in their attitudes.

- It is essential that we have immediate data to tell us what is going on and that immediate data needs to be in the public sector. So I think that is a huge part of successful deployment of IntelliDrive and then going beyond IntelliDrive into the future.

Ms. Sadik-Khan:

- I am the Commissioner of the New York City Department of Transportation. My background also is at U.S. DOT, where I was Deputy FTA Administrator. I also worked for 10 years at a local engineering firm, and I had the pleasure of serving on the ITS America Board of Directors under Scott Belcher's leadership.
- The focus at the New York City Department of Transportation is really about the safe, efficient, and environmentally sound movement of people and goods. What ITS means for us in New York City is better information and better system management.
- Better information is information that the public can get here and now. And I have to say, there is a lot out there. We do not need to reinvent the wheel on this. In one month, I will have next ferry information out for folks to take ferries in New York City. We will also have NextBus. All of this is out here. We have a lot of technology that is able to be out there, and I think we really need to think about what it is we are prioritizing in terms of what we want to deliver to the American people.
- In managing the system, we really need help on rapid response to emergencies and alleviating congestion.
- We have reduced traffic fatalities to an all-time low of 254. That is still emotionally 254 people that we don not want to see dead, and so far our goal is to cut traffic fatalities by 50 percent, and we are well on our way to doing that. Traffic fatalities are the lowest that they have ever been in 100 years, but we have to do a much better job on driving that down.
- My big problems are speeding off-hours and drunk drivers. I have a problem with men, ages 21 to 39, who don not necessarily start out wanting to drink and drive, but find themselves in that situation. That is 63 percent of my problem, so I believe the compelling need is the ability to address and bring down traffic fatalities.
- I also need to get people around more effectively and efficiently by bus rapid transit. A lot of energy and momentum in this country these days is going to rapid transit. Cities are not going to build their way out of congestion by triple-decking road networks. What they are going to do is prioritize things like transit, particularly bus rapid transit, because it is more cost effective and easier to deploy.
- If we cannot start to talk to the real-time information needs of metropolitan areas, where 80 percent of the American people live and where 75 percent of our GDP is generated, then we are not going to have a really relevant issue.

- Based on the ITS strategic plan that I reviewed in depth, ITS is not a multimodal program. If you read through it, it is IntelliDrive, IntelliDrive, IntelliDrive – not that there are not important things that need to be happening on the safety side.
- I believe that we need to speak to the challenges that cities face, and I assume that that is partly why I am on this committee.
- I also believe we need to have a shared standard format for data, similar to what we see in the EU and Google. That would be a great outcome to share information and reduce fatalities with the one-off applications, and I think the notion of having a mandate to open up the data and to tie the receipt of Federal funds to certain standards in terms of open platforms is a great idea.
- From my perspective, we really need to focus on having a program that is practical and relevant. We are not going to be able to sell ITS unless people can see what it means in their daily lives.

Mr. Lettiere:

- I spent 32 years at the New Jersey Department of Transportation. I ran the agency from 2002 to 2006. I was chairman of New Jersey Transit and was honored to be AASHTO president in 2005. My background is in the automotive industry.
- I was around when VII was first discussed and was at some of the early meetings. I am very frustrated because the transition from research to implementation is taking an extraordinary amount of time, and some would argue that it still has not been implemented. If ITS were a product that Ford were selling, there would be a concentrated effort in dedicating the necessary resources to get the job done.
- The goal throughout the ITS Strategic Research Plan is safety, and to me that kind of whitewashes a very big social issue. We have got to stop killing people. If this were sufficiently important, the ITS Program would not be spread out in all of the agencies and departments. There would be a concentrated effort to get this done. Technologies exist. Technological problems can be addressed and solved.
- What we have not concentrated on is providing users of ITS with value. What am I getting? What are you giving me? Why is there not the integration of how systems operate using ITS?
- The next generation of air traffic control is going to begin to be developed in New Jersey. Why is that technology not being looked at by folks on the highway side or the transit side? I do not even like to talk about it in terms of modes because those technologies can easily be diffused into all the modes working together. The fact of it is that the silos still remain.
- I believe we have to concentrate on providing users with value in terms of time. Why does anyone have to sit at a traffic signal at 10 o'clock at night when no one is coming across the highway? This is where technology can be important. I believe this is what is missing. We have all of this knowledge and all this technology, but from a social aspect, we are not getting value from it.
- We do have a lot of challenges, and I could be most productive if you need a group of people to try to get a program put together to get something built, Sometimes we in the United States grind things to a real fine powder, and we have to have all of the issues worked out, but sometimes the best way to get them

worked out is to start building. I believe the American people and industry are not being paid a good service by our delay.

Ms. Flemer:

- I am Deputy Director for Operations and Policy at the Metropolitan Transportation Commission, which is a planning organization for 7 million people in the San Francisco metro area.
- We got in the business of ITS about 15 years ago because nobody else was looking at how technology could help us implement a better and more comprehensive set of solutions for the Bay Area.
- Our biggest challenge has been to find a way to communicate to the Bay Area public and transportation agencies the fact that investing in communications, data collection, and all of those other good things that technology allows us to do is worth as much as expanding the capacity of our roadways, expanding and filling potholes, and all of the other investments that are important and that are on a day-to-day basis the major competition for technology in the Bay Area.
- One of the things that I believe is really important is how to organize ourselves within metro areas to deliver in a comprehensive way the information that people need to better implement their daily travel decisions.
- As has already been stated, there is a great amount of data available today. Where we are really failing is in not being able to bring that technology into one place so people can use it and by interfering with the public's access to data by taking too long to develop solutions; for example, we have been developing our traveler information system for over 15 years. That is shameful in the Bay Area where we have technology. Google just leaped right past us with respect to travel information.
- I think the equity question also is important. ITS cannot be valuable only to those who can afford access. When we talk about moving into electronic payment systems and into ways and mechanisms to allow people to make choices based on economic decisions, we have to give attention to what is really important, which is to ensure everybody can take advantage of the technology. When we move to a smart card technology for transit, we are relying on the banking industry to help us collect fares, collect tolls, etc., but we cannot assume that everybody has equal access to banking. So that is another technology piece that I think we should include in our agenda.

Ms. Chase:

- I represent the innovation entrepreneurship side. I was founder of Zipcar and GoLoco, which is an online ride sharing company, and I have done a lot of work thinking about how to use technology in cars, wireless connectivity, and impediments to innovation in the transportation sector.
- The ITS Strategic Research Plan talks about cars and roadside infrastructure, but I believe it should be broader to include devices and wireless and wired infrastructure, and communications infrastructure.

- Web applications are developing very quickly because we now have the platforms on which to build those applications. I believe that is where this committee and U.S. DOT's efforts need to focus – on building the platforms for people to develop ITS applications.
- I have talked to many people who are innovating in the transportation sector, and not one of them is using DSRC and not one of them wants to deal with that sector because it is a little, tiny set-aside that is complicated and annoying. So they are uninterested, and we have shaped that realm.
- We need to open up all the data we have, because when there is open data, innovators will want to get involved. We need to have an open in-vehicle platform that takes the data from the car, which needs to be more open, and brings us up to the Internet. As with iPhone applications, vehicles could have a thousand Web applications. But today every innovator has to be a vehicle and a communications engineer to build these hard things. We need to get beyond that.
- The ITS Strategic Research Plan refers numerous times to Web applications. I believe we should forget the applications. Provide the open platforms and we will see innovation come pouring in, which is what we have seen with Google Maps, the iPhone, and the Internet.
- I second Janette Sadik-Khan's comment that the ITS Strategic Research Plan is not a multimodal proposal. It says 63 percent is multimodal research, but when you look through the criteria, it is not multimodal. It is cars, cars, cars. We have been a heavily car-dependent society, but we know that we will categorically be moving to less car dependence, and that is where the largest gaps lie.
- The biggest issue for me is the integration of ITS into the rest of the technology world. If we stop thinking of ITS as a set-aside and join the rest of the technology wireless mobile world, I think we will see a rapid update.
- My last thought is that I am thrilled that we did not build VII and spend trillions of dollars at it because it was the wrong, closed proprietary set-aside path. All of the closed, proprietary, single-purpose efforts are now a thing of the past.

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Mr. Belcher:

- All-around deployment is critical and an area we must continue to move forward on. There is a lot of technology available, but deploying it and marketing it to cities and states is a real challenge.
- ITS America spends a lot of time marketing new deployments. I was in Houston yesterday talking about a new cutting-edge hurricane evacuation program that they built it in three months with $75,000. It is state-of-the art and the kind of thing that other States and cities will replicate.
- We were in Portland, Oregon talking with a program where they have been actually retired 153,000 cubic tons of CO2 emissions through synchronizing 17 arterial traffic light areas. That is an important thing, and I think it is an important role to figure out how to continue to do that.
- Part of the challenge is how do we go from ad hoc deployments to the broader, systemic deployments that then drive the open platforms and the need for shared data.

- The vast majority of transit systems, highway systems, and data systems nationwide are closed. The data is not being made available to the public so that entrepreneurs can create new applications. So when you go to a place like New York or Portland where they are actually putting this data out there, that is where you are seeing these new applications. That is where you are seeing things happen. So the ITSPAC should promote open data.
- I believe IntelliDrive has a very important role to play, and U.S. DOT has done a good job over the last two years in refining and focusing that role. So I think that if the ITSPAC can help U.S. DOT keep its eye on that mission, I think that is a good role for the committee.

Mr. Denaro:

- In terms of background and focus on ITS, I think you know about my company, NAVTEQ, digital maps and content services. You probably know about some of our data like turn restrictions, signage, address ranges, and traffic flow. You probably do not know about some developing technologies, such as LiDAR in high resolution imagery; real-time cell phone probe data; precise curvature and slope information using sophisticated mathematics; work on data from high-grade, weapons-grade inertial measurement units in vehicles; etc. So there is a lot of new data for all of us to deal with.
- For the most compelling ITS need in the U.S. I like the safety, mobility, and environment sustainability areas. We worked hard in our previous committee activity to introduce the idea of environment, which was conspicuously missing, but also to increase the focus on safety. I do not think we can emphasize one of these over the other. I think all three are essential pillars of what we are doing and need to be in there.
- As far as gaps in the ITS Program, I think we are missing the integration of on-vehicle technology and the sensors that are on-vehicle. Radar sensors, LiDAR and video sensors, these kinds of things are coming out on the vehicle, which will play a huge role in reducing accidents and making driving a better experience. Although this integration is in the private sector and not a government responsibility, the government does need to make sure that we have a coherent system-wide solution so we are not duplicating, conflicting, etc. So I believe there should be more integration of those kinds of concepts and working for more synergy.
- For the committee to be most productive, we should ask ourselves, what will our successors say in 10 years that we missed? We need to figure that out and make sure that is not going to happen.
- In terms of measuring success, I believe metrics are crucial to what we are doing. Everyone has been talking about deployment and implementation. I believe we have to measure how we are doing that. We have to measure results. I am a big believer in both my company and here in accountability; I find this a big problem not only in the government, but also in my own company. We often forget to ask why we did not achieve either on-time or on-budget or performance goals. So I believe "accountability" is a big word.

d. Welcoming remarks by the RITA Deputy Administrator, Peter Appel

Following are highlights of **Mr. Appel's** welcoming remarks.

- ITSPAC committee members were selected to ensure U.S. DOT hears from a wide variety of perspectives. We specifically sought people who would challenge the status quo and the way the Department is doing business because if we are trying to achieve transformational change in transportation, then we cannot just "fill the room" with people who are going to be cheerleaders for what the Department is doing. Committee members must be willing to talk about the issues, the hurdles, and the problems of following a particular path because if the Department learns about committee members' perspectives early, rather than late, we can deal with them and integrate those perspectives in ongoing work.
- So far, I believe we have achieved the desired range of perspectives among the committee members. I am extremely optimistic about the dialogue in the months and years to come, and that the committee is going to keep challenging us, that it will continue to bring the different perspectives of the industry, the public sector, safety advocates, and commerce advocates together in what we are doing.
- A little bit about my background. I have been at RITA for about 11 months and in the transportation field for about 23 years. I started out in aviation and aviation scheduling and optimization, and then I moved into the railroad industry and worked in rail pricing. I then came to the FAA (Federal Aviation Administration) and did a lot in aviation and aviation safety. Then I went into management consulting, and in my first year there I worked in the trucking industry, the rail industry, ocean container shipping, airline, and infrastructure.
- I have seen a lot of people that care about different parts of transportation. I care about transportation as a way of figuring out how to get a person or an item from point A to point B in the best way possible. Optimizing that network in transportation is something that I care very, very deeply about, and looking at things from a cross-modal perspective is critical to doing that. So I love the cross-modal flavor of this discussion.
- One thing I have been doing in my time at U.S. DOT, both when I was in the FAA in the 1990s and now, is shifting a lot of my personal focus toward safety. Safety is the number one priority of the Department.
- We have a number of strategic priorities: safety, livability, environmental sustainability, economic competitiveness, and state of the repair of our infrastructure. What I love about the ITS Program is that it can help us achieve all five of those objectives at the same time, and so many of the initiatives that many of you have talked about can advance safety, can advance livable communities, environmental sustainability, etc., through common platforms and common ways of approaching the problem.
- Having listed those five initiatives, I will make clear again that within the U.S. DOT, safety is first and foremost among those priorities. So they are priorities, but they are not equal priorities because safety is what we tend to put our focus on

in the broader scheme of things, while at the same time addressing the other priorities.

- Many good comments have been made in this room about the great things that are already happening in ITS, and that there is so much that is already out there – data and applications that are being developed by Google and others that are advancing ITS. But U.S. DOT has a role to fill gaps in the ITS Program areas that do not necessarily get picked up by the free market in the way that a lot of the Google applications come out.
- Although traffic fatalities have gone from 41,000 to 34,000 in the past several years, 34,000 people killed on the roadways still is unacceptable. It is the one statistic, more than any other, that we look at in the Department as what we need to pay attention to, and we need to dramatically improve it. When close to 100 people are killed on our roadways daily, we have to look at every tool in our tool kit to address it.
- The role of ITS in the reduction in traffic fatalities has much to do with the wonderful progress we have made in the last 50 or so years in innovations in the automotive industry to protect vehicle occupants, whether it be seatbelts, air bags, etc., and innovations in transportation developments and roadways and the like.
- Many of these innovations still assume that vehicles are going to crash into each other, but when I look at the safety side of ITS, I look at how can ITS help to prevent vehicles from crashing into each other. That part of ITS, i.e., helping prevent vehicles from crashing into each other is one of the hardest possible things you can do in ITS and about the most important thing to me you can do with ITS.
- I know that there are tremendous applications in ITS that cross all of those strategic goals I talked about, but the safety goal is one that I will always personally come back to – making sure that this Department and the overall Federal transportation community is putting the resources to make sure that we advance safety.
- I look at the tremendous expertise that you all bring to the table, and I certainly appreciate what you are all bringing to the table in helping us achieve not only that safety goal, but also the other U.S. DOT goals as well. So thanks and I look forward to participating with you.

e. U.S. DOT Governance

Following are highlights of **Dr. Bertini's** presentation on U.S. DOT governance.

- Shelley Row, Director of the ITS JPO, is on a leave of absence. We are indebted to her for bringing the ITS Program to this point. Peter and I very strongly supported her request for a leave of absence for this year because we know she is coming back, and we also know that the program is headed in a good direction, thanks to the hard work of many people, the staff, our colleagues around the different modes within the Department of Transportation, and our stakeholders.
- Because of my background in developing a multimodal transportation data archive in Oregon, working closely with the Oregon DOT and the Portland transit

agency, I think I bring a bit of a passion for ITS and for transportation data and for openness and transparency and performance metrics. Hopefully, as the Acting Director of the JPO over this coming year, I can bring some of my own passions to the program and work with all of you and the staff and all of our stakeholders to move the program forward.

- The ITS Program within U.S. DOT is governed by the cross-modal ITS Management council, with the Deputy Secretary, John Porcari, serving as chairman. The council approved the ITS strategic Research Plan that you have seen. The Management Council membership includes the administrators of the surface transportation modes (the Federal Highway Administration (FHWA), the Federal Railroad Administration (FRA), the Federal Transit Administration (FTA), the National Highway Traffic Safety Administration (NHTSA), and the Federal Motor Carrier Safety Administration (FMCSA)), one non-surface administration (the Maritime Administration (MARAD)), and the Assistant Secretary for Policy.
- Although RITA is a modal administration, we do not focus on one specific mode. Like the Office of the Secretary, we are cross-modal, which explains why the ITS Program resides within RITA. So ITS is not a program focused specifically on highways or on pipelines or something else, but a program that links the modes together. People and goods do not necessarily care what mode they are on. They are trying to get from point A to point B. They also do not care what jurisdiction they are in. The lines on a map do not show up on the ground. So I think we have the luxury at RITA to focus on the cross-modal movement of people as opposed to strictly the movement of vehicles or containers.
- RITA has six program areas: the Bureau of Transportation Statistics (BTS); the ITS JPO; the Office of Research, Development, and Technology (RD&T); the Office of Positioning, Navigation, and Timing (PNT); the Volpe National Transportation Systems Center in Cambridge, Massachusetts; and the Transportation Safety Institute in Oklahoma City.
- The ITS Program has linkages across RITA as well as across U.S. DOT. With BTS focusing on transportation data, we have a natural connection to BTS as a home for some of the ITS data. We are really emphasizing transparency in everything that we do. The data that come out of our field tests and our research will be available for other researchers to access. We have linkages with the RD&T office that focuses on coordinating research across the U.S. DOT beyond ITS. RD&T has formed 14 research clusters across the U.S. DOT, and one of those covers ITS. Of course, we have a natural connection to the PNT office because location is such an important component of what we do in managing the transportation system.
- With NextGen (Next Generation Air Transportation System) we have some new partnerships with the Federal Railroad Administration and with MARAD this year. It is pretty apparent that NextGen has a natural relationship with what is happening on the surface because people use surface modes to access airports and the aviation system. So we cannot be moving forward separately. In fact, I think we have a meeting in the coming week or so with the Joint Planning and Development Office (JPDO) that is implementing NextGen. The White House

and the Secretary are very interested in moving NextGen forward. We want to tag along with them, seeing how we can collaborate. So all of your comments are appreciated.

- Another interest of mine is implementing good ideas. After all "innovative" is RITA's middle name, and innovation means implementing good ideas. So we have good ideas that are on the shelf. We have research. Our role is to help implement these good ideas, and I was pleased to hear that many of you mentioned that.
- Mac Lister is going to be talking about strengthening the connections with our university transportation centers. The University Transportation Centers (UTC) program resides within the RD&T office. ITS Workforce development and linking to educational programs so that we have a workforce for the transportation industry of tomorrow is an incredibly important part of what we do at RITA.
- Finally, I suggest that the committee think about its own sustainability, as we think about sustainability in transportation. What we do not want to do is let this committee lapse again, so I would encourage us to be vigilant that a two-year term is fairly short, given the lead time that it takes to renew the committee. I would encourage that you keep this in mind as you form agendas for future meetings.

Dr. Sussman: We learned one day that we did not have a committee anymore because it had never been reinitiated, and by that time, we had a new President, a new structure with a new set of players, and it took longer to reconstitute the committee than it normally would. But we took advantage of that to build in many areas with 13 new members and 7 continuing members.

Dr. Bertini: I forgot to mention that last summer we initiated development of a RITA fellows program to encourage more cross-pollination within RITA and the U.S. DOT, and from academia. The Federal government has a program called the Intergovernmental Personnel Act Mobility Program (IPA), which allows us to bring in an employee of another public agency through an IPA agreement, with RITA paying that employee's salary. We are about to finalize, we hope, an IPA with a preeminent State DOT employee to work with us for a year to support IntelliDrive, thereby providing us a State DOT and State government perspective. This individual hopefully would take some of the U.S. DOT perspective back to his or her State. We also are working within U.S. DOT through another mechanism to detail staff members from other modes into RITA to bring their particular program area perspectives.

Dr. Drobot asked how RITA interacts with and takes advantage of other U.S. government overlapping research programs? Dr. Bertini and Mr. Appel responded that there are a number of venues for RITA to coordinate across the Federal government. For example, RITA was deeply connected to the development of the national broadband plan through its policy office. Additionally, both Dr. Bertini and Mr. Appel participate in the National Science and Technology Council, which has a number of subcommittees. Mr. Augustine added that the JPO recently had some dialogue with the Defense Advanced Research Projects Agency (DARPA) and the Tank-Automotive Research, Development, and Engineering Center (TARDEC) to investigate collaboration opportunities.

Information on these types of ongoing activities was not presented to the ITSPAC so as not to "bombard" the members with too much material.

Ms. Sadik-Khan commented that the Volpe Center is an extraordinary resource for the U.S. DOT and asked if there is an opportunity to use Volpe to test ITS technologies, as this would be a good way to move forward quickly on ITS. Mr. Appel responded that the Volpe Center is the only U.S. DOT organization working on three very important departmental programs: the ITS Program, NextGen, and the Federal Railroad Administration's (FRA) positive train control program. Mr. Appel added that the Volpe Center is an ITS Program service provider and is conducting testing and evaluation of a number of ITS activities. Ms. Sadik-Khan stated that one way to make ITS "tangible" to the American people is to use Washington, DC as the venue for a "national model" to demonstrate ITS technologies with Volpe assistance. Mr. Appel responded that U.S. DOT is looking at how to conduct a significant demonstration of ITS across-the-board capabilities – safety, mobility, environmental – in a concentrated environment with a significant number of vehicles across a significant number of modes that are talking to one another using ITS technologies. Volpe possibly could be involved, but regardless of Volpe involvement, it is important to have very visible ITS test and demonstration projects.

Dr. Giuliano asked to know more about the committee advisory process, e.g., does committee advice go only to the RITA Administrator, what does RITA do with the advice, what would RITA like to achieve from the advice, etc.? Mr. Augustine responded that the ITS legislation requires that U.S. DOT formally respond to all ITSPAC recommendations. The Secretary annually reports to Congress any recommendations received from the ITSPAC and the U.S. DOT response to those recommendations.

Mr. Vondale commented that, although the ITSPAC membership is quite diverse in ideas, perspectives, and backgrounds, there was not as much diversity evident among the other meeting participants. For example, he was surprised there was not a NHTSA representative at the meeting, since NHTSA is very involved in active safety. Mr. Vondale added that although U.S. DOT would be communicating with NHTSA and other agencies concerning issues raised during ITSPAC meetings, it would be better to have these government representatives with different backgrounds participate in the meetings. Mr. Appel responded that NHTSA is incredibly critical to the ITS Program, so Mr. Vondale's point that they should be in the room is a "point taken."

Dr. Sussman stated that he has always been a bit puzzled about the relationship between JPO ITS activities and the more broad U.S. DOT ITS activities – how these related activities are coordinated. Mr. Appel responded that JPO program is the bulk of ITS activity across the Department and is very cross-cutting and cross-modal in nature. The modal administrations, particularly NHTSA, undertake ITS-related research that is funded separately from that of the JPO. However, the modal research in conducted in concert with the JPO, and there is very, very active communication. Any modal administration can launch research in a topic area for which there might already be a

cross-cutting program, but the good news is that RITA is, indeed, talking to them. Other modal research provides a supplement to the broader ITS Program from a perspective much more directly focused on that mode's specific areas of interest.

Ms. Sadik-Khan asked if it were possible to get information other modal research. **Mr. Augustine** responded that the JPO would be happy to have representatives of the other modal administrations with which the JPO is working present a little bit of their own specific views at the next ITSPAC meeting.

Dr. Sussman stated that the committee interprets its charge broadly, seeing itself as not only an ITS committee, but also a transportation committee that is able to provide advice on issues both within and outside the ITS Program. **Dr. Bertini** replied that the only requirement is that the committee provide advice to the Secretary through the JPO, but that the advice could be as broad as the committee desires.

Mr. Osterberg remarked that although NHTSA crash or safety ratings exist for automobiles, there is no relative standard against which to measure truck safety. He has advocated for a truck safety rating, not dissimilar to the crash rating, that would provide an incentive to the OEMs (Original Equipment Manufacturers) to install safety technologies that would result in safer trucks and commercial vehicles. Mr. Osterberg added that this is an example of where NHTSA can begin to help to accelerate the proliferation of safety technologies; i.e., by creating a standard that might result in healthy competition among OEMs to build safer vehicles.

In response to Mr. Osterberg's and Dr. Sussman's comments, **Mr. Appel** stated that the Secretary established the U.S. DOT Safety Council six months ago. This was the result of meetings of the leadership of all the modal administrations to discuss, assess, and advance safety across the Department. These meetings generated very good dialogue about how to transfer best practices of safety culture and management in organizations such as the FAA and FRA to an organization such as the FTA. The Secretary has made it clear that the Department will eliminate any barriers to the sharing of successes and working toward shared goals.

Mr. Sweatman asked how the work of the ITSPAC relates to the U.S. DOT's strategic plan, adding that the committee should have a "longer" view than just IntelliDrive, so who is responsible for the longer-term ITS strategy beyond IntelliDrive? **Mr. Appel** responded that the U.S. DOT strategic plan is being finalized and soon will be released. Also, the new RD&T strategic plan is in development and will be aligned with the U.S. DOT strategic plan. Mr. Appel stated that development of the RD&T strategic plan should reflect Mr. Sweatman's view that U.S. DOT strategy should have a longer-term view beyond IntelliDrive.

Mr. Varaiya stated that the ITS Program suffers from insufficient resources and that there may be opportunities for leveraging to compensate for the limited ITS Program resources. For example, the DARPA Grand Challenge for autonomous driving leveraged resources from automobile companies, academia, etc. Perhaps there is an opportunity to

join with DARPA in, for example, a challenge for a vehicle that does not crash to leverage the creativity of auto manufacturers and other domains, as opposed to funneling limited ITS funds to one company or another. The Volpe Center demonstrations and tests that Ms. Sadik-Khan referred to would be very costly, but one could leverage cities and private companies to catalyze their efforts, as opposed to providing the primary funding.

Dr. Sussman stated that Secretary LaHood's outlook on research is quite refreshing and unique in Dr. Sussman's experience and interactions with U.S. DOT over a number of decades. At the recent Transportation Research Board meeting, the Secretary made a special point of highlighting RITA and U.S. DOT research activities as fundamental to the Department's agenda. However, as Dr. Varaiya stated, there are limited resources available for research, so leveraging is certainly appropriate.

Dr. Drobot asked if U.S. DOT monitors what the rest of the world is doing in transportation infrastructure improvements relative to U.S. programs? Dr. Drobot stated that it would be useful for someone to monitor this type of information because it could serve as a benchmark for measuring the performance of U.S. efforts.

f. Evolution of IntelliDrive℠

Mr. Augustine presented a briefing on the evolution of the IntelliDrive Program from the Vehicle Infrastructure Integration (VII) program. Mr. Augustine stated that the VII program vision of dramatic safety improvements, and enhancing efficiency and mobility through wireless connectivity remains the IntelliDrive vision. The VII Proof of Concept proved that the basic technical concept was sound, but there remained questions about whether or not VII could be practically implemented. Mr. Augustine referred to the implementation question in terms of "Three Big Dilemmas": what comes first – vehicles or infrastructure, how do we get adequate penetration in the vehicle fleet to realize benefits, and how do we deploy the infrastructure? Mr. Augustine added that during VII program development there had been an explosion of wireless technology that had not been factored into the original VII plan. These factors required a reassessment of optimal pathways to realize the VII mission, which resulted in adoption of three pathways: safety applications, mobility applications, and environmental applications. Mr. Augustine followed with a description of these application areas and summarized the VII to IntelliDrive evolution as follows:

- The vision remains unchanged.
- New technology developments and research findings provide new pathways for achieving the mission.
- The program still looks at DSRC for the safety-critical elements that require low latency.
- DSRC may or may not be a way to accelerate benefits in after-market products.
- Non-DSRC data is available now for mobility.
- Technical issues remain that could be "game changers."

- DSRC for all uses (safety, mobility, weather, and environment) may converge over time.

g. ITS Strategic Research Plan, 2010 – 2014

Mr. Cronin stated his presentation would be a follow-up to Shelley Row's February 24, 2010, briefing to committee members on the ITS Strategic Research Plan. As such, the briefing would be high-level and intended to allow committee members to discuss or ask questions about elements of the plan. The plan's general framework includes applications, the technology underpinning, and policy and non-technical efforts. Mr. Cronin stated that 75 percent of the plan's $100 million annual budget is allocated to research; and the remaining 25 percent to technology transfer and evaluation, program support, and program contingency. Of the 75 percent research allocation, 63 percent is for multi-modal research, which is the bulk of the IntelliDrive funding. The research program also includes mode-specific and exploratory research. Mr. Cronin then briefed some details of each of the research program elements. In summary, Mr. Cronin stressed that the ITS Strategic Research Plan is very multi-modal.

h. ITS Professional Capacity Building Program/University Transportation Centers Engagement

Mr. Lister introduced Dr. Curtis Tomkins, Director of the University Transportation Centers (UTC) program, who would be able to answer specific questions about that program, and mentioned that there would be an ITS JPO Strategic Research Plan workshop in collaboration with the UTC program on April 28-29, 2010. Mr. Lister then described the major ongoing activities of the revitalized PCB program. Mr. Lister stated that the JPO recently had initiated a PCB strategic planning effort to determine how the PCB program can best support ITS research and whether there are continued support requirements for ITS deployments. The planning effort is looking at the PCB program as a catalyst for the ITS JPO and other partners' and stakeholders' efforts in accomplishing three major objectives: ITS workforce development, technology adoption, and ITS deployment maximization. Mr. Lister stated that the key components of the PCB program's future direction are partnerships with the UTCs, associations, the private sector, and other training providers; new training delivery mechanisms; and technology transfer. Mr. Lister also discussed the role of stakeholder feedback in helping to determine the PCB program's strategic direction. Finally, Mr. Lister discussed details of the April 28-29, 2010, workshop with the UTCs, including the audience, major topics, objectives, and desired outcomes. At Dr. Bertini's request, Dr. Tomkins presented a brief summary of the UTC program.

Dr. Tomkins stated that the UTC program was established in 1987 by Federal legislation, and now includes 60 centers with 125 universities. The UTC mission is to advance U.S. technology and expertise in the many disciplines comprising transportation through the mechanisms of education, research and technology transfer at university-based centers of excellence. The education component includes masters and doctoral research. More and more, the program is emphasizing technology transfer as its

outcomes and impacts. Dr. Tomkins' presentation was followed by a brief question-and-answer period on the PCB and UTC programs.

i. Applications for the Environment: Real-Time Information Synthesis (AERIS) Program

Ms. Pincus presented an overview of the AERIS program. First, she thanked the ITSPAC because the JPO made a commitment to pursue the topic of applications for the environment as a consequence of a committee recommendation. Ms. Pincus stated that the program's research objective is to investigate whether it is possible and feasible to either generate or capture environmentally relevant, real-time transportation data that can be used to create actionable information for system users and operators to make greener choices.

The program's research questions are in three areas: data, information and connectivity, and benefits. With respect to data, the program will be looking at what data is available and its quality and validity. In information/connectivity, the question is how can information be created that people will want to use, and will they find the information useful? The benefit question will look at what cross-modal, public-sector oriented applications/strategies are available or could be available and/or developed, and what are their expected benefits?

The initiative is being conducted along six tracks. Track 1 is the foundational research and will involve a series of state-of-the-practice scans, from a domestic scan, to an international scan, to state-of-the-practice environmental modeling, to state of the practice for innovative evaluation techniques for ITS and the environment, and several others. In track 2, information developed in the foundational research will be used to identify initial candidate strategies and applications, which will be subjected to extensive and rigorous cost/benefit analysis and evaluation in track 3. In track 4, stakeholders will be engaged to conduct a final assessment about where we need to take our research or if we need to continue at all. Tracks 5 and 6 will be conducted throughout the life of the initiative. Track 5 is a policy track and will involve answering questions that arise during the research about socioeconomic, legislative, and regulatory issues. Finally, track 6 will address questions concerning stakeholder engagement and technology transfer. This is a new effort for the JPO because there is no preexisting stakeholder group to deal with and no preexisting way of interacting with that group, even if there were one. Some stakeholder related questions are:

- What might be the role of the ITS Advisory Committee?
- What is the role of ITS America and its membership?

- If we want to convene a panel of experts or environmental people, how do we find them and what would they do?
- How do we engage with stakeholders on a regular basis?
- How do we get access to and work cooperatively with international counterparts?

Finally, **Ms. Pincus** requested ITSPAC help with the AERIS stakeholder engagement. Specifically, the JPO would like ideas on:

- How to leverage and support existing research and activities.
- How to encourage international interest and cooperation.
- How to identify champions, not just stakeholders.
- How to overcome challenges with bringing some stakeholders to the table.

Essentially, the JPO is looking for ideas on how to best identify and engage stakeholders to achieve AERIS research objectives.

Ms. Pincus requested committee comments on her presentation. A major portion of the discussion that followed was generated by Dr. Giuliano's statement that a large amount of research had already been done in the private sector on the transportation system's impact on the environment, and that perhaps more emphasis should be placed on behavioral research to determine how, once people have the right data and choices, do you modify their behavior to make "green" choices. Also, given that a lot of private sector research has been done in this area, the Department should provide more leadership in the deployment of technologies that help people make "green" choices.

j. ITS America Annual Meeting

Mr. Augustine stated that the 2010 ITS America Annual Meeting and Exposition would be held May 3 through 5 in Houston, Texas. There will be a U.S. DOT panel session on Tuesday. Mr. Appel will moderate this panel session, and Mr. Bertini will represent RITA. Following the panel session, modal administrators are invited to a lunch, VIP tour of the exhibit hall, and a viewing of the Transtar facility. ITSPAC members attending the annual meeting are invited to participate in these activities.

Mr. Belcher provided additional details on the annual meeting events and activities.

k. Committee Governance – Staying Connected

Dr. Sussman stated that the final agenda item discussion would be an opportunity for committee members to summarize how they felt about the meeting. For his part, Dr. Sussman stated that he was very impressed by the committee, describing it as a very able and very articulate group of individuals. Dr. Sussman stated that he sees ITS as a microcosm, building from it into more general change in the transportation area, in broader contexts. He sees ITS also reaching out to other industries, other research activities, understanding ITS in a broader context – demographics, the aging society, globalization, the importance of the environment, technological advances, and so on. He added that a systems approach is needed – thinking in a broad inclusive way about complex sociotechnical systems. The notion of transformation and change with ITS as a catalyst is a very important challenge. Dr. Sussman stated that linking all this together are the classic three E's of sustainability – economic development/mobility, environmental protection, and social equity – and, of course, safety as within the general

frame of improvements to society. Dr. Sussman stated that during the morning session he sensed a lot of impatience with the pace at which change is occurring within ITS, and which he anticipated would be addressed in the committee's next advisory memorandum.

Dr. Sussman requested that committee members provide brief comments on "the most important thing [they] heard at this meeting."

Mr. Denaro stated he had two points to add to Dr. Sussman's comments. First, he is pleased with the progress made in the evolution of IntelliDrive and the consideration now being given to more communications networks and other type of solutions. But he believes the JPO should go even farther in terms of broadening the scope to include devices and wired and wireless infrastructure. Mr. Denaro's second point was that the penalty for taking too long to develop technology is obsolete technology, so the ITS Program must be able to create solutions that can adapt to new technology.

Mr. Belcher stated that although the JPO briefings stressed the multi-modal nature of ITS Program elements, neither transit nor freight were addressed in the briefings. Also, there must be greater sensitivity about the rural/urban mix. Rural aspects are not adequately addressed, especially given the number of deaths that occur in rural areas.

Ms. Chase stated that we need to unlock innovation by creating light platforms that can evolve over time because of the pace of things. Also, the issue of equity was not discussed. How can ITS help to develop alternatives to car dependence as the cost of driving increases. **Dr. Sussman** stated that at the second ITSPAC meeting the committee recommended that equity, in terms of accessibility to digital information and things of that nature, be added as a new ITS goal; but, as near as he can tell, the recommendation was systematically ignored by U.S. DOT. **Ms. Chase** stated that she was thinking about economic equity; in other words, the number of people who cannot afford to drive everywhere is already a huge portion of the population, and will become larger when we finally get congestion pricing, road user fees, etc.

Ms. Flemer stated that another issue worthy of emphasis is the government's role in technology development – is it in platforms, in applications, or in standards? The committee should not lose sight of this question because it is the advice the committee is being asked to provide.

Mr. Lettiere agreed with Mr. Varaiya that government ITS research and deployment takes too long. The intelligence and creativity of those in the private sector who are doing this research should be tapped to achieve results in a more compressed time frame. Mr. Lettiere added that there were a lot of questions and concerns from committee members about clarifying aspects of the ITS research program, so if the ITS Program is not clear to the committee members, what might that say about the rest of the transportation industry and other industries that might have some connectivity with ITS in the future. Do they have a clear understanding of what the ITS Program is doing so they can proceed with their own types of development work?

Dr. Sweatman stated that he is concerned about the potential impact of the planned 2013 NHTSA regulatory decision. The nature of that decision will be really important because if is too specific, the potential impact of ITS research on reducing exposure to accidents may be reduced. IntelliDrive must be capable of contributing not only to safety applications, but also to reducing exposure.

Dr. Sweatman stated that he was pleased that the issues he considers most important were well identified and discussed during the meeting. Dr. Sweatman also said that he had seen evidence that the various U.S. DOT modes have been working well together. However, he would like to see more emphasis on ITS Program policy and funding issues, adding that he believes that getting the policy issues right early is a key enabler to smooth implementation. He would like to see more emphasis on the global aspects of ITS. For example, at the next committee meeting it would be interesting to learn how the five-year plans in Europe and Japan compare to the U.S. DOT five-year plan. Are they aligned? Where are they different?

Mr. Toth stated that he thought it was a great meeting and that the committee is off in a very good direction. However, he remains concerned about the framing of the ITS message, i.e., that five years of research may lead to the determination that there is no need for government investment in infrastructure or to operate and manage the infrastructure, and that applications might all be vehicle-to-vehicle and handled in the private sector. Mr. Toth stated that this kind of message will cause most of the transportation establishment to tune out. U.S. DOT should rethink the framing of the ITS message so as not to tune out the very government agencies that are going to have to be prepared to "hit the ground running" in 2015.

Dr. Giuliano stated that her first point may be a semantics problem, that is, although the JPO's intent is that ITS research be multi-modal, it developed the term "IntelliDrive," which might suggest that the program is only about cars. So the term does not well reflect the JPO's intent. Dr. Giuliano also believes that it was not clear how the ITS Program is connected to other U.S. DOT organizations, so she recommended that a future meeting agenda item address the details of how the ITS Program interfaces with other U.S. DOT programs. Dr. Giuliano also stated that the government role in ITS research is a really serious issue, but that JPO briefings only very briefly addressed this role, so she recommended that another future agenda item address this topic in more detail. Finally, Dr. Giuliano stated that she did not hear enough about institutional issues and implementation, and hoped that these topics not get lost because her research experience is that technology is almost never the problem, the committee should spend more time addressing institutional issues and implementation.

Dr. Drobot stated that when you approach a research program or a research agenda, you should have the whole problem in front of you and know what it is, but that he did not see that reflected in the meeting presentations. The ITS Program is complex and is impacted by what Capitol Hill, educational institutions, technology providers, and other industries are doing. The presentations were not clear on how all of this relates to IntelliDrive and what the JPO is doing. Dr. Drobot stated that he liked the articulation of

the three goals of saving lives, sustainment or ecology, and mobility, which are real and very tangible. Dr. Drobot questioned whether there are any telecommunications standards created by the government, adding that there are many standard bodies, but they are not created by governments. Dr. Drobot also stated that he is not aware that the government is really building platforms. Therefore, the challenge to the government is where do you take the resources that you have and focus them so the things that you want to have happen do happen? How do you engage the inventiveness of the public at large and other institutions so you have something that will actually contribute in a very, very real way? Dr. Drobot's final point is that when one considers the impact of the ITS research program on the economy, a $100 million budget just does not seem like enough. So is U.S. DOT leveraging it, or are we just fooling ourselves because the resources are not ever capable of solving the problem we have in front of us? Dr. Drobot stated that he has learned from his government experience that when you have a real problem and you can really articulate it, you will get the resources that it deserves, so we somehow have to think that one through.

Mr. Calabrese stated that early in the meeting he expressed frustration that transit usually is "left in the dust," but was now confident that "we can get up to speed." He added that he believes everyone understands that promoting better and more use of transit is the only way out to address future population and congestion growth, environmental issues, energy, sustainability, etc. Mr. Calabrese stated that he agrees with Dr. Giuliano's comment that the term "IntelliDrive" does not best communicate what the JPO is trying to do and suggested instead the term "IntelliTravel."

Mr. Albert stated that the success of the ITS Program will depend largely on institutional changes within the ITS research community to adapt the technology and information it is being provided, and he did not see sufficient emphasis on this during in the meeting presentations. Otherwise, we are going to be constantly trying to talk about the use of technology with people who only know construction projects. Mr. Albert also stated that, while the committee provided very good input, it was not asked what the ITS Program priorities should be, which might be helpful as a reality check of what the JPO believes the priorities should be.

Dr. Sussman thanked the committee members for their comments and then invited the RITA and JPO staff members present to respond.

Mr. Appel stated that he agrees more than he disagrees with committee members' challenges of many aspects of the ITS Program. He added that he agreed with Mr. Drobot's comment that the government is not building platforms and not developing standards. Instead, the government facilitates standards and platforms; however, you cannot force a standard on a stakeholder community that will not accept it. Therefore, a huge part of the JPO role is to build ties with the stakeholders and a feedback loop to make sure that we can get the stakeholders around a table to make decisions that will contribute to program progress. Mr. Appel stated that one of the more amusing parts of his Senate confirmation hearing was a discussion of rural States versus non-rural States. One senator talked about how you have to look at the unique transportation challenges of

rural States, while another senator stated that some States are more rural than others, so you have to look at the challenges of extreme rural States. Mr. Appel said that he also agreed with committee members who stressed that the ITS system must work in both urban and rural areas, so U.S. DOT must reflect the Nation's different transportation environments. Accordingly, demonstrations and tests should be conducted in both urban and rural areas. Mr. Appel also stated that there are questions about the proper government role in ITS research and about ITS funding, and that RITA is part of the discussion on answering these questions. Finally, Mr. Appel stated that the meeting's dialogue was tremendously helpful to him and to the JPO, and expressed appreciation to the committee members for the time they committed to participating on the committee.

Dr. Bertini thanked committee members for their time, energy, and thoughtfulness in preparing for the meeting. He stated that he too found himself agreeing with many of the committee members' challenges of the ITS Program. He wondered if the committee had a way of staying connected to keep up the energy of their momentum so that the ITS Program will continue to benefit from their feedback in the future. Finally, Dr. Bertini again stated that he appreciated the time and energy it took for the committee members to travel to Washington, DC for the meeting.

Mr. Augustine thanked the committee members for the frank and candid discussion, and stated that he hoped the committee and the JPO could continue to be frank, even on areas of disagreement. He added that the JPO will continue to try to do a better job of communicating what it is doing and bringing the appropriate data and presentations to the committee to help the committee-JPO cooperative relationship to evolve. Mr. Augustine stated that the JPO looks to the committee to provide advice on what is going well, what is not clear, and what needs to be rethought.

Dr. Sussman stated that the process the committee followed in the past in developing its advice memorandum to the Secretary was for he and Mr. Denaro to develop the first draft. During the current meeting, there was discussion of establishing subcommittees to look at particular issues and provide papers on those issues for integration into the advice memorandum. Dr. Sussman moderated a group discussion of proposed subcommittee topics and, based on that discussion, recommended that three, several-page papers be assigned as follows:

Topic	Lead
Environment	Mr. Denaro
Open platforms/standards	Ms. Chase
Policy/government role	Dr. Giuliano

Dr. Sussman stated that he and Mr. Denaro would draft the advice memorandum with the subcommittees' input and then distribute the draft for committee review and consensus on the final document.

Dr. Giuliano asked when the next committee meeting would be held and what would be the committees schedule for the next year. **Dr. Sussman** replied that, in principle, the

committee meets about three times a year, at four-month intervals, so perhaps the next meeting might be in late July or early August, with a subsequent meeting in the fall.

Dr. Sussman asked for any final comments, at which time **Mr. Denaro** stated that he believes the subcommittees should have more than one person. In his particular case, he will be sending out e-mails soliciting help, and then would draft the final document.

Dr. Sussman stated that he was invigorated by the extraordinarily able people around the table and their very effective way of presenting their views, and that he looked forward to the next meeting.

Mr. Spencer, of the Federal Transit Administration, requested to make a couple of comments. First, although economic equity was discussed, there is also technology equity that has to be considered, especially with aging populations. Because ITS is so focused on technology, we have to be cognizant of reaching out to the aging population. Second, 300,000 iPads were not sold just by putting them on shelves – they were marketed. Similarly, the ITS Program should think more like a business in terms of marketing and outreach of ITS, letting people know what the program is doing. Otherwise, the program will never get off the ground.

l. Adjournment

Dr. Sussman thanked Mr. Spencer for his comments and adjourned the meeting at 4:30 p.m.

We hereby certify, to the best of our knowledge, that the foregoing minutes are accurate and complete.

Original Signed
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