TRANSCRIPT

ITS PROGRAM ADVISORY COMMITTEE MEETING

Friday, August 1, 2008

Admiral II-III Conference Room
Courtyard by Marriott Capitol Hill/Navy Yard Hotel
140 L Street, SE
Washington D.C. 20003
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Call to Order

(Convened at 8:05 a.m)

Robert Peter Denaro: We're going to get started. We have a busy day, as you know. First off, Shelley has some things to pass around.

Shelley Row: This is a list of all the Advisory Committee members and their contact information. If you would just double check your information and check it off if it is okay. And if it isn't, if you could correct that, we would appreciate that.

And then, I have something, let me go ahead and pass around. This is the Budget Document I mentioned to you before. Some of these numbers have changed, but this will give you where we started from a few months ago. So, I'll just pass that around.

ITS Program Major Initiatives Updates

Robert Peter Denaro: So, what we have today is walking through the program updates. And, just to remind everyone, we have three questions that we're charged with answering here. And, I guess what we decided yesterday was to jot down your notes. You have some pages at your place
there, one each on the three questions.

The three questions are, are these activities likely to advance the state of the art? Secondly, are the technologies likely to be deployed? And thirdly, are they the appropriate roles for the government and the private sector, and perhaps, academia and so forth in these activities?

And the format will be that we will have the major programs, roughly a half hour total, fifteen minutes of presentation and fifteen minutes of interaction, addressing these questions. Anybody, are there any questions on that?

Dr. Joseph Sussman: So, we want to answer that question for each of the programs?

Robert Peter Denaro: Yes. You have to keep your notes in order there. What I think we will do is, we will collect it all at the end. We will have some level of interaction, but we will be moving pretty fast. What I think we will do is collect them, and Joe and I will kind of sort through and see if we can write some level of summary back to you later. And it, perhaps, will become part of our Advice Memo, following this meeting.

Joseph Averkamp: So, as we're going through each of the presentations, we're going to talk to each of these
questions?

Robert Peter Denaro: To the extent we can. There might be some comments you have.

Joseph Averkamp: On the ones that are clearly going to sunset between now and 2010, what will we do?

Robert Peter Denaro: Do less, right. I mean, but it still might be one we want to address. Alright, so, the first one, I believe, is NG911?

Next Generation 9-1-1

Shelley Row: NG911, and just so you know, I sent an email to the staff, which I hope they got, last night, based on our conversation yesterday. And I've asked them to try to focus some of their remarks on the research results that they have learned to date. So, that they may not necessarily hit all the bullet points on their slides, but they're interspersing their discussion a little bit about the research results.

So, Linda Dodge, who is our Program Manager, is going to talk about NG911, ETO, and then the Rural Safety Initiative will be next, because that's also Linda's lead.

Robert Peter Denaro: Before she starts, on a personal note, I want to thank whoever was responsible for it. And, maybe it was you, Shelley, or just someone in general, but
the gesture in my room was very special, so thank you.

When I checked in, I was amused to see that I had Room 511.

(Laughter)

Shelley Row: Anything we can do. We're on top of it all. And, I'm so relieved, because I had no idea where your room was.

(Laughter)

Linda Dodge: I didn't know there was an opportunity, or I would have tried to tip the bellman to get 911.

So anyway, good morning everyone, I'm Linda Dodge, and it is my pleasure to be the Program Manager for NG911. And this has been a two year project, one that is winding down rapidly. So, we've had twenty-four months of intense work, with regard to the contractual part. We had an additional year prior to that for planning. So, basically, what you're seeing here are the accomplishments this year.

This is a section, or if you will, a segment of the fifty-two deliverables. We had fifty-two deliverables in a twenty-four month period, so it was pretty ambitious. And everything is, currently, on time and on budget. And, it's kind of scary, but we're very happy about that. We are in the process of - we have a short amount of time, so I'll go through this. If you have any questions, I'll be more than
happy to go back.

Where we are right now, we have completed our Proof of Concept testing. We just recently completed the testing at our five POC sites. Those sites not only did the testing, but they also did live demonstrations. And this gave us an opportunity for the jurisdictions to be able to share with the community, not only the community that they serve, such as the public safety community, but also the user community, the public, themselves, as to what the capabilities of Next Generation 911 will be.

And those demonstrations were so successful, in fact, and this, I believe, is one of the outcomes that Shelley would like me to share, is that we started out with a list of requirements, and that list of requirements was pretty demanding. And in fact, that we had a very short period of time to do this test.

And so, because of that, we identified the different populations of the various sites that were being looked at. For example, Rochester, New York has a very high population of hearing impaired individuals. So we felt one of the things we would want to do there would be to test some of the capabilities of the future NG911 system that would most benefit that population, such as videoing and text
messaging, and so on.

That was tested and it was tested successfully. In fact, all of the requirements were met in all of the tests. Because once we started, it became very clear that all the preparation that had been done in advance was done such that all the requirements were successfully then tested in every site, not just the original set that we went out to test.

We were going to test a couple in each, and then we were going to do a system test. Because of the success, we were able to test every requirement at every site, as well as the system.

Yes, Shelly?

Shelley Row: I just wanted to make sure that the Committee was aware of what it was we were testing. NG911 is testing the IP text messaging capabilities, to get that into a PSAP. So, when Linda is talking about testing, they test instant messaging, telematics, voice over IP, text messaging, video, trying to get those kinds of calls into a PSAP, which currently, it's not able to do.

Joseph Averkamp: The one question I had, which is not called out in the Program Summary is, does that include delivery of location data? One of the big shortcomings in
the voice over IP Systems is that they don't include delivery of address or location data.

Linda Dodge: Yes. I apologize. I shouldn't assume that everyone read the preparation material, because I don’t always do that, myself, and I apologize. But yes, Next Generation 911 is certainly an advance over what we currently use. It will allow us to, in the future, make a 911 call from any device with which we can communicate.

So for instance, if currently wish to communicate via your laptop, and you need to contact 911, you will be able to do so, and, we will be able to find you, assuming that you have your GPS locator turned on. Any other questions about the original purpose of the Next Generation 911 Initiative?

Dr. Joseph Sussman: Linda, do you consider any of the privacy issues inherent in this kind of technology? Of course we want to locate people, but there are some privacy considerations, as well?

Linda Dodge: Of course, there are privacy considerations, and I think it varies, depending on your situation. If you want to be under the screen, so to speak, and have no one know where your location is, certainly that is your prerogative; however, when you have
an emergency, most people do want to be found.

And, at what point in time do you turn on that device so that your G.O. locator is active? And, that's something that, I think, the further we go with this, and standards are developed that address those type of privacy issues, the public will become much more comfortable with that. But again, that is something that is going to come through the standards process.

Joseph Averkamp: With the wireless industry, the way it does work is, you can turn off your locator for any kind of commercial application, but you cannot turn it off for PSAP. That is one call that will always be deliberate.

Michael Replogle: You can't turn it off for what?

Joseph Averkamp: Patching to a public safety answering phone. So, when you're calling 911, your location will be tracked. So, when you turn off the G.O. locator function on your phone, and that is true for any commercial application, you can't be found. But it will be passed - the GPS function on a phone will be passed to the operator - the 911 operator.

Dr. Joseph Sussman: So, that's inherent in the hardware?

Joseph Averkamp: It is a function of - that's the way
all the wireless carriers have gone, and it's been very thoroughly vetted by the CTIA and the wireless industry, as far as that being an acceptable process.

Linda Dodge: And, Next Generation 911 actually built on our wireless E911 – WE911 Initiative. Is there anything else I can address now?

Robert Peter Denaro: Linda, where does this go next, then?

Linda Dodge: Thank you, I'll just go on with my presentation. The way it's going to go from now is to tell about some of the accomplishments. And I wanted to touch on the fact that we have, basically, two major research accomplishments, if you will, in addition to all of the accomplishments we did as a part of the Initiative.

Our research outcomes have allowed technical and political advancements. With the technical, basically, we have started a dialogue among the industry. Rather than having multiple agencies and entities discussing which way they were going to go with Next Generation 911, the leadership of DOT has allowed them all to come together. We have encouraged the stakeholders to come together and work with us on this. And, one of the things we did with the federal stakeholders, and state and local
industries, was we brought everyone together to say, basically, "Here's what we need. We need your input so that everyone's on board. How can we best address this issue?" And in fact, DOT has been praised in numerous environments, in areas we have never felt welcome before. And, it has been very successful for DOT.

Now, where it goes in the future; at the close of this Initiative, it's going to transition to the National 911 Office. And another outcome of this is, basically, that the recognition DOT got allowed them to be one of the forerunners at being selected for the National 911 Office.

And because of the commitment toward this, NTIA and the EMS Office with the National Highway Traffic Safety Administration will be housing the National 911 Office. So, everything we've learned, all of the information with regard to the architecture and the transition plan, will transition to the National 911 Office.

Tomiji Sugimoto: Is there any opportunity to have the (inaudible).

Linda Dodge: We have had the Emergency Medical Services providers and we have Emergency Medical Physicians involved. We allow anyone and everyone to participate, and encourage that. We work very closely with
those entities.

Now remember, with Next Generation 911, what we're doing is getting the call from the public to the PSAP. That's the segment we're dealing with now. Now, this technology, obviously, will help the further distribution of those calls. And one thing that will be accomplished from this, also, is the fact that we will have a reliable redundant system.

So, in the case of another Katrina, or whatever, where the PSAPs no longer can receive calls and provide response for it, those calls will be transferred to another PSAP that take care of those calls. So, that's another thing the system has provided for.

Shelley Row: One thing the Committee should be aware of on this project is, what this research did was to develop a new architecture for, basically, all different types of calls going into a PSAP. It is based on IP.

The current system is an old analog system, so what we did was to develop the new architecture, we tested it in five locations, and they got tremendous press. And so, we have all of that material now that could be used by a PSAP to migrate into that new environment.

But, there are no funds for that, so they have to
choose to do it, they to choose the deployment, it's at a local level. So that the big lift would be now, how do they get the money? How do they make the investment and take what we did as research, and actually implement it?

The National 911 Office and NHTSA have some grant programs that they are going to be administering which will be able to help them. So it will keep going - that initiative will keep going through them, but that is the ultimate endgame, is to get this deployed at the PSAP level.

Joseph Averkamp: So, one of the observations I would make, and I think this gets to our second question about barriers to deployment is that, there are about four thousand PSAPs out there. And, I know one of the challenges has been in the wireless industry, is getting them funds to upgrade their facilities. And so, we don't have a specific plan for funding them. There is some grant money, you say?

Shelley Row: The National 911 Office has a grant program.

Linda Dodge: The 2004 E911 Act that was passed by Congress, it was the last bill signed in 2004, and basically provides the structure for funding for that type
of activity. It hasn't been funded yet.

Joseph Averkamp: Is there a mechanism by which, because in the wireless industry there's actually fifty cents added to every phone bill that creates a pool of money, and as a PSAP, you can apply for it. Do we have any such mechanism like that?

Linda Dodge: Funding is going to be a major concern as we move from the analog system and the current funding base on hard line and cable connection toward whatever surcharge is being assessed. That is something being discussed within the industry, and with the provider agencies, as well, as to how we will be able to fund that in the future to maintain that service?

Scott Belcher: Joe, is there a business model for funding that?

Joseph Averkamp: Well, there is. There has been, and the telephone industry deals with this all the time with universal service fees, and they also had the E-911 tax that has been applied. So, I was just curious. It's very useful work and we need to move it to the next generation, where we can support all sorts of delivery methods for it. But, the challenge we always have is that the PSAPs don't have the money to upgrade their equipment. So, if
you were an operator in Dubuque, Iowa, it didn't matter how advanced the state of the art was, they were not able to afford it.

Linda Dodge: It goes back to the 1972 EMS Act and how 911 was originally funded, which was based on your billing, you know, whatever your service was, that you had for your phone. Eventually they said, "Well, we've got to be able to pay for this," and they did the surcharge. And eventually it went to E9-1-1, and now we're in a system where people are moving away from those hard line phones, but we still have the cost of maintaining the system. In fact, the conversion is probably going to be more costly than what we're dealing with now. So, the industry is looking at alternatives.

Dr. Kenneth Button: On this particular project, your finite agreement is not really to deal with, I mean, that is, I think that is an important point, whether you deliver something which is useful for the next stage. As far as I understand, this is more a technology project, rather than a political, administrative project, for getting the thing into the system.

Linda Dodge: That's true, but it did have major political implications, in that it allowed people to come
together and start talking, and actually to cooperate in areas where, in the past, they haven't cooperated because they were busy trying to determine how they could move.

Dr. Kenneth Button: But, that's more of a side effect.

Linda Dodge: Exactly, it is.

Dr. Kenneth Button: Side effects are often useful to note.

Linda Dodge: It is, especially, I think, in this area, because what we're also doing at the close of this is, is we're doing a spec sheet, which will help the local jurisdictions say, "Here's what we need," so that they can best price out what they're going to need, and help them go to the local jurisdictions. And then the competition begins among the providers and carries.

Dr. Adrian Lund: I think it's important to note, in terms of what this Committee is discussing, that this side effect is a key question for us, and that is how this is going to be deployed, nationally. And, one of the barriers, as I understand it, what we're saying here is that this program has demonstrated the feasibility of the technology that seems to have passed with flying colors in all the states. But now, it's simply handed over, "Here it
is," and it's up to five thousand PSAPs—

Linda Dodge: Six thousand, actually, but who's counting?

(Laughter)

Dr. Adrian Lund: To individually take it up?

Linda Dodge: Yes; however, we do have that National 911 Office that will take the Transition Plan. And, in fact, Congress has required them to prepare a Transition Plan. Well, the Next Generation 911 Initiative has already provided that Transition Plan, so they're ahead of the game.

So, they'll be able to provide the Transition Plan and Recommendations for how this can be accomplished. And then, whether Congress sees fit to add additional funding or not, or opportunities for them to be more of a catalyst in this, then we're hopeful. Because the National Highway Traffic Safety Administration is able to be a partner in this. And, while we funded it, they were very aggressive in helping us get this done, and delivering the final product.

Dr. Joseph Sussman: We will be hearing more speakers, so I'm trying to get some of the notation down pat. You say no new FY'09 funds are anticipated, yet there is work
that is going to be done in 2009?

Linda Dodge: There is work that's going to be done, and it's based on a contract that was a twenty-four month contract. That contract does not close out until December 31, so that funding has already been committed. So, while we're not asking for new funding for FY'09, there will be some work being completed in 2009, based on funding we already had in 2008.

Dr. Joseph Sussman: Final reports?

Linda Dodge: Final reports, the spec sheet that I mentioned and things of that nature.

Dr. Joseph Sussman: So, the money carries over?

Linda Dodge: Yes, it does. It is on the contract. So, once all of those tasks are completed, then the contract will close out with the final report.

Robert Peter Denaro: I was going to say, this is one of the efforts that, since it was done, we probably spent less time on it. I encourage us to move on now; however, I think we've identified the barriers, and so forth. Are there any last comments from the Committee. Any questions?

Linda Dodge: But, it is an exciting topic, I've got to say.

Robert Peter Denaro: Yes, it's an important one, for
Sure.

**Emergency Transportation Operations**

Linda Dodge: Emergency Transportation Operations.

This initiative was not as focused as the National 911 Initiative. Basically, it represented approximately thirteen projects that, while weren’t specifically connected, were very complimentary to one another.

So, as we worked through those over the last three years, funding was expended down, as you notice, the last obligated $350,000.00 this year. And this will close out the ETO, as well. And with that, we had a lot of research results, and a couple that I'll share with you, because I think since we just went from NG911, you'll appreciate this.

We completed a camera phone project which was a collaborative venture between Virginia and Maryland, and the State Police, and the DOTs. And what we were finding out, and I'm sure that you all have sat in congestion from time to time and wondered what was going on why the tow trucks weren't moving, and why the tow trucks are sitting on the side of the road?

And part of the time, it's because it's the wrong equipment. And the reason it's the wrong equipment is
because we count on individuals who are calling it in, to provide us with that information. And, without a visual, that information, certainly, it's like the game of "gossip." You don't always get the information you need. And a perfect example was, on Route 66, and those of you who travel through Northern Virginia are probably very familiar with that area. On one particular day, an individual called in and said, "There's a truck overturned." And basically, the information came out, "It's pretty much a pick-up with a small load of dirt on it,"

And an hour and a half later, they were still getting the equipment there that they needed, because it was a major earth-moving dump truck and they needed a loader, they needed a sweeper, and they needed a dump truck to load it into. And so, everyone, all of us in this room, were sitting there, for an additional hour and a half, without an alternate route because we didn't have that information. So, that increases the risk to the rescuer, the first responder, maybe to the truck driver, and also to us who were sitting in that queue.

So, the camera phone, essentially, was a project that we funded, through the University of Maryland, to manage
the project. And, we outfitted the tow truck drivers with
the best technology, you know, the greatest phones out
there. And they came in with better phones than we had -
very technosmart. But, we did outfit the jurisdictions of
the State Police that were going to be active in that
particular project.

The arriving State Trooper would take a picture of the
crash scene and go on about his business of making sure
that he could secure the scene, making sure it was safe for
everyone. And in the meantime, the image was going back,
was dispatched and being forwarded either directly to - it
could go directly to the tow truck drivers, or could be
forwarded to the State Police dispatch, to the tow truck
drivers, depending on how the state was going to work it.

So, the drivers could see the particular problem and
could assess whether they needed a HAZMAT crew, whether
they needed some type of a liquid transfer mechanism, or
did they just need a small tow truck? That was successful.
The report was just completed and will be presented at World
Congress.

Scott Belcher: Linda, did the information also go to
the Traffic Management Center?

Linda Dodge: It's available to go to the Traffic
Management Center through DOT, because that was one of the partners. So basically, you have the state control, you have the towing industry, and you have the Virginia and Maryland DOTs.

Scott Belcher: Okay, thank you.

Linda Dodge: It depended on the area it was in, whether it went through major TMC, or not.

Scott Belcher: Right.

Robert Peter Denaro: You've said tow truck drivers had cameras with them, and police had cameras? Was it both of them?

Linda Dodge: Yes. The tow truck drivers only used it if they needed to request additional equipment and show what they have for the most part. They all had camera phones.

Robert Peter Denaro: So first, the officer would try to identify to the tow truck driver, then when he got there he could change his mind and take another picture?

Linda Dodge: That's right. This was kind of a precursor to see whether this was reasonable for all public safety. We wanted to take a particular discipline that we felt was a smaller population, if you will, because each of the states has contracts with the particular and had a way
of managing that tow response.

And so, we felt this would be a good way to test it, and it worked. There were a couple of delays. We lost of couple of project managers, and so it was about six months late being delivered, but we were very happy with the product that we got.

Robert Peter Denaro: I just got a fancy new phone, and I didn't know it had a camera until we came. And I think I know how to take a picture, but I definitely don't know how to send it to anybody. Was there a training implication here, too?

Linda Dodge: There was. There was actually.

Joseph Averkamp: You need a fifteen-year-old.

(A bit of laughter)

Linda Dodge: Kaplan, working with our technical consultants, developed a training program for the respective State Police, as well as for the tow truck drivers.

Robert Peter Denaro: This would be a deployment issue, as well, if it would be done on a wide-scale basis. First of all, to achieve commonality of devices is, perhaps, a challenge, I would think. And secondly, the training issue.
Linda Dodge: Well, the commonality wasn't an issue. The reason we looked at that was, we wanted to know which particular cameras could broadcast the best, not camera selection, but which phones had the best broadcast for that particular area that we were testing, depending on who the carrier was. And so, we pre-tested the phones and the carriers to make sure we had a carrier and phone that was compatible.

Robert Peter Denaro: But that's my point. To do that on a nationwide basis, then, there's a lot of compatibility testing, locally, and all of that.

Linda Dodge: Well, I would suspect that a lot of the public safety officers already have cell phones. You're seeing a lot more officers using cell phones, and you're seeing them used more than you're seeing them using the hand held, and I would imagine that a lot of them have cameras.

And so, if they're purchasing that equipment, in that jurisdiction, then they know whether that works, or not. The wouldn't be deploying phones for the use of their patrols that they couldn't broadcast with.

Robert Peter Denaro: Well, you're buying them for voice communications for sure. Whether or not that system
is good for transmitting pictures is, maybe, another story.

Joseph Averkamp: Usually, you have to buy a data plan, right?

Linda Dodge: That's true; however, the first thing is being able to make the connection with the cell phone, and then, it's also determining the sophistication of that phone. And so, there are about three things that they would be doing. But, that would be a local jurisdictional issue.

Shelley Row: One thing to be aware of on this project, Linda's giving you one example of—

Linda Dodge: There were thirteen projects so, again, Shelly's afraid we're getting bogged down, and I understand. But I wanted to share that, and also—

Dr. Adrian Lund: It seems justified.

(A bit of laughter)

Shelley Row: There's so much to talk about.

Linda Dodge: That was one of the accomplishments beyond what we show up here. So again, that is just giving us the opportunity to reduce the congestion and make everything safer, and have a more rapid incident clearance.

With regard to the other projects, as I said, there were thirteen. Oh, thank you, Shelley. One thing that
came out of this – we had some foundation documents that a lot of this research developed from. And along with that, we had research that was specific to ETO, and we also had related research and publications.

So, you will be receiving, in addition to our handy, dandy NG911 help book, you will also be receiving a copy of the CD that was recently published, that has a lot of the ETO research results on it. It's kind of one-stop shopping for a lot of our users.

Are there any questions about the ETO?

Dr. Joseph Sussman: I would mention that Linda and I were at a meeting where the hope was it would be useful to the emergency operations and the medical application. And it turned out to be very interesting to the medical profession, to have a photograph of the accidents before the patient gets transported to the ER. The surgeons and the responders can apparently learn quite a bit by seeing how smashed up the car was.

Linda Dodge: Not only how smashed up, but also direction of injury. Having been a paramedic in the field for a long time, I know it makes a big difference if you've been T-boned and the rotation of the skull, and the brain within the skull, versus if you've been hit head on. So
the physicians are more readily understanding of the type
of injury they are looking at, and can more rapidly
intervene and hopefully provide the appropriate treatment.

Joseph Averkamp: When is this program set to end?

Linda Dodge: It's ending as we speak. The
initiative, itself, closed out last December. This
initiative was in cooperation with, as NG911 was, our model
partner, NHTSA. This particular initiative was with the
Operations Office of Federal Highway Administration
Emergency Transportation Office. So, we worked very
closely on all of these projects.

And that particular CD was even further enriched with
some of the documents that were relevant, that came from
the Operations Program. It's certainly supplemented, but
it is identified. When you go through it, you'll see where
they came from.

Robert Peter Denaro: Was there a distribution of this
CD?

Linda Dodge: The CD had a huge distribution. We have
a stakeholder list of about two thousand. They went
through that particular list. They're going to major
conferences, such as ITE, to World Congress, to the
communications conferences, and also to our regional
offices, and to state division offices, and so on. It's a huge distribution.

Robert Peter Denaro: Any other questions from the Committee?

Shelley Row: Just so you know, if this is useful to you, with NG911, the total program cost us about six million dollars over about two years. Linda Dodge: Since you brought that up, Shelley, we started out in the early years of talking about NG911, thinking it was going to cost us about eleven million dollars, and because of the pace of the industry, and because of the support of the industry, we were able to curtail the cost to drastically a much smaller amount. Shelley Row: And, ETO was about 5.9 million over a couple of years?

Linda Dodge: Over three years, yes. Robert Peter Denaro: Okay. Linda Dodge: Any other questions on ETO? (No response)

Linda Dodge: Moving on. Am I in my time frame?

Robert Peter Denaro: You're doing great.

Rural Safety

Linda Dodge: Now, the Rural Safety Initiative. This
is something where an innovation program - this is a little new. I think you all have been briefed on this in the past, but just to provide an update.

Dr. Joseph Sussman: Are we out of order?

Shelley Row: There is no - this project has not started yet. It's still in the selection phase, so looking at the red, yellow, green, there's no red, yellow, or green report on this program, because there's nothing to report on yet, because nothing has been selected.

Linda Dodge: And, we're just getting ready to finish that process. So, basically, the Deputy Secretary determined that we were doing a lot for the urban areas, with regard to congestion initiatives, but the rural areas certainly had some issues, as well.

And a lot of the problems they were having were with regard to the big holidays each year, with running off the road, lack of ability to navigate curves and rural intersections, and so on. So he asked to put together a work group which is multi-modal, in try to determine among the members how we could best fund some of the issues.

The Office of Federal Highway Administration, Office of Safety, and the IBBSS Program Office and RITA, combined forces and put together a grant program, or an award
program, depending on the amount of money we each could bring to the table. They will be administered by each of the particular offices, separately, but we're working together to be able to maximize the resources.

So essentially, what we're looking at with the IBBSS Program is, a six million dollar block of money which will include evaluation, as well as technical management of the program. We're hopeful we'll be able to put 5.4 million out on the street in the rural areas, and we're moving along very well in that.

It was a multiple-phase process. Basically, we didn't want to overburden the rural areas with a huge application, to begin with. And so, it was basically, kind of a very brief Application of Interest. If you had the money, how much would you need, what would be your target area, and, oh, by the way, you're going to have to provide us data. And by the way, our criteria is going to be set on, basically, what is the risk? What are we going to be able to do? How many lives do you think we'll be able to save? What are your basic problems, and what funding will be required for us to mitigate those issues?

So originally, we had thirty proposals. The Federal Register hit the street in February. We had a deadline of
May 12 for the initial "We wanted to be counted," saying, "We're interested. Here's our initial information."

One thing they had to do was, they had to come together with a partnership. So, in other words, Four Corners, Colorado, USA couldn't just come in with a proposal and say, "Here we are. We're stand alone. We're going to do this." We wanted to know who they were going to work with, other partners within the community, and would they have the support of the state to make sure this could be a successful application, and they would have what they needed?

Robert Peter Denaro: Linda, could you give us a feel for the scope of the application? Did you specify in the proposal, what kind of things you were interested in?

Linda Dodge: For Phase I, our total?

Robert Peter Denaro: Well, for these proposals?

Linda Dodge: Well, the initial proposal was, just basically, almost a Letter of Interest.

Joseph Averkamp: What does it have to do?

Linda Dodge: It has to identify what the problem is, where is the problem located, what roadway? Is this really a rural area? We wanted to make sure it was rural, and not an urban or a near urban area.
Robert Peter Denaro: In general this problem would be defined as a safety problem, the cause of severe injury, or fatality? What was the scope here?

Linda Dodge: What is the causation? Essentially, we identified what we considered, based on data, to be the most relevant areas. They weren't restricted to that. It may have been intersections and it may have been lack of ability to navigate a curve, or whatever the data supports nationally.

Robert Peter Denaro: The data, being accident data?

Shelley Row: This is based upon the rural crash problem.

Dr. Adrian Lund: I think this is technology looking for an application in the rural area, right? So, you're asking local communities to come up with how this technology might be used to help them?

Shelley Row: For our portion - it was a little bit different for the other funding, but for our portion, we needed a technology hook. Is that correct, Linda?

Linda Dodge: It is. So, basically, we told them what we thought the problems were in the rural areas, to give them someplace to look. So, okay, here are the areas we think you may be having problems, based on what we know of
national data, which comes in from the states. So, then they would look across their states. If the DOT was working with the partners, they looked across the state to help them identify what roads segments had a higher incidence rate of crashes, fatalities, and disabling injuries, and so on. Then, what would be the technology that could help to correct that problem, and how are we going to mitigate those issues, and what kind of impact would it have?

So, we were looking for some local demographics, local crash data, and how do you propose to form a partnership to address these, and how much is it going to cost? Just give us the brief information. So then, that was Phase I. And, we had thirty initial applications. Representing twenty-four were from DOTs supporting some of the local areas. We had six non-state, which were usually counties. We had a couple of towns. And twenty of those were very much collaborative in nature.

So, after we went through the initial round, then we sent out invitations, basically, to those who qualified. We sent out invitations for those to come back for a deadline of July 7, to provide us with an expanded application. Give us your work plan. Give us your budget.
Give us a time frame for completion. Give us everything we're going to need, in order to identify how we're going to address this. And, oh, by the way, do you plan on evaluating this, because that was part of the RFP, but we'll be evaluating this?

One thing that is different from what we normally do, this is not a high risk innovative research type of thing. This is using known successful technologies, but implementing them in a more innovative way, in a manner in which they haven't been used in the past, or tested.

Robert Peter Denaro: So, these plans that came back were requested were to, essentially, choose from a list of technologies you provided, or was it more than that?

Linda Dodge: It was much more than that. We just said, "Here are some examples. If you have something innovative, absolutely, we're interested in it. But, if you have a given technology that's been a proven technology, and that's what you want to apply to this, then we're open to that, as well."

Robert Peter Denaro: Can you give us a handful of examples of what kinds of technologies we're talking about in the applications?

Linda Dodge: Certainly. For instance, it would be ITS related, so no rumble strips, no guardrails. We're not
talking pavement and concrete and barriers.

We're talking about ITS technology, such as, there may be an aviation technology, such as a runway lighting technology that could be applied to a particular roadway segment, that would help to differentiate the lanes on a two-way road.

Curve warnings, basically, that could be, if you're over the recommended speed, perhaps some type of dynamic message sign would be flashing to tell you that there's a curve ahead and you're exceeding the speed limit.

Shelley Row: Radar for curve speed warnings, hydroplaning?

Linda Dodge: You like that one? We have some of the reviewers in the room that we can talk to, specifically.

Shelley Row: Before we get too far out on a limb here, these have not been selected or unannounced?

Linda Dodge: We're in the peer review process.

Robert Peter Denaro: That's good. We just wanted the flavor. We're coming from ignorance, okay?

Linda Dodge: Okay, but we're doing a little dance here, because we don't want to say how many actually came in, and we don't want to say how many we're going to be able to fund, but we have a target funding of 5.4 million.
Dr. Kenneth Button: I always find there's a danger in these sort of things, when you come along. I was involved in an exercise in Virginia, where suddenly, somebody came along with some new forms of call boxes, and installed them, and discovered everybody had a cell phone anyway. And they were not used at all.

But, because we were offering something, and it was where the problem was perceived before the technology was put in front of them. When you look at these proposals, are you looking back at the track record of people in the countryside, to see if they actually do have a problem, rather than inventing one?

Linda Dodge: Absolutely, because they have to provide the data, and the data has to be able to support that.

Dr. Kenneth Button: Not data, but, for example, discussions with local councils and agencies about the problems before them. I'm not worried about numbers, I'm worried about whether there's an actual perceived problem. You can always make up a problem. That's not too difficult.

Linda Dodge: If I can just talk about the term, "perception." That's a good point, because you and I, in our neighborhoods, we always perceive that everybody is
speeding but us. And so, is this a perception of a
problem, or is that perception backed up by reality. And,
in fact, the data proves that.

We have not asked them to provide City Council
minutes, or anything of that nature, but in some instances
they did. In most instances, they provided letters from
their partners, indicating why they felt it was a problem,
and what had been done to date about it, and their
concerns.

We were interested in knowing if they had already been
identified and placed in the Highway Safety Plan for the
state. So, it had risen to that level of interest and
concern.

Robert Peter Denaro: It sounds like the technology
that is being suggested could be both infrastructure, which
they control, and in-vehicle, which they don't control.

Linda Dodge: No, we did not pursue any.

Robert Peter Denaro: That's on the side of the road.

So, it was all local infrastructure based?

Joseph Averkamp: I don't want to get afoul the
procurement process, but what would be the basis for
assessing whether or not a proposal is a good idea, is
based on the number of accidents reduced, fatalities?
Linda Dodge: I didn't bring the specific criteria with me, Shelley, but yes, it has to do with the impact — the potential impact has to do with the ability to deliver this particular, whatever, the implementation of what this particular grant would be. Do they have a good opportunity for success?

Robert Peter Denaro: Do you have any more information about this? I wanted to ask the Committee about some questions, referring to it?

Linda Dodge: I have a couple of quick things in the review process things that I can share with you, that I think will give you a little better feeling about it. The review teams that were put together for Phase II, we made sure that at least two reviewers reviewed every particular application.

One of those reviewers is a subject matter expert at ITS in that particular area of technology. And the other person was a subject matter expert in highway safety. And in fact, some of them, of course, were cross-qualified.

And then, in addition to that, the DOT team, the partners from Federal Highway, and the ITS Program Office that are managing the project, also read the applications. And, our particular bosses have been briefed, but sworn to
Robert Peter Denaro: So, want I wanted to do for the Committee here was, although this is new and there's not a lot of specificity yet, because you haven't done the awards and so forth, I think it is a good chance for us to test our process here.

So, just to quickly walk through the questions, is it likely to advance the state of progress? Any comments on that?

Scott Belcher: I think this is important work, and I think it gets lost.

Robert Peter Denaro: Because it's rural?

Scott Belcher: Because it's rural.

Robert Peter Denaro: I agree.

Scott Belcher: And so, I think the amount of money that's in play is not huge, but if it's done right, and I do think it will be done right, we have an opportunity, really, to advance things incrementally. So, I think it's a good idea.

Randell Iwasaki: I think that, not that we don't have an application, but I think we have an opportunity to match different technologies together, to showcase the fact that you can take technology for rural applications and save
lives. The problem is you don't get a lot of spreading the word.

So, in California, we put – actually, I was the Project Manager back in the mid-90s on a fog warning system that kind of stayed there, but we never expanded it. And it was in a rural area of Interstate 5-205, and we eliminated all fog-related accidents. But even in our state, we didn't expand it. We're just expanding it now to Highway 99.

Robert Peter Denaro: So, that's kind of an employment issue?

Randell Iwasaki: Yes, so these projects help overcome some of those barriers because once again, the federal role is to document some of the hardships we've had in the states, to implement this kind of technology.

Dr. Kenneth Button: I like the idea. I think you should be very careful in selecting things. In my neck of the woods, one clearly that needs work is deer detection. Deer are the biggest menace for drivers. I'm not quite sure whether you can do anything on this.

But there's a bit of danger sometimes when you put this kind of proposal out that, given the resources that are available to these rural communities, that may adopt,
or seek, whatever, a high tech solution to where a low tech solution, if you will, may be more cost effective and efficient. Is that kind of thing being looked at? Alternatives to the ITS approach? Because ITS is not the only way of approaching problems.

Linda Dodge: Well, if it wasn't the appropriate use of that particular technology, and if there was something else that was more appropriate than that particular application, then it would bubble to the top.

Dr. Kenneth Button: That is assessed?

Shelley Row: It would be assessed, but it wouldn't be funded with ITS money then.

Dr. Kenneth Button: But, I'm just saying, you do look at alternatives which are low tech, as well as high tech?

Linda Dodge: Which is a good point, because there are other funding mechanisms through the Federal Highway Administration, that some of these are being bumped to. And we might say, "Hey, you might want to look at this particular application," or "You may want to seek funding under this particular opportunity." And so, they're not necessarily put in the trash can.

Paul is one of the reviewers.

Voice: Well, the states go through safety audits, and
they look for exactly those types of things. And in fact, some of the proposals talk about the lower cost, lower sophistication types of applications that they can and are doing, and they're looking at how else might technology come in?

So, there's definitely, through the Road Safety Audit Program, looking for the other opportunities to solve the safety problems.

Linda Dodge: And, some of them make commitments that if it proves to be successful in this particular area, we will commit to do it in other areas of our state. Now, that's a nice added touch.

Robert Peter Denaro: Are there any other comments or questions on the deployment?

Dr. Joseph Sussman: Linda, if I'm understanding this correctly, this will extend beyond the end of SAFETEA-LU, is that correct?

Linda Dodge: It's going to depend. I hate that question.

Dr. Joseph Sussman: I pride myself on asking those kinds of questions.

(Laughter)

Linda Dodge: Technically, it could, but simply
because some of these are, maybe, a year long, some of them are two years. And then depending on the level of data that we need, we may go a little longer to make sure we're able to validate the results, so that when we attempt to replicate this, or offer it for application in other areas, we will have a good proof.

Any other questions?

Joseph Averkamp: I guess my only observation would be that I think it's a good program, and we're not prescribing a solution. We're soliciting for them. I think at an early stage, this is a good approach.

Robert Peter Denaro: Okay, great.

Linda Dodge: Am I free to go?

Robert Peter Denaro: Yes.

Linda Dodge: Thank you very much.

Shelley Row: One thing to note on this particular project. If you look at your Budget Summary document, you will not find this one on here. This is an example of a project that was added, where the administration felt like there was an important issue here, though six million dollars was added in the FY'09 budget to cover this.

Randell Iwasaki: So, that's the total amount of money? So, you can fund a project up to five million?
Linda Dodge: No, the RFA clearly indicated there was a maximum amount. I don't have it in front of me. I want to say, two million was the maximum. Oh, that did say, not to exceed five million. I stand corrected. I think it said two, but I'll have to go back and check.

Scott Belcher: Don't get greedy, Randy.

(Laughter)

Linda Dodge: I will get back to you on that.

Randell Iwasaki: My only point is, if you give one grant up to five million, then you don't have much left for other people.

Linda Dodge: Let me just say, we've had a lot of applications.

Randell Iwasaki: I'm not trying to pin you down for a "yes," here.

Integrated Vehicle-Based Safety Systems (IVBSS)

Robert Peter Denaro: Is IVBSS next?

Shelley Row: Yes, IVBSS is next, and this is Steve Sill. Steve is the Project Manager for IVBSS, among several other duties, as well.

Steve Sill: Good morning. I'd also like to introduce Jack Terrence, who is back in the audience. Jack is NHTSA employee. He is the day to day Project Manager for IVBSS,
and he is here if for no other reason than to correct me if I get it wrong during the questions and answers. He does this stuff every day.

Just to refresh your memory about the program, IVBSS is one of the major initiatives at ITS JPO. It's a thirty-five million dollar project, originally intended for four years, and now slightly longer than that, to develop, and then if successful in the development, to field test in the real world, an integrated collision warning system that is on the vehicle.

It does not need to communicate with other vehicles, and is fully effective, regardless of the equipment on any other cars. So, it protects against lane change merge, which is where you may move into another lane, and there may be a car there, or a car may be moving toward you, or road collision and road departure. And in the case of the car system only, it also has a curve speed warning capability.

These crashes represent about 60% of the reportable crashes, and so we're talking about a very significant chunk, potentially, of the 40,000 fatalities every year.

Now, in the case of IVBSS, we're looking at both an automobile system, and a heavy truck system, and both of
these systems will be tested in the field for a period of one year.

To date, we have completed Phase I, and what we have seen so far is that we have fully tested the system. It has demonstrated very good performance and very low false alarm rates. It has fully met all of its performance requirements.

We have also developed an intuitive platform specific human-machine interface. And, the reason I mention platform specific, is because both the training and the physical environment are very different in a heavy truck than they are in automobiles, so the types of warnings provided to the driver need to be different if you want to elicit the correct responses.

And, although you could argue that these technologies have individually entered the marketplace on some high-end vehicles, this system is the first integration of all of them on a single vehicle, with the capability to prioritize and arbitrate between warnings, and present these warnings to the driver in a way that they are not overwhelmed or confused by multiple warnings. And in that sense, it very much is an advance in the state of the art.

Now, there's no question that the equipment, as
installed on these proof of concepts, essentially pre-
production prototype maturity vehicles, is far too
expensive. If you wanted to build yourself a seventeenth
car, and we have sixteen, it would cost a lot of money, but
there's nothing that would preclude a widespread adoption
and a much, much lower price point, with high volume
purchases.

The primary partners here, in the case of the car, are
Visteon, and in the case of the truck, Eaton. Both are
pier one suppliers to their industries, and we would expect
that products based on some of these technologies developed
here, will be entering the marketplace relatively soon.

But the fact remains that this is an intensely
competitive market, and they're certainly not going to talk
publicly to anyone about what they're going to be offering
next year, or the year after that, to their customers.

Scott Belcher: Steve, who is the heavy vehicle
partner? I didn't hear you.

Steve Sill: It's Eaton that's the supplier of the
system, International Truck is the supplier of the truck,
and then Conway is the field demonstration partner.

Dr. Adrian Lund: You said this is the first time all
these systems have been in a single vehicle. Could you
list those systems again?

Steve Sill: For the car, we have curve speed warning, but we don't have it for the truck. For both vehicles, we have forward collision warning, lane change merge, and road departure warning. Lane change merge is radar based, forward collision is radar based, and road departure is vision based. And, we've also added all of the logic, to arbitrate and prioritize warnings, so it is an integrated warning system.

Dr. Adrian Lund: Are there cars on the market which have all of these systems now, except for curve speed warning?

Steve Sill: I don't believe anyone is selling anything that has all three of them on the vehicle. You can buy things from different manufacturers. We're not aware of anyone who has a system that integrates the warnings, and prioritizes and arbitrates between them.

The other thing, and this is more intuitive than it is scientific, is the performance we've seen from this system, especially the false alarm rate, appears to be far better than what is on the marketplace today.

Dr. Joseph Sussman: Steve, again, to test Bob's process here, can you help us out with understanding why
there is a federal role in developing in-vehicle
technology?

Steve Sill: I can certainly try. There are two
primary interests here. One is internal, in that absent a
field operation test of a system like this, where we give
it to real truck drivers in the real world, and we assess
its effectiveness, there's really no easy way for NHTSA to
know just how much these systems might enhance safety.

The alternate example there is electronic stability
control, which made its way in the marketplace, and after
many years of statistically valid data, it became obvious
that it is an enormous safety benefit, and it's not
mandated.

But, even look at the amount of time that took, and
how many lives were lost in the interim. You would argue
if there is a better way to know in advance how many lives
you might save, then you can hopefully take appropriate
regulatory action soon.

Robert Peter Denaro: So, is this project going to
try to measure that?

Steve Sill: Yes, to the extent we can, will field
operational tests.

Robert Peter Denaro: I think you said, the likelihood
of encountering these events would be small, because of the amount of time.

Steve Sill: The likelihood of an actual crash is very small; however, the data acquisition systems were sophisticated. So, when you get an event that results in a warning, we can review the event, we can review the multiple camera video, the audio, and we make a judgment. Did the system prevent a crash here?

And, it tells us a couple of things. First, it tells us how many close calls there really are when the average driver gets in a car. And how many times we see the driver react to avoid a crash, based on the warning, specifically, rather than when the guy honks his horn or when he later realizes. So, you can make inferences there on how many crashes this might prevent.

Now, we haven't got the kind of budget it would take to put hundreds of cars out there, and run millions of miles, such that we expect to get hundreds of crashes. But, we're doing the best we can, and we do believe we've done fairly extensive analysis and we do believe we'll get statistically significant data.

Robert Peter Denaro: Is one of the outputs of this, when you said 60% of crashes are from these causes, and
take one of them, road departure, okay?

Steve Sill: That is one that has a relatively high proportion of fatalities.

Robert Peter Denaro: So then, you have good statistics now on what you believe the number of crashes were fatalities for road departures?

Steve Sill: Sure.

Robert Peter Denaro: Will this project attempt to estimate what the reduction would be?

Steve Sill: Yes. Further, if the federal funding here, and the federal role accelerates the implementation of these types of technologies, just by even a few weeks, if you look at the number of fatalities, all of a sudden, the thirty five million dollars doesn't look like a terribly high cost in the scheme of things.

Robert Peter Denaro: Europe just mandated lane departure. For example, they took RESC and they said, "We'll trump you, we'll one up you." And in fact, they did the collision avoidance, with collision mitigation, as well as lane departure for heavy vehicles.

And they're looking at some kind of data. I don't know what kind of data they're looking at, although I've seen the rumble strip data, which maybe is an analogy,
potentially. And so, that is what you're trying to do, too, is gather some of this data so that we can make early decisions?

Steve Sill: Yes, you can speed the decision. Even if there is no regulatory decision, the fact remains that under the new end cap, the presence of lane departure warning, and the presence of forward collision warning on a car will indeed be shown on a sticker.

And if we have data here that is publicized, and say, "Hey, these are really good things," those things, in combination, would cause more people to buy it, we hope. Recognizing that we do believe the technology can come down to an affordable price point fairly quickly, in which case, you get pretty good benefits.

Dr. Kenneth Button: I would come back to comparing this to the Federal Drug Administration, where these costs are actually borne by the public sector. And, in the Federal Drug Administration, they do all the testing, and the government looks at their test to see if it is appropriate for the drug to go on the market.

The federal role is, basically, to assess the results produced by the drug companies. And if the drug, basically, produces benefits, you accept it. And if it
doesn't, you reject it. You compare the side effects with the primary reaction.

Now, this seems to me entirely different in this approach, where you are actually doing the testing of it. I would have thought there would be markets out there, like the insurance market, which is probably driving away a lot of cars, because certainly in many parts of the world, when you have these technologies fitted in the vehicle, these countries in the world with market mechanisms, when you've got the technology, you've got a significantly reduced insurance premium. And that's a big incentive for drivers to take it up in the private companies, to adopt them.

I understand you want the information, so if you can ratify a technology, which the insurance company says is safe, your insurance premium goes down. But I'm not quite sure what the federal role should be, beyond that in the market system?

Steve Sill: But, the insurance industry, I would expect, and I'm certainly not an insurance, I mean, this is not my area of expertise, but I would expect an insurance company would base their premiums on risk data. And, absent many million miles of field experience with these types of systems, they would not know whether, or to what
extent, to have premium reductions.

Dr. Kenneth Button: But, isn't that what the private sector does, when it markets the product?

Steve Sill: But, if you wait for those millions of miles and those numbers of years of experience, if the system was indeed successful, you have missed the opportunity to prevent many crashes and many fatalities. And, if we can accelerate the ability to acquire that knowledge at a relatively modest cost, we believe that to be an appropriate federal role.

And further, fundamentally, the Food and Drug Administration model is a very different model than the transportation research model. And we do, indeed, do this in many areas of transportation research, where we fund the research to develop, and then to field test, the technology, and then to publicize the data. And in some cases, we mandate the technology, both on the infrastructure side and on the vehicle side.

Dr. Joseph Sussman: Are you are arguing as a market failure that is not in the enlightened self interest of General Motors or Honda to just do this stuff, and create a better position for themselves in the marketplace?

Steve Sill: I wouldn't argue it's a complete failure.
I would argue, though, that by priming the pump, we can accelerate the speed at which these are addressed, and looking at the fatality rate, that that's probably a pretty good investment. And further, we get the knowledge of the systems performance that we wouldn't get from the manufacturer, directly.

Scott Belcher: There is a market failure, but it is a different market failure. It's a market failure, in that many of us are not willing to pay incremental costs to get these safety applications, because we don't think we're going to be the one in the accident. We don't think we're going to be one of the 42,000 people. And so, it may be that there's a federal role in trying to make that happen.

Robert Peter Denaro: I would ask Tommy at Honda.

Steve Sill: Note that Honda is our automobile partner in this program. Full disclosure.

Robert Peter Denaro: My question is, would Honda, or any other auto company, find this information useful and valuable?

Tomiji Sugimoto: Yes, I think so; however, there has been the study in the similar feature, where technology, and also, the key is as you've said, initially, the study is very, very good for NHTSA to understand what is the
advance safety technology, or something like that.

And also, it is a good chance to consider about how to make an integration for the warning system, or something like that. So, either the OEM and government study has to be corroborated with each other in the future. I don’t know how to say it, but I think the research, not only the OEM, but also the government.

Dr. Adrian Lund: Can I just make a comment? Part of this is, I think, a misunderstanding about how much faster something like Electronic Stability Control could have gone into the market. If you look at ESC, it's a record pace with which it went into the market without any government intervention. So, I think there is a role for the federal government to understand how this technology is working.

But, if you think that it's going to accelerate the speed with which auto makers are coming up with this technology, or other people are coming up with this technology, everybody is looking for new technology to sell, so that is happening. So, I don't think we could have made it go in any faster.

Look at the current side impact rule making at NHTSA, which by 2016 will require that all side air bags provide head protection. Auto makers have agreed that every
vehicle will have side air bags with head protection by
next September. This is not - and it is for other reasons,
competitive reasons. We do crash tests that show the
difference, and so on.

So, we have to be careful with what we think is going
to happen, in terms of driving this into the market. But,
the government does have a role in understanding and
helping all of us understand what are the real effects.
So, this is good, from that perspective.

Steve Sill: I would argue that even the smallest
acceleration, even if it's only a few months, still offers
substantial benefit.

Dr. Adrian Lund: But, I would also point out that
when you do this study, you still won't know what the real
world effect is. It's very important. All you know is,
how are drivers responding to it, and is it giving the kind
of information that you expect it to give, and are drivers
sharing that?

But, you won't actually know what drivers do with
their behavior in response to all of this new information
that you are giving them. And, that is an important
concept. People change what they do in driving, if the
driving task changes.
Dr. Kenneth Button: The seat belt problem.

Shelley Row: I have a comment and a question. Let me do my comment, then I want to ask a question on what you just said, Adrian.

I wanted the Committee to be aware, and Jack you're still here. I don't want to put words in NHTSA's mouth, but I wanted to reflect what we've heard in discussions with NHTSA, because I had the exact same questions, by the way, about this project when it first started. So, I think they're very valid questions.

When we talked to NHTSA about the regulatory role that they serve with the automotive industry, they're obviously very interested in getting proven technologies into vehicles that can help save lives, obviously. The process in the federal government to do that is an extremely lengthy one that is heavily data reliant. And they have been interested in accelerating that process, because they think that if they can get the data they need to feel comfortable with a rule-making action, that it can in fact save lives. And, it could accelerate that.

So, they've been looking across the board at ways to accelerate the process and their data collection approach which, up to this point, has been mostly driven just on
field experience once it's deployed in a vehicle.

So they've been looking at, can you do operational
tests, can you do modeling, can you do simulation, can you
do some of the things that help them be comfortable,
sooner? So, that is what NHTSA is trying to do, is to give
them comfort sooner than it would have otherwise. That is
the statement I was going to make.

Now, the question I had, coming back to your point,
Adrian, is we are believing, and I think NHTSA believes,
that through their combination of the NCAMP Program, Stars
on Cars, and the regulatory possibility, the wonderful
thing about a regulation, you don't have to actually do it,
you just have to talk about doing it, and that actually
works.

It's a wonderful thing that that combination of levers
that they have, in fact, does help motivate driver
purchasing decisions, and helps motivate the industry.

Now, are you saying you don't believe that's true?

Dr. Adrian Lund: It is true, to a small extent, but
let's take the case of Electronic Stability Control, right
now. We're trying to hasten people's purchase decisions
for that, but the fact is that despite, now two and a half
to three years of really intense publicity, I'm guessing
that somewhere around 85-90% of people out there have no idea of what we're talking about when we say their next car should have Electronic Stability Control. It's known by a number of different trade names among the automobiles, and so on.

So, what it has done, though, is, you're right, it does have the effect of motivating manufacturers to get it out there, because there are a certain amount of informed buyers who are reading, there's an informed press who are reading, and no manufacturer wants to have their car listed as behind the curve on anything new. I don't want to minimize that there's an impact, but I think we're greatly overstating what it is, too. Nevertheless, there is a role in knowing what the actual effect is.

Steve Sill: And we, what UMTRE has done in the past, and what we see on the in-car video, and on the data acquisition is, it doesn't take long for the drivers who get these vehicles to go back to their old habits. Just days after they get their car, they get used to it, and you start to see all of the behaviors you would expect in the real world when you're looking at a warning, when you see the cheeseburger in one hand and the coffee in the other hand, and steering with the elbows, and all of the other
kinds of behaviors that we, unfortunately, see a great deal
of in the real world. And so, in that sense, we get a
reasonable indication of how we would expect people to act
in a vehicle.

Now, what we can't, of course, get is a one year FOT, where someone gets a car for six or eight weeks, and
basically the truck driver drives it for a year. What we
can't see is how people might adapt a year down the road,
or two years down the road, with tens of thousands of
miles, working with the system. And, unfortunately, other
than spending the money to put that many cars out there for
that long, I don't think there's anything we can do there,
although, I'd probably have to ask an engineering
psychologist about that.

Robert Peter Denaro: I want to make one comment, too,
from my personal experience. And, obviously, I'm looking
at the maps, which is a part of this effort, as well. It
may or may not be important to some of the other
applications, but I've done a lot of talking to OEMs, as
well as some of the system providers here, and my
experience is that they are desperately wanting this kind
of information.

Because it's my opinion, that the decisions made by
private companies about what to invest in is, yes, there's a piece of, that this is the right thing to do and so forth. But let's face it, a large part is, what is going to sell? And they do not want to spend millions of dollars inventing a system that is going to be an option that no one orders.

And there's a lot of that that goes, especially in today's environment, that goes into those decisions. If there is data available to say, "Gee, if we do this, the data are significant enough that, probably, people will respond to this," that helps a lot. So, I would argue in favor, and I think it will accelerate the possible adoption of these kind of technologies.

And the other piece is the publicity to people. Adrian is exactly right. People don't understand what ESC is, but that doesn't mean we should not try to get the information across. We've got to figure out ways to communicate to people, and that's one of the statements I make in speeches I do on this subject, is everyone says safety doesn't sell, no one wants to order a safety system. And a lot of times car companies don't want to say, "Gee, this car used to not be safe, but now we have this option, so now it is safe." They don't want to go there.
But, as soon as there's data out there that can be collected by NHTSA, or the insurance industry, or anybody else that says, this particular model of car, because of this feature, seems to be having about, pick a number, 55% fewer accidents. When that data is available, I think it will create a pull for people, and we've got to get to that point in time, somehow. So, I do believe this kind of effort helps.

Bryan Mistele: When the project, which was originally described, was "We're building sixteen cars, and we're looking at the interaction between these HMI notifications." That is different from what the two of you are talking about, which is kind of a broad study of collision avoidance systems, and similar technologies, and figuring out what the overall impact would be. I'm not sure this project gets to where you want to go.

Robert Peter Denaro: That's why I asked the question of Steve, are you actually going to try to estimate, for each of these crash types, what the likely decrease might be? But, I agree with you. What we heard was, just looking at the integration, does that create issues and so forth?

Steve Sill: To clarify, although we will indeed try
to estimate the expected reduction in each crash type, it is only valid for a vehicle equipped with the integrated system.

Robert Peter Denaro: Good point.

Steve Sill: And so, if you were to run three separate field trials, one at point of departure, one lane change merge, and one forward collision warning, but there was only one type of warning transmitted to the driver in each vehicle, and only one type of crash protected against, it's entirely possible that you would see different expected rates of crash reduction.

So, we will see what we expect for each type of crash, but it's only in the scheme of the vehicle that it's capable of providing multiple warnings. And, we might expect somewhat lower effectiveness there for any given type of crash because of the risk of confusion, and an incorrect response to a given warning. You know, swerve, when you should have slammed on the brakes.

That said, we would expect the overall benefit to be greater for a system that protects against multiple crash types than we would expect that benefit to be for a system that protects against only one, even if it is more effective at protecting against that only one.
Tomiji Sugimoto: There is another research called ACAT, to estimate the effectiveness of the system in the market.

Robert Peter Denaro: What is that study?

Tomiji Sugimoto: ACAT.

Steve Sill: And, there was also the Road Departure Collision Warning, which dealt with curve speed warning and departure crashes, only. And that was JPO funded, and Jack managed it. And, in the case of this program, we have made an effort to release far more data than we have in the past, to the public. All of the human factors research work and the results are out there, publicly. The verification test procedures we're using are out there.

And, we're trying very hard to be as transparent as possible, and make the information and results we have available to the public, as soon as we can.

Robert Peter Denaro: We probably have to move on pretty soon, but I just want to ask under the three questions, the advanced state of the art, and can it be deployed, and the appropriate role for government? Are there any other comments or questions from the Committee?

Dr. Joseph Sussman: Well the issue is joined on that last question. I think there are a lot of different
opinions on that question.

Robert Peter Denaro: I agree.

Joseph Averkamp: The only observation I would make is that, this is a thirty five million dollar program, so I think you also have to view it in the context of, how does it stack up against a five million dollar program, and also, how to use the funds in a different way? We have to be considering them.

Shelley Row: I was just going to make a link from yesterday's discussion. This is the vehicle that will be at World Congress that will have limited ride opportunities, because you have to go a ways to be able to experience some of the warning systems. But, the physical vehicle will be there, and UMTRE will also have a demonstration.

Robert Peter Denaro: Is this the 11th Avenue?

Shelley Row: No, it is not.

Steve Sill: The warnings will function, generally, only above twenty five miles an hour. Below that, it's impossible to get a reasonable false alarm rate. Further, at the lower speed, you're generally not looking at high severity crashes.

Robert Peter Denaro: Is this the Long Island one?

Steve Sill: It will be available for some very
limited demos, and we'll probably end up having to cross
into New Jersey and get onto the turnpike, where you can
exceed twenty five miles an hour, I guess, during that
limited non-rush hour time.

Just very briefly on the program status, the program
is mostly funded. Phase I was completed. We just started
Phase II. This year, we expect to obligate just over two
million dollars – 1.99 million are obligated, as of today.
Next year, 1.2 million, most of the funds required are
obligated in previous years. Next year is 1.2, we expect,
unless there is some horrendous cost overrun. And in the
next year, we expect to complete the fleet build, and
complete the pilot FOTs.

Experience has taught us that when you think you're
ready to go with the full scale FOT, you probably aren't.
And it is prudent to try a small pilot first, to make sure
you have the best practices. And then, we'll initiate the
year long full scale effort. I guess now, Valerie is going
to cover VII, if there are no other questions for me.

Vehicle Infrastructure Initiative (VII)

Valerie Briggs: Mike Schagrin chose a really good
week to be on vacation. I can talk VII, and make up some
things on CICAS, and see if you know the difference.
So, let's start with VII. I'm told that you want results, and the big result are bullets two and three. This year, we've actually done the proof of concept test for VII. I'm assuming all of you know that VII is - Vehicle Infrastructure Integration. That's a cooperative program between US DOT, all the states, and the automobile industry, to develop an information infrastructure for exchanging data for safety and mobility applications. It started in 2004, and this year we actually did the proof of concept test, and we're getting results now, and it will continue through September. But, what we're learning is, the architecture works for the most part. It is not without its challenges. We found the DSRC Standards to need to be tweaked, but generally, the architecture works. We can exchange data between vehicles and other vehicles. And a big significance there is, vehicles of different manufacturers, and that's the second bullet. And that is one of the big reasons the government is involved in this, because it requires cooperation between the vehicle manufacturers, the different manufacturers.

Bryan Mistele: Is this still Wi-Fi, where the local
sensors are along the road?

Valerie Briggs: It's both vehicle-to-vehicle, and vehicle-to-infrastructure. It uses the Wi-Fi, yes and no. It is built on a wireless, the DSRC communications protocols are built on 802.11 standard, which is also the standard that is used for Wi-Fi, but it is not your classic Wi-Fi. We've adapted Wi-Fi for the vehicle environment, where the vehicles are going seventy miles per hour.

And, one of the big issues there is whether you can start a transaction within the range of one roadside unit, and pick it up within another. And you have to be able to start that transaction very fast, because you're traveling at seventy miles an hour, or sixty five miles an hour, and it could take two or three seconds to get that connection, and you've probably lost your ability to do a transaction.

So those are the sort of things we're discovering in the proof of concept test. You can do a transaction very quickly. You can continue a transaction from one RC to another. Those are the sort of things we are learning. We haven't finished the proof of concept test. We expected to do that in September, and have the results in October.

We also updated the cost analysis. We started it last year, and with this one, we really on some of the
institutional issues, because we really hadn't started that before. And, we have to look at, how do we make this work? And, of course, that's the real challenge. So, we've started some work with the auto industry, looking at what are the legal parameters that we need to be concerned with, as well as looking at, what should the institutional framework be for implementing this?

Also, we've started a lot of public awareness activities. This has been criticized for being a closed program, and we want to change that. We have implemented a website this year, but we also expect to really step up public outreach activities in the coming year, reaching out to new communities that we haven’t worked a lot with in the past.

Another thing that happened this year was, Safe Trip-21 was implemented. You heard about that yesterday. We also have been looking at what happens after the proof of concept test? This initiative is one that our administrator is very interested in, and has had some real strong opinions about. So, for the last nine months or so, we have really been looking at, what happens after proof of concept, and how do we make this program into something that can really be implemented in the real world? And,
what does that mean? So, we've been going through a real
program redefinition over the past nine months.

The budget this year was 16.2 million. I would say
that was under what was originally scoped. And a lot of
that was for the proof of concept testing.

Dr. Joseph Sussman: Valerie, in the written material,
the term "re-scoped" was used. Here, you talk about a new
program direction. I'm having a little trouble getting my
arms around what the changes were. What have been the
changes that have occurred?

Bryan Mistele: And, I would say, what was the
feedback from the administrator that led to the changes?

Valerie Briggs: There have been a lot of issues.
This program was really started, and put inside of a box,
and the box was DSRC, and that is a dedicated spectrum that
the FCC set aside in 1999. We were looking, specifically,
at what could be done with the DSRC-based infrastructure.
And, the administrator came in and said, "DSRC is fine, but
there are many other technologies out there that we should
also consider. And, how do we make all of this work with
other technologies, too?" That was one of his big points.

Another big point was, how do we implement this?

There has been very little discussion of how this was
implemented. There was an assumption the government was
going to take on a major funding role, and as all of us are
aware, this is a very difficult thing in this environment.
We're already in a very tight budget situation, and our
administrator asked, realistically, is that possible? And,
if that's not possible, what else could we do?

And so, what else should this program be doing if the
government isn't going to be taking on a big funding role.
What else should we be doing to engage the private sector
and to look at other ways of doing what we're going to
accomplish through VII?

Now, what we have realized is, and what those who
really knew DSRC well know is that DSRC is the only
technology that we know of now that has the properties that
are able to do the safety applications that require very
fast transactions. So, the active safety applications,
where the vehicle brakes to avoid collision, that's one of
the advantages. It's also dedicated spectrums, and that's
very valuable.

Randell Iwasaki: Plus, it's reliable.

Valerie Briggs: Exactly. The protocols are built to
be very reliable, and so there are some significant
advantages to DSRC. Since it is an open standard, one of
the challenges is, and we want a non-proprietary system for this, how does someone make money on a non-proprietary system? And there is the Catch-22, how to get your private investment in a non-proprietary system? They're not compatible. So, those are the challenges that we are grappling with.

Shelley Row: One thing I would add, Valerie just did a good job articulating the changes. One thing I would add is, originally, the program was focused, both on safety and mobility. And you heard from the administrator yesterday, the focus on safety. So, we have refocused the program to be almost exclusively on safety and situational awareness. That includes some of the weather data we can get off the vehicles for the pro-DSRC based transactions. But, a lot of the peer mobility work has been de-scoped.

Valerie Briggs: That is largely because we do realize that there are other technologies out there that can do the mobility applications, that DSRC doesn't have a monopoly on them.

Robert Peter Denaro: DSRC is like travel information?

Valerie Briggs: Exactly, it provides information about the infrastructure.

Scott Belcher: It's also important to realize that
DOT has not been making these changes in a vacuum. When they're talking about new business models, they went out to the industry to get feedback, when they talked about proof of concept, and potentially changing that. And what happens to the test bed? They went out to the industry for feedback. And so, many of the folks here have had an opportunity to continue to provide information as this is evolving.

Dr. Kenneth Button: A statement and a question. My statement is simply, taking out the mobility aspect from the safety aspect, I think, is dumb, because you ask, how do you actually pay for these things and get people to use them? Complementary goods are sold together, and that is absolutely dumb to separate them out. It really is. It's simple economics.

My question is, though, can you just explain a little bit how you do a cost benefit analysis on this?

Valerie Briggs: We have the Volpe Center doing cost benefit analysis. It is, to date, a very classic federal cost benefit analysis that looks at the total system cost versus the total system.

Dr. Kenneth Button: The total system?

Valerie Briggs: We have a pretty good idea of what a
total system cost would be, because we have an architecture and we have a system design. So that, okay, wait a second. We have estimated what we think the end vehicle cost would be, and we have estimated what infrastructure cost would be, and we have some good idea – in fact, California has done a lot of good research on the cost.

What we don't have a good concept of is the monetary value of the benefits. That is why this has been very, very difficult, because while we can classify the monitoring value of some of the safety apps, it's very difficult to classify the monitoring value of the mobility applications of the things that we don’t even know the system will be used for yet. I mean, this is like the internet. How do you do a cost benefit analysis for the internet? So, this has been a very difficult exercise.

Dr. Kenneth Button: I'll ask a philosophical question then, since cost benefit analysis is a partially colloquium approach, and you can't do it on anything of size, how do you do it on a system like this, theoretically? As an economist, I ask that question.

Valerie Briggs: You probably have a better sense of how to do it than I do.

Dr. Kenneth Button: You can't do it. That's my
point. It's impossible.

Valerie Briggs: This was originally done, you do cost
benefit analysis when the federal government is going to
make a major investment, or when it's making a requirement
on a state, because you want to know how much it's really
going to cost.

Dr. Kenneth Button: They do an assessment, not a cost
benefit analysis. A cost benefit analysis, in economic
terms, has a particular meaning. I hope the government is
not doing the cost benefit analysis.

Valerie Briggs: There are a lot of issues here, and
I'm going to move on. I don't know that I can answer your
questions.

Bryan Mistele: You say you have a very good idea of
the system vehicle costs?

Valerie Briggs: We have a better sense of the
infrastructure cost.

Bryan Mistele: For a nationwide deployment, what is
it?

Valerie Briggs: What we've done is, we have
extrapolated what we have done in the Detroit and
California tests. California has actually done some really
good analysis of what it cost them to install the test
materials. And of course, we can make an estimation that the equipment costs are going to go down. And, we have to assume, based upon assumptions.

And, we looked at what it would take to do the backhaul communications, as well as the road infrastructure, as well as the operational cost. We made assumptions, which is what you have to do, based upon what you think would be required for operation, as well as replacement costs, as well as maintenance costs.

This was looking at a forty year term horizon. It did include operating costs. And this was based upon the system design that we've actually done in the early part of the program. So, it's all assumptions based. We also do have some vehicle cost, based on the fact that the auto makers are working with us, and are installing the equipment in the vehicles. And, we're making assumption.

We don't know how much the cost of the equipment will go down or not.

Shelley Row: I would just add, this has been a sticky wicket, to say the least, and the first go at it was premised on that original concept of in the box, that Valerie described, which was DSRC only, lots of intersections on freeways, all that kind of thing. And so,
that was where some of the original numbers came from.

What we are doing now is going back to rethink it.

And, some of your comments can be most helpful, to say,

"Well, what if the model was a little different. What if
it was V to V only, and what does that mean. And what if
it was V to V, plus V to I, only at high crash
intersections? What would that look like?"

Valerie Briggs: We're now using it more as a decision
tool, as to whether we should go forward, and in research
terms. So, it's less, what is going to cost on a national
scale, to implement this by everyone who might be involved?
And, what do we think are the major benefits and monetary
value of those benefits from certain sets of applications
or approaches we can take? How do you compare the various
deployment decisions based upon some idea, or some other
cost?

Dr. Joseph Sussman: This gets to the question I asked
before on re-scoping questions. What I hear is, there are
two re-scopes, one broadening beyond DSRC, and the other
was the unrelenting focus on safety within the context of
VII. Is that the re-scoping we are hearing?

Valerie Briggs: There were a lot of re-scopes. Those
are two of the main ones. Certainly, the expanding beyond
DSRC, we don't want to abandon that issue because we still think it is critical. And then, the safety also, I don't think we're abandoning mobility, but our administrator wants us to be very focused on safety.

And the point that you brought up was, originally, why it was all done together? With the concept that you can piggyback, you can get the value out of mobility benefits. So, that is now a challenge, on how do you deploy this?

Robert Peter Denaro: I have one question, and Shelley, this may be in the white paper, also, where we consider this near-term. And, I'm struggling a little bit with that, because it seems to me that, indeed, while you've got the infrastructure deployment necessity, and whether it's DSRC, or whether it's striking the right agreement with private companies, and so forth, that still takes time.

And the V-to-V, it seems to me, that first of all, getting equipment into OEM vehicles is not a quick process. And secondly, you need a reasonable population of vehicles before they start showing some benefit. And to me, those seem to add up to be a more medium term, as opposed to a year term. Can you help me with that a little bit?

Valerie Briggs: What is your exact question?
Robert Peter Denaro: Well the question is, seeing this referred to as a near-term opportunity, one to three years, to me, seems to be a lot longer.

Valerie Briggs: I don’t think this is a near-term opportunity.

Shelley Row: The Safe Trip-21 sliver is intended to be near term.

Valerie Briggs: That is the mobility application. It's not using the DSRC technology.

Joseph Averkamp: You're referring to Page Three of the draft?

Valerie Briggs: I'm going to have to speed some of this up. This is a much longer term program, and it's largely going to depend on whether the automobile industry is comfortable with this, and whether they're willing to implement it.

Let's go on to the next slide. One of the things we're looking at for the program is, how much vehicle infrastructure do you really need? Can we do this at a minimum level, other than the infrastructure? And that fundamentally changes the architecture, and that fundamentally changes how we do things. And security becomes much more difficult then, and those issues change.
But, we think that is probably a more realistic deployment scenario than looking at thousands of state and local agencies out there, expecting them to implement this. So, the next two slides are broken out in terms of how the program has been re-scoped. We've worked a lot with the administrator in doing this, but the vision here is to do a lot more scanning of what technology is available now, and what's on the horizon, to make sure we're not ignoring some things that are coming out that could make a big difference.

And also, looking at what could we do to accelerate the deployment? Is there, for instance, a strategy to retrofit the vehicles, or to get the aftermarket industry involved in putting different technology in their devices, that can then be put into a vehicle that can be used for safety? For instance, can you put a DSRC chip in a GPS unit?

Then with the leading architecture and standard for DSRC, there is still some standards work to be done. It takes a long time to develop standards, and we're well down that path. But, it will be 2009 before we can complete all of this.

We're also working with the industry on developing
certifications processes, to certify that the technology meets the FCC standards for DSRC, and we would not do that as the government. That would be an industry activity. But, we're working with industry to develop a test method and to help them establish a process.

We're still very interested in safety applications. We have worked with the auto industry to help them develop vehicle-to-vehicle safety applications, as well as others that could be used with the DSRC system. And, that involves a lot of Con Ops development, as well as doing field operational tests. Of course, those are huge tests.

I think that's most of what's on this slide. Any questions here, or shall I go on? I don't want to use up all of my colleagues' time. I will take questions.

Robert Peter Denaro: Why don't you go on, and we'll come back with questions?

Valerie Briggs: Okay. And then, one of the things our administrator cares the most about is that we establish test beds that are based on open platforms. And my understanding of an open platform is that it rises above an architecture. It looking at what are the interfaces to enable various technologies to be used within a system?

And so, we're looking at how you establish an open...
platform that can be used for VII, and then, how do you establish test beds where industry, or state and local governments, or whoever, can come in and test their concepts? And, how do we help promote what is going on in the industry, and working with industry to develop some additional focus on this subject through a series of test beds?

Then, the next two categories are going to be looking at the non-technical issues. We're looking at re-branding the program. Clearly, there have been some big changes. No one ever liked the term, VII, and so, what should we rename the program? What is the program? How do we talk about the program? We're actually going to hire a professional firm to do that work with us on that. That is something we, as engineers, aren't good at.

Where we did develop a website, then we're greatly going to expand it to be a knowledge management tool, where we do look at other research that is going on around the world in this subject. We will provide some resources for whoever is interested in the subject.

Also, looking at the institutional framework, what should be the government's role in all of this, and how do we help make this happen? And then, the related policy
issues and legal issues.

And then, as you said, we really are turning our cost
benefit analysis into more of a return on investment
deployment decision tool, to help us look at what research
should be done.

And then, of course, our partners care a lot about
mobility and environment, and we don't want to abandon
those. So, one of the big things we're going to be looking
at is, what can we piggyback on to? If we're doing a safety
system, what can we piggyback on? What are the other
benefits related to mobility and the environment?

Shelley Row: One thing I would quickly mention here,
too. Kay Hartman is here. She's working with Valerie and
Mike on an applications workshop, and a couple of us talked
about that last night, the premise being, not necessarily
VII, but if you got in the presence of all this data that
we know is coming, what do you do with it and how do you
use it? So, that is something we're looking to do, later
in the fall.

Valerie Briggs: And that would not just be DSRC data.
The I-95 Corridor Coalition is looking at this. Lucky me,
I got to say, I don't know what my budget is. We've just
gotten to this level of re-scoping. We are determining
what all of this means, and what it costs. And, we don't have a defined budget.

In the past, the VII budget has been about twenty one million. I don't know what the new budget will be. That is our starting point. But, we have to look at these things, to see how much we're going to do in each of these areas.

Shelley Row: When we estimated early on, we estimated it was about sixteen million for VII, for the next fiscal year, but that will likely change. Also, we're looking at CICAS, and that one is changing, as well, in light of all the changes to the program.

Valerie Briggs: If there are no questions, let's go to CICAS.

Robert Peter Denaro: I just wanted to poll the congregation on the advanced state of the art, and likely to be deployed, and government roles.

Joseph Averkamp: I guess the one observation, and I haven't looked at VII a lot, is one of the challenges to the deployment I see with, generally, a nationwide wireless network is, how is it going to be best deployed and managed by a central authority, which is somewhat counter to the traditional way DOT does business, from a federal aid
perspective.

So, that's going to be a barrier to deployment. The most efficient way to run a network is the way Verizon does it and the way Spring does it. And if we're going to federalize it, where it's going to be sent off to all the states, we'll have to figure out a way so that we don't have—

And that goes from, not just management of the network, but spectrum management. There's probably a role for somebody to be a spectrum manager, to make sure that — you always have issues with competing towers. I mean, carriers deal with that all the time. So, that's among the issues incorporated in the technology.

Scott Belcher: For me, a big hurdle is an ability or willingness to commit, because technology is evolving so quickly, and things are happening so quickly, and I've only been around for nine months, but I've been watching you guys try to keep up and make sure that you don't lose sight of where technology is, and the advances that are happening. But if you don't, at some point, commit to something, then you will just spend all of your time chasing after the next technological advance.

Valerie Briggs: And, the auto industry is very
concerned with that, too. They're saying, if we have to put something in our vehicle, we have to know what it is. We can't put an open platform in our vehicle. What does that mean to us? So, we need to define things at a level that are practical to them.

Randell Iwasaki: I think the good news is, the FCC sets aside 75 megahertz of spectrum for transportation purposes, so that's kind of the focal point of communications. The Safe Trip-21 kind of goes the next step, and that is to test, are there aftermarket solutions? Because VII, when we first started, the communication technologies were imbedded in the car.

With Safe Trip-21, we are talking about communications that are different. There are PDAs and cell phones, and things like that. So, what are the next generation of communication devices that will allow us to do some things we're trying to do with VII? We don't know. That's one of the tests.

Robert Peter Denaro: Randy, from the California perspective, I guess with transportation, do you see the likelihood of deployment of something like this?

Randell Iwasaki: We have always, because we are one of the - we finally made the test bed. We started
installing our DSRC radios for the World Congress, and we knew we weren't going to put those everywhere in California by ourselves. We didn't have the money, and it just doesn't compete with the overlay and interchange.

So, we tried to go and be open-minded about it. Okay, if this truly is a technology we want to use, then how do we do it where there's an incentive for the private sector to come forward? And, that's why we have all these partnerships with others. And originally, in order to be in the test bed, you had to use DSRC, you had to use certain software, everything had to be consistent.

And I think the step forward, which in Scott's mind may be a step back, is we're going out, saying, "Okay, what else is out there?" I think that's what really keeps us in the game, is that there are other options. At the end of the day, we're going to have safety benefits, and hopefully, the mobility, because, that is the piece, itself.

Bryan Mistele: I would add, as originally envisioned it, vehicle-to-infrastructure, I still remain very skeptical if we're going to see a nationwide deployment of any infrastructure, given the cost that won't be borne by the government or the private sector, then you'll have to
go to vehicle-to-vehicle.

My concern there is that the private sector is already doing a lot of the efforts and a lot of investment today. So as currently envisioned, and again, I'm not an expert at all in VII, but we all wonder if it will be deployed?

Randell Iwasaki: When you get to the next topic, that is really when you talk about intersection of collision avoidance. You have to have something that is not going to drop on you. Communication can drop. The cell phone signal is weak in that area. At least from a DOT perspective, you're betting a lot of money on the fact that whatever we're going to do, it has to work 100% of the time. If it doesn't, you're in deep trouble.

Valerie Briggs: If this research spurs the private sector to provide the technologies that would allow the automakers to build vehicles that didn't crash, to prevent an accident, then it has accomplished its purpose. It doesn't have to be done in a design that the federal government comes up with.

Randell Iwasaki: The whole premise was, cars refusing to crash, cars refusing to run off the road.

Valerie Briggs: If some company comes up with the way to do that, then we will have accomplished our goal. And,
Robert Peter Denaro: You can retire?

Valerie Briggs: Right.

Joseph Averkamp: I see where Bryan's coming from, from the perspective of the intermingling of safety and mobility. And I know, to Ken's point, that mobility is what sells. And actually, that is why so much of the private sector is peeling off of those apps and making money at it.

Now, people want to talk about downloading movies and stuff, but they've been doing it for about three years. As far as probe data, their study is done around probe data. So, all of the valuable assets have been peeled off. Also, when you start to talk about the need for commercial to interplay with safety, when you look at what the FCC did with the 700 megahertz spectrum and the D-Block, which they're trying to raise 1.3 billion for, they only got one bid for 470 million. When it didn't meet the reserve price, they took it back.

And the reason why people were reluctant to bid on that is that, when you have the requirements for public delivery that are intermingled with your commercial requirements, it makes the spectrum less valuable. People
are not sure of what the requirements are going to be.

If you talk to people who were looking to bid on the spectrum, it's because many of the state public communications officials wanted things like, ruthless pre-emption, that is, if there's a hurricane in Florida, I want to kick every consumer off my network and make it just available to first responders.

The challenge with that is that, that's exactly the time that I, as a consumer, want to use my phone. So consequently, I'm not going to subscribe to that service. And so, I just think we have to be a little bit careful about overestimating the value of the mobility applications, especially if they're intermingled with safety.

Bryan Mistele: And to your point, a nationwide wireless network, regardless of whether it's Wi-Max or Wi-Fi, or whatever, is very expensive. We have a history of those. Your other point, obviously, as with On-Star and investing, that service exists for safety and security. That is how they make their money. So, clearly, safety sells.

And so, I guess from an environment-scanning point of view, we do want to look at what the car companies are
Shelley Row: One of the things I would share with you is, and you are welcome to comment as well, we do work with the automotive industry quite a lot in this program, and they come to us and tell us where they need our help.

So, for example, even in the vehicle-to-vehicle, where they are perfectly capable of doing the research and the applications for that, what they've asked us to do is the security work in the middle because it's so critical, you can't have a bogus car communicating with a real car. And so, they've asked us to step in the middle of that.

And so, we're trying to work with them to do some of the security work, to study some of the scalability for the vehicles to communicate with vehicles. And, if you think of the number of vehicles in the world, it's an enormous load of information.

So, is it scalable and reliable? Would it be at that scale, and some of those issues? And so, that is where we are trying to, in the white space we talked about, that is where we're trying to work in that white space, to facilitate the automotive industry.

Scott Belcher: And, you also help them bridge the anti-trust gap, as well. That's an important function.
Robert Peter Denaro: One thing I struggle with a little bit, in understanding this, is the integration of this with the previous discussion on the IVBSS. What is the end stage that is going to make sense, in terms of autonomous systems, etcetera, on the vehicles, versus this? So at an intersection, with the new scanning lasers, you can detect a vehicle coming and it's extremely reliable and so forth. Do you detect curve warning, if that's in the vehicle, or is that an infrastructure thing? So, what is the likely intersection of those technologies which makes both of them work better, and at the right price point and so forth?

Robert Peter Denaro: Now, just to check on time, CICAS is the next one, is that right?

Valerie Briggs: We can go real fast through CICAS.

Robert Peter Denaro: That's what you think. You thought you were going to go fast through this one. Just for everybody, we had planned a break at 10:15, but I would suggest we go through CICAS, and everyone will be motivated to move quickly. Then we will take a break after that one.

Cooperative Intersection Collision Avoidance Systems (CICAS)

Valerie Briggs: Like I said, Mike Schagrin is really the manager of CICAS. With VII, I know it, and with CICAS,
I'm going to do my best.

CICAS is really three different programs. One is the Intersection Violation Warning Program, where you get a warning light in an intersection, for the most part, the signalized intersection.

Then, the next one is actually helping you to do a left turn in an intersection, because of course, there are a lot of accidents in left turn movements.

And, the other one is helping you to judge a gap at a stop signed intersection. There are a lot of accidents at, particularly, rural intersections, where people misjudge gaps.

And so, it's really three programs. We're working with different states and universities. This has largely been the University of Virginia, this has largely been California, and this has largely been Minnesota. I believe that's true.

And, the CICAS Violation Program has just completed Phase I. Phase I was developing the concepts and doing a lot of human factors research on the driver vehicle interface, and then actually conducting and developing prototypes, and conducting major test track testing of those prototypes.
They just completed that in Virginia and did get very good results from this. I'm told that it went extremely well. And, they actually did use real drivers, not engineers. And so, they recruited average people out there, and used them at the Virginia Tech Test Track.

This is a program that NHTSA is very involved in, and is actually leading for us. We are very excited about it. And, the next major step in this would be a major field operational test. And like I said, as you know, field operational tests are really expensive, because it's implemented in the field. We don't feel that we have the money at this time to do a major field operational test, and so we have put the brakes on this program at this time. But we may be picking it up and have some of the testing done through VII, in the future.

Robert Peter Denaro: I'm sorry, I don't completely understand what "violation" means?

Valerie Briggs: Violation means it's just, if you're about to run a signalized intersection, that you'll get a warning in your vehicle saying "stop."

Robert Peter Denaro: Traffic light, but not stop sign?

Valerie Briggs: I believe it's just traffic signals.
Yes, Gregg is confirming, this is just traffic signals.

So, what happens is you have is, you have the intersection.

There's a timing on the signal, itself, that sends your car a message that says, you're about to violate.

Robert Peter Denaro: This is not like a camera in the car, sensing if this is a signal?

Valerie Briggs: It's from the intersection, yes.

It's DSRC based.

Shelley Row: That's the other reason we put the field test on hold, with all of the re-scoping and refiguring, to see what makes sense. It's not clear, when you're talking on the order of fifteen million dollars for the field test component, which it is. So, we wanted to let this shake out a little bit more before we make the investment.

Valerie Briggs: In order for this to work, you can put it on a major portion of the signalized intersections in the U.S. So, it would be a huge deployment cost.

Robert Peter Denaro: Well, maybe. But, when you put it on one, you get the benefit there.

Valerie Briggs: You do. This doesn't necessarily have to be universal. In fact, in the VII calculations, most of the vast majority of the ROCs were signalized intersections.
Robert Peter Denaro: My point was, if you did add that to all of the signalized intersections in the U.S. that had the most accidents, and you started working your way down the list, after ten, you're making a substantial contribution.

Valerie Briggs: That's very true.

Dr. Joseph Sussman: In the written material, you characterize CICAS as research within the re-scope of VII.

Valerie Briggs: They started out as separate programs. We're doing everything we can to merge them. They are, of course, based on the same technology, and there has been interaction. It's a lot of the same people from the automotive companies, but it is two different groups. It's more of the safety engineers, whereas with VII, you work with a group called the VII Consortium, which is more the policy level people. And so, we are merging.

Dr. Joseph Sussman: We non-fed mere mortals sometimes have trouble following all these acronyms. You talk about VII, you talk about Safe Trip-21, you talk about CICAS.

Valerie Briggs: And up here, I had to look up what DVI was, and what DII was, myself. And that is one reason why, and Shelley has been a big proponent of this, is that we're all engineers, well most of us are engineers. And we
come up with these terms that make sense to us, but they
may not make sense to everyone, and we're trying to become
much more friendly to how we talk about our programs.

Dr. Joseph Sussman: I'm less worried about particular
acronyms like VII than I am about names of programs which
turn out to be largely the same, with different names.

Valerie Briggs: Well, we started out as in-house
research programs, and while that's fine for us in house,
it doesn't make sense when you're talking to the outside
world, which is why we're trying to talk about them in the
same program.

Dr. Kenneth Button: Besides reporting back to
reporting back to my friends in Virginia that the engineers
are not real drivers, which I'm sure they're going to love
to know, I have a couple of questions. The first one is
actually on testing. Is this testing also about human
reaction to this information?

Valerie Briggs: It is.

Dr. Kenneth Button: My tendency, if I hear the fact
that the light is going to change to red, is to put my foot
down, not slow down.

My second question is, do we look at why people have
some of these problems? For example, my difficulty is
having taken someone to Baltimore last weekend, I kept

going through stop signs. And the reason was simply, they

were just not painted on the road properly. The sign on

the pole had fallen off, or whatever. Now one reason that

happens is the local government doesn't have the resources
to maintain one of the most primitive forms of information.

Now, if you're going to suggest putting in these

really rather more expensive forms of information, I'm just

wondering how you're going to get full implementation,
given the fact that they can't maintain what they've got?

Valerie Briggs: And, that is an ongoing problem with

all of ITS. We can study this technology, but whether or

not it will be implemented in the form we envisioned it is

something that we have a real hard time with having to get

control over.

And, we are doing quite a lot of human factors

research in both of these areas. In fact, this one, the

Stop Sign Assist Program, has a pretty active human factors

research, looking at how the driver reacts to information

on the roadway. So, that is the message.

Dr. Kenneth Button: They normally haven't got

anything, because they're missing something in practice.

Valerie Briggs: That is a different funding program.
Alfred Foxx: What you're saying is in real world reality, the funding for maintaining the basic infrastructure is kind of scarce.

Valerie Briggs: I know, I know.

Alfred Foxx: So, with all of the technology that you're presenting, you say, well, how does that really make streets even safer, when just the basic thing is not there?

Randell Iwasaki: I think that's a great question. This has to do with signalized intersections.

Alfred Foxx: I understand signalized intersections, but there are certain cues on signalized intersections that most of the human persons that are driving key on, like the stop bar. I know, in Baltimore, we have stop bars and crosswalks.

(Crosstalk)

Randell Iwasaki: The controller, itself, can be VII rated. There's not a lot of maintenance, per se, on controllers, and so you've got your normal infrastructure, with just little add-ons. You have a little sticker that says VII ready on your controller. I'm not sure what you do with a stop bar, or the lack of a stop sign.

One of the proof of concepts that we're looking at on VII, is on vehicle signage. If your car is warning you,
there should be a stop sign there.

Alfred Foxx: Even with that, there are some environmental things you have to be worried about, especially in an urban environment where you have trees growing, and things that would interfere with the signals.

Valerie Briggs: That's a good point. This was line of sight based testing, and that is one of the big issues. Does DSRC work over the horizon, or urban canyons?

Okay, Signalized Left Turn Assist, this is the California program we're working on, to look at what we can do to improve left turn movement and reduce left turn related crashes. There has been, I believe this was in the early stages, there's been a concept of operations developed, and there is some research looking at that concept of operations and how it works with the signalized intersections. If you have more questions, I'm going to refer you to Gregg Davis in the back. Again, this is communication from the traffic signal.

Joseph Averkamp: I don't want to get too deep into the concept of operations, but how does it detect the approaching vehicle? Is this radar?

Valerie Briggs: This is DSRC-based, also.

Joseph Averkamp: So, it requires the oncoming vehicle
be equipped?

Valerie Briggs: The assumption in this program is that VII was going to equip all the vehicles. That is why this program is one that we're rolling out.

Joseph Averkamp: So, the information on that is sent to the vehicle?

Valerie Briggs: Yes.

Greg Davis: Actually, there was room for a sensor in the roadway. Adding to what Bob said, the second program there, the Left Turn Assist and Stop Sign Assist, are originally programs designed to give drivers supplemental information that would help them to have a proper cap, whether at a signalized intersection, or a rural intersection, which rural Minnesota is doing in the stop sign assist. Under those two conditions, they're using a combination of lasers and radars to detect the presence of road signs.

Shelley Row: With stop sign assist, part of this program is intended to be an early way of deploying a technology to help with that particular problem. So, it was originally conceived as a pre-DSRC, pre-VII application.

Dr. Adrian Lund: I'm having difficulty imagining how
the left turn assist works. What is it doing? I'm trying
to think of when you need that assist.

Randell Iwasaki: If the car is coming too fast and
you misjudge the gap, and you go ahead and make the left
turn, and they hit you. This system will warn you, "Don't
make the left turn, because the oncoming car is coming too
fast." You're not able to judge that. That is one of the
accidents.

Dr. Adrian Lund: But, I can predict how this is going
to be set. This is going to be set at a very cautious
level. It's going to be like curve speed warnings out
there on yellow signs, which people regularly ignore
because they're set very, very low. This is going to be
giving information that is going to tell people, "Don't
turn, this car is coming too fast."

And those people are going to be sitting there, and
they're going to say, "Well, this thing is really
conservative." And then, it becomes information that they
don't use. Because I can't imagine you sitting at the true
danger point, that is if you floor it, you can't make it.

I'm just trying to figure out, if I'm a driver, when
does it help me?

Greg Davis: The last scenario with a rural signalized
assist, and also these are the accidents that the states have observed that at these particular stop-controlled intersections, the accidents that are involved are typically - 70% are either A, B, or K classifications, so they're very severe hits, because of high speeds on the major arterials. So, this system is assisting drivers trying to make a left turn, through a divided highway.

Now, what happens when we look at the human factor studies, is we get a bunch of data collected that shows the accidents were violations of all the human factors. They were daytime accidents, clear weather, clear sight distance, there was no driver distraction involved. They were just poor judgments, and the driver may not have been paying attention to the road, and they pull out with a gap of less than two seconds, or even less than that, and they are hit.

So, the intent of this infrastructure based device is to warn them and to give them a little heads up that there's traffic approaching from the left, from the right, or across the road, and you should not go.

Dr. Kenneth Button: Let me just ask, who are the people doing this work? Are they sociologists and psychologists?
Greg Davis: They are a combination of engineers and psychologists at the University of Minnesota.

Dr. Kenneth Button: I mean, it's a human first, and engineering second. Human factors may dominate everything.

(Inaudible)

Shelley Row: And, that is the Stop Sign Assist Project, isn't it Greg?

Greg Davis: Yes.

Shelley Row: The signalized Left Turn Assist, that's in the very early stages, and we just had a review on that just recently. And the original technology, while it's valid, we think there are other technologies that might be equally or better suited to the problem.

So we're actually going to go back to rethink a little bit, to make sure we're really looking at optimal choices. It's a very real problem. It is just we are looking at the right technology options?

Dr. Adrian Lund: I recognize the problem. I just can't figure out how this actually works.

Greg Davis: With many of those crashes, obviously, if we see the vehicle coming to us, we're not going to make the left turn. But in many cases, we don't see the vehicle because of the queue of vehicles in opposing lanes making
left turns or whatever, we don't see them, and we go anyway. Those are the kinds of situations where a supplemental warning can add value.

And even if you don't believe, you know, you're making a turn and you realize the thing goes off early, and so forth. If you can't see and you're taking a chance, you are going to pay attention.

Joseph Averkamp: So, I think the biggest challenge to deployment here, Bob, is the number of DSRC units deployed in the vehicle?

Shelley Row: That's for the first one. The second, too, is it's an option they don't require in the vehicle.

Robert Peter Denaro: I know of work going on in Europe right now, for example, where they're using a lot of in-vehicle cameras and that sort of thing, to detect stop signs and signals, and so on.

Valerie Briggs: And, I also believe these are not the technologies that have to be connected to the vehicle, necessarily. It could be aftermarket.

Robert Peter Denaro: Good point.

Shelley Row: I'm not sure we're completely clear on the stop sign one. As Greg said, if there is a divided highway kind of a scenario where you're misjudging the gap,
it's a driver infrastructure interface. So that's not an in vehicle warning. So, the roadway knows you are there, because of the combination of laser and radar, and it is able to tell you via a sign on the road. That's why I-to-I, the driver infrastructure interface is a sign. And that's why it was considered to be a very early application of technology that would predate a VII application.

Dr. Kenneth Button: So, this would replace the physical sign, which Baltimore can't afford to provide?

Shelley Row: That would be it.

(Crosstalk)

Robert Peter Denaro: I'm sorry, would you say that again?

Greg Davis: Part of the stop sign assist and the signalized left turn assist, these are simply advisory signs, so they're only telling a driver when it's not safe to go. We do not give any information for the driver to go ahead.

Dr. Adrian Lund: So, where is that displayed?

Greg Davis: The display, which one, for the stop sign or the signal?

Dr. Adrian Lund: It sounded like you said they were the same, but I need both of them.
Greg Davis: For the stop sign, there are two signs. One is located in the median, and the other is on the far side of the intersection. For the signalized intersection, the infrastructure interface is mounted on the mast.

Dr. Adrian Lund: And, that gives speed back to the person?

Greg Davis: Yes.

Dr. Adrian Lund: So, this is another place the person should look when they looking to see if traffic is coming?

Greg Davis: That's correct.

Tomiji Sugimoto: There are many options.

Dr. Adrian Lund: It could be in the car, but this is just sign enhancement.

Valerie Briggs: Right now, yes.

Dr. Adrian Lund: This is just sign enhancement.

Greg Davis: There are two things going on here. One is the hidden communications the driver does not really see, and the other component is the actual interface, which can be based in the infrastructure, on the vehicle, or potentially on the road, or both. We just need to do further research to find out which is more effective.

Randell Iwasaki: I wanted to say, we built one at the 2005 World Congress in San Francisco. We have the
technology deployed.

Valerie Briggs: Any other questions?

Robert Peter Denaro: Any other questions on the likely to be advanced state of the art, likely to be deployed federal role? Okay, good.

Valerie Briggs: Okay.

Robert Peter Denaro: Valerie, thank you. Good job.

Okay, I think I would propose a break. So, what did we plan? We planned it for fifteen minutes, so let's be back around ten past.

(Recess)

Clarus

Robert Peter Denaro: Alright, I believe we're going to talk about the weather next. Shelley, did you want to say anything?

Shelley Row: This is Paul Pisano. Paul is in the Operations Program. Linda Keefer is the JPO staff person manages the Road/Weather part of the program, but Paul is working on it every day. It's his full time job with Federal Highway. He's been managing this program for quite a number of years, and does an excellent job. He will be talking to you about Clarus.

Now, just so you know, the legislation requires a
weather program and, in fact, specifies a certain amount of money in the budget to be set aside for a Road Weather Program. A part of that program is the Clarus Initiative. So, it is not all the road/weather program, but it is the major research initiative that is a part of the program.

Paul Pisano: Thank you. Again, for those of you not familiar with Clarus, first of all, it is not an acronym. It's the Latin word for clear. We did try to stay away from the acronym side of things.

But, the whole idea here with Clarus is that, number one, there is a difference between what happens up here and what happens on the pavement when it comes to weather. We know that when snows, and the snow doesn't stick to the road, that we need to know what's happening on the roadway, itself, when it comes to weather.

And the other position that we have is that if you had more timely, accurate and relevant information about what is happening, and what is going to happen with the forecast side of weather, you, whether you are a traffic manager, or a maintenance manager, or a traveler, or a truck driver, or whomever, could make a better decision.

So, we're all about information and providing more timely, accurate and relevant information about weather and
road conditions because of the weather. So, we start with that, and recognize that we know that if you have better road/weather information, you can make better decisions.

Safety ETs have been doing this for years when it comes to winter maintenance, and have made huge investments in sensor systems, and there are now about 2,500 sensors along the sides of the road that are collecting data. The problem was that data was not being quality checked, the data was not going anywhere except, maybe, to the state, or to the state's private sector vendor, and we were losing a huge asset.

So, Clarus is all about assimilating all of these observations, quality checking them, and then disseminating them out to the community, both public and private sector, to use these improved observations and turn them into better road/weather information products. So, that is what Clarus is all about.

So, what we've been doing over the past couple of years is designing and developing this database management system, which we did. And that system is run now by one of our contractors. Now, we are at the point where we said, "Okay, we've got the system developed. Let's show what we can do with these observations through a regional
demonstration." The regional demonstration is in three phases.

The first phase, which was completed in January of this year, was to work with teams of states to say, "If you had Clarus information, how would you do your job better? What type of products and services would you want, to better manage the system?"

We had three teams come up with their concepts of operations, of what they would want to have in house, as group information services, to better manage the system because of the weather.

And out of that came some common themes of better traffic operations, a better sense of what is happening on the roadway, better winter maintenance, better traveler information, and more infrastructure-based systems like a better weight restriction system. So I know I'm not letting my trucks drive down roads where the pavement is going to be damaged because the subsurface layers are going through freeze/thaw cycles. So those are the types of concepts they developed.

The second phase is with the theme done in parallel, which is to get as many states connected to the system as possible. We started this fiscal year with six states, and
we added twelve new states. And, I'm going to go ahead and
tack on one slide here, that's not in the package, of the
current status of the system. You can see all the states
in green are those that are connected to the system, who
are providing their road/weather observations into the
database management system, and we're working with others
to get connected. So, our second phase of the regional
demonstration has been to get these other states connected.

You also see, that not only are we looking at just the
U.S., but we're working closely with Canada, who is
developing a similar system called, Road Weather
Information Network. And, we're bringing data from British
Columbia, the Yukon, and Alberta, as well.

We're also working with the local agencies. Right
now, we've got the city of Indianapolis connected, and
we're working with some other cities and counties, to bring
their data in, as well. The idea is, the more data you get
in, the better our observations are going to be, and the
better your ultimate product will be.

The third phase is where we are right now, to actually
build, deploy and evaluate the services that are captured
up in these Phase Con Ops. So, we took the Con Ops from
the states, who said, "This is what we would like." We
turned it into an RFP, which went out on the street to the private sector. It was then required to partner with multiple states to then develop those services, and we will now go through a two year process of developing those services, then testing and evaluating.

The RFP closes today, so I have nothing about how many proposals we've received yet or anything like that. I can't say anything more about it than that, except that we are shooting to award by the end of the fiscal year. We expect to get about twelve months of developing these services, and then about twelve months of testing and evaluation.

Joseph Averkamp: I'm trying to get a feel for the numbers, like, how many stations are you deploying? Are these, like, weather?

Paul Pisano: These are stations that already existed. These are state investments in road/weather sensor stations. There are about 2,500 out there today, and it varies from state to state. Some states, like Minnesota and Ohio, are very rich in their deployments. Other states have very few. So, there is no uniformity. It's all about what the states have decided to invest.

Joseph Averkamp: And, what we're doing here is not
investing and deploying additional stations? We're just got incoming data from the ones that exist?

Paul Pisano: We're taking advantage of the existing infrastructure, and making the most of those investments, and just bringing the data into a common environment, assimilating it, and quality checking it, which tended not to be done within the state systems, to make sure we've got good data, and then turning that out to whomever wants it.

It's available back to the states, so the states can use the system, just to monitor the health of their network, and see, "Am I getting the good data that I think I'm getting?" and also, to the private sector. For example, Barent Services is one of our customers. They take the data off of Clarus, they feed it through their XM services, so now, if you subscribe to the XM weather service, there is some Clarus data in there.

Obligated this year was nine hundred thousand, a much more committed big dollar figure being the base for the regional demonstration, and we expect to obligate much more by the end of the fiscal year.

Shelley Row: What's the big chunk of money you're expected to obligate?

Paul Pisano: We expect to obligate, the total this
year for Clarus is about six million. And as I said, the majority of that is part of the regional demonstration. So, we're expecting another four and a half, easily, that is committed, but not yet obligated, plus the other nine, so that's five and a half that has either been committed, or obligated.

Okay, so in terms of expected accomplishments, then, for this fiscal year, we're going to go through the Phase III Regional Demonstration to build these services. We also have a target of adding ten more states to the system. Again, state participation is purely voluntary. So, number one, they're not required to participate, and number two, they may not have any data to add to the system. So, we don't expect to have all fifty states, ever.

Our target is about thirty three states, so we've got eighteen and a half. South Dakota is half a state right now, because we've got their stations, we know where their stations are located, we've got the meta-data associated with those stations, but we're not actually bringing the congestion data from South Dakota yet. So, if we got that, that would be nineteen. If we had another ten more that would give us twenty nine, so we're almost as far as we think we were going to be able to get, in terms of getting
states connected.

The other big part of it that we look to do this coming year is to work more closely with the private sector. We're afraid that this might be one of the best-kept secrets of the ITS program, and the private sector may not even be aware of the fact that there's all this data out there, available to them.

So, we want to foster use of that data, not so much through funding operational tests. The regional demonstration is going to be the real closed activity we'll be doing. But more, just being more aware that the data is there, what it takes to get to the data, how to access it, how to subscribe, and all of that type of thing.

We also recognize that this is an R&D system. It is not a permanent deployment, and yet we want to have a permanent home for this process. So, we're working very closely with NOAA, the National Oceanic and Atmospheric Administration, who oversees the National Weather Service. It does this sort of thing for all the atmospheric weather stations, so we want to bring it in to that process.

Shelley is in discussions with the director of the National Weather Service. They are fully committed to doing that. How that happens, when that happens, and all
the details, we are still trying to hash out. There is
certainly some risk involved, but our target right now is
to have it all over and into NOAA by mid-2011.

We also – our original system requirements had on the
order of twelve different quality checking processes that
we wanted to run within the system. We originally built
eight of those, and so now we're going through the process
of improving some of the other quality detecting
capabilities.

And the other big piece to Clarus and to Road Weather
is this whole idea of mobile observations. This was
mentioned briefly in the VII discussion, but the fact is,
as recognized earlier, there is a fixed number of sensors
out there, and there's a lot of roadway that is not being
measured. And, as you know, bridges freeze before road
surfaces, so you can have very local weather condition, and
you're not going to get that, you're not going to be able
to deploy that many sensors along your network.

How do you fill those gaps between sensors? The
vehicle, we think, is the natural way to do that. And,
just this whole idea of getting into the bus, to get
windshield wiper status, ABS or traction control data,
temperature off of the vehicle, all these things that are
already being collected on a vehicle, if we can turn it
into a valid road/weather observation, that would be an
immense asset to this whole idea of getting more timely,
accurate, and relevant road/weather information.

We're looking at that, and we also recognize that
windshield wiper status doesn't tell you, necessarily, that
it's raining. It could mean that you're washing the
windshield, or not. So, we need to get a lot of data, and
we also need to compare that data, say, through a radar
mosaic, to confirm that what radar is showing is actually
hitting the ground, or not.

And so, there is some post-processing that needs to
happen with these vehicle observations, to turn it into a
valid road/weather observation. What we're working on now
is to develop the algorithms to see how to take that data
and to turn it into useful observations.

So, in 2009, we're estimating about 2.1 million for
Clarus. As Shelley mentioned earlier, we also have other
projects we're working through the Road/Weather Program,
that the remaining money will go into. We're authorized at
five million, but what we are actually appropriated is
still to be determined. So, there is some gray area there,
but about 2.1 million is what we're anticipating for '09.
That was about fifteen minutes' worth. Any questions?

Dr. Adrian Lund: I have a question. I understand you're doing, potentially, some enhancement thinking, too, by adding mobile platforms, but you have a demonstration scheduled for fiscal year '09. My question is, what is the definition of a successful demonstration? What are you looking to demonstrate?

Paul Pisano: Well, it comes back to improved operations and management of the highway system. So, if a state is able to save money by using, say, when it comes to winter maintenance. Some states will go out and spread chemicals any time they see the first snowflake. We want to try to reduce that by more effectively managing their resources.

If they have better information through these Clarus services, they may not dispatch the crews unnecessarily. So that would save the impact on the environment and the impact on direct dollars saved by the state DOT on their winter maintenance processes.

If they make a decision about when to allow trucks to use their roads because of weight restrictions and the potential damage to the pavement, then that means they are going to be saving money, because they're not putting
trucks out there on roads where they shouldn't be traveling.

Dr. Adrian Lund: Are you actually going to measure whether they make good decisions, or just whether they avail themselves of the information?

Paul Pisano: To the extent that we can actually look at the actual cost savings, we're going to do that. And, I think that that can be done with respect to the winter maintenance decisions, for example.

Some if it is going to be more traveler information based. We're going to improve services for travelers. We're going to have to come up with some sort of surrogates to assess whether or not it's actually helping travelers to make better decisions. We may not know that explicitly.

Shelley Row: If I could just interject for a minute. I think the other thing, too, as Paul says, that we can evaluate is the actual demonstrations that are done. But the other thing that I think may be a little implicit in the demonstrations is that we can take the data, work with the states, and work with the private sector. They're working, fundamentally, with the private sector to develop some services.

One of the things it does is create a market. This is
an extremely small marketplace. It's a very niche service, and they don't have research dollars. So, if we can help do an application that both helps the private sector to see how the data could be used for their benefit, and give their potential customer a flavor of how valuable it can be, then we actually seed a marketplace there.

And, we have been very successful in the other part of the program, making decisions for support systems, of doing that, creating a market, creating some data that is available that the private sector takes, and then serves that market.

Dr. Adrian Lund: So, success implies that somebody is taking it up?

Shelley Row: That is right. "Somebody," being both public sector and private sector.

Dr. Kenneth Button: These things currently used on a low integrated basis, as far as I understand it, therefore, there must be some information how actually this information is used at the moment, by the private sector and the public sector.

The obvious thing to do is, first off, find how they use it at the moment before you move forward. Has anyone been actually asking the people, the clients for the
current system, how they use it?

Paul Pisano: Well, that is, certainly the states who
are the ones investing in the system, they use it mostly as
a winter maintenance tool. And as I said through Phase I,
we said, "How else would you want to use it," they're
recognizing that we would see some other value added.

Dr. Kenneth Button: And, I, is it used by the private
sector, and in what way?

Paul Pisano: Not as much, because it's not available.
It's proprietary, so that company who installed the sensors
in that state will have the data, but there might be a
small company who does road/weather forecasting that isn't
tied to the broader community to get that information.
Some states are putting sensor observations up on their
websites, but not turning that into that value-added
information, that we want to see not just what the
temperature is now, but what is the pavement going to be
like three hours from now when I'm driving on it? There's
limited capability out there.

There is some of that, but we're trying to expand it
out to broader and more sophisticated types of products.

Dr. Joseph Sussman: You talked about relatively
routine events, rain and snow. Do you deal with unusual
events like tornados and dust storms, and that kind of thing?

Paul Pisano: The systems are observing at all times, and there, it's a matter of, what do you do with the data? Now, a tornado is usually such a short-lived event that you're going to get your information about tornados from the weather service as it is now, and there's not a real link today to the highway environment.

Dust storms and visibility, on the other hand, there's a lot of that. And, there's a lot of use by states to monitor the visibility, whether it's fog, or dust, or things like that. And, they'll use that, like in California, with the fog warning system and such, they would use that to link it to roadsides and such.

Randell Iwasaki: These are more on a micro-scale, each little weather station. And to your question, there's no one place to go where the private sector firm can import all of this information to then guide trucks through the Sierra Nevadas with some reasonable information.

Dr. Kenneth Button: I was just asking what it's used for?

Randell Iwasaki: NOAA's information is more global. So, you see the huge cloud, but you don't know on a micro-
scale how the road is icing, is it not, should I send my
trucks out right now? And then, from a maintenance
perspective, you want to save money. In the old days, what
eye did was they spread salt everywhere before it snowed.
And then the snowstorm doesn't come, and it's windy, and
all of your salt gets blown off and kills all the trees on
the side of the road, but there's no salt left on your
road. Then it does rain, then it does freeze. And you're
supposed to create a brine to make sure your ice not stick
to the road. So now, you have to get graters, because the
stuff is sticking and the road is closed. And so, it just
gives you a little bit better information.

Shelley Row: Interestingly, Canada has identified
salt as a hazardous material.

Randell Iwasaki: So have we. If you go on Interstate
80, heading to Reno, there are very few trees left alive
within a certain range, because it's really alkaline soil
now, and kills all the trees. So, we try to limit the
amount of salt we spread.

Paul Pisano: Likewise, in New Hampshire, they're
trying to do a widening of the highway, and they can't
unless they can show that they're going to reduce the
amount of salt that they use on that road. There are
actual ties to other highway improvements because of the salt associated with winter maintenance.

Randell Iwasaki: It's not, per se, a hazardous material, but we have to address this issue of salt.

Robert Peter Denaro: It sounds like it's a pretty high priority in California. Do you see a lot of value?

Randell Iwasaki: Yep.

Paul Pisano: Thank you for your time.

Robert Peter Denaro: Any other questions before you escape?

Scott Belcher: I guess my question, and maybe you mentioned it and I missed it is, so most of the data is proprietary? How is there, it goes to the deployment point. I mean, you’ve got deployment where the states are getting the data, but how does the data then become available to a companies like Bryan's, who would want to push this data out to consumers?

Paul Pisano: It originally had been proprietary, and there have been a lot of restrictions that the companies would put on the states who are procuring the systems. As it is now, if the state provides data to the Clarus system that data is available to anybody.

Scott Belcher: In real time?
Paul Pisano: Near real time. It takes a couple of minutes to run through the quality checks. And also, it a question of how often the states poll their stations. They may do it every fifteen minutes, every thirty minutes, or every hour. So, it's only as frequent as the states are polling it. Once they poll it, we get it, and within minutes it's quality checked and out there.

Scott Belcher: Do people know it's available now? Do companies know it's available?

Paul Pisano: Some. We work very hard with the private sector. And, I forgot to mention, next week, we have our big stakeholder meeting. We've got about eighty people coming in, both public sector and private sector, weather community and transportation community, private sector. We have Barent Services, some of the data users, QTT and such, are going to be there. So, some people know about it who have been participating as part of a stakeholder group.

As I mentioned earlier, I don't think we've done a good enough job raising awareness about it, so, I think we need to do more. I know Pete Costello at INRIX has been active in our stakeholder group, so he's aware of it. But, whether or not it is out there and is broader, I don't
know.

Shelley Row: One of the measures of the effectiveness of a program is how much has the private sector picked up the data and used it? We don't try to have any control over who it is, because in some cases, it might be someone at Bryan's company, or it might be a weather provider who is going to take it, weave it into the forecast, and then provide that forecast to a company like Bryan's company. We don't care, as long as they're getting good quality road-specific micro-scale data. And, that is what has been missing all this time. And we're hoping that if we can do some of this work, that that market will develop, and that it will create a pool so that they can go further with it.

Paul Pisano: Getting back to the point of the previous question. The whole private sector, whether that is between public and private, we see the public sector role as the facilitator, by running the quality checking processes, then providing data. But then the private sector and let other people take the data and run with it, and do good things with it.

Robert Peter Denaro: Thanks, Paul.

Congestion Initiative

Shelley Row: This is Brian Cronin. Brian manages the
Congestion Initiative, which you're going to hear about now, for the ITS Program. This is obviously a DOT-wide program. He also manages the Integrated Corridor Management Project, which you will hear about next.

Brian Cronin: The Congestion Initiative is multi-modal, multi-agency funded, and managed through OST. It is being funded as part of ITS Program, as well as with funds from FTA, and the Federal Highway Administration.

So, I just thought today, really, if you ask, "What do we do this year?" Really, what we are doing is getting the money out and awarded, and trying to work with the locations we've selected to actually have the legislative authority and implement the project.

So, the big fall out, New York, did not get their legislative authority. We pulled their money back. We have then selected Las Angeles and Chicago. There was only a small amount, five million dollars of ITS money that was going to New York, so, just that money was reallocated, three and a half million to Chicago, focusing a lot on bus rapid transit technology, and sort of supporting that. The rest of the money is going into the evaluation pot to support adding L.A. and Chicago into the evaluation.

The biggest thing is Minnesota, and that's fully
funded. Seattle, as of, actually, this week now, they have half of their money, so this number now up to about 44 million dollars.

The biggest activity, really, for the JPO is, we're leading the evaluation. So myself and Jane Lappin, and we have representatives from the modes and the Secretary's office looking at, how do we evaluate these different implementations? What do we look at? What data are we trying to generate? How are we going to show impact on congestion?

And so, we selected an independent evaluator. They have gone out, actually, this week they're in Seattle, next week they're in Minnesota. We've already been to Miami several times, trying to look at how are we going to get this data, and how are we going to show that for tolling transit technology telecommuting, we're impacting congestion? So, that's where we are this year.

Bryan Mistele: Weren't there two other studies, like San Diego and Miami, on the list?

Brian Cronin: Yes, our five original partners were Miami, New York, Seattle, Minnesota, and San Francisco. New York is out, and we've added L.A. and Chicago. In addition to ITS money, there was fifteen million of FDA
transit money and three million of ITS money going to San Diego for an automated bus guidance application. So, we haven't awarded ITS money. We're going to do that next year. We've been finalizing the scope and so forth.

So, the next year, in the fall, we're going to have documented, sort of the whole evaluation and framework, how we're looking at all of these different cities, and how we're going to answer the objectives questions we posted.

In the spring, we hope to have detailed specific plans for all the sites, and most of them are operational September of '09. That is the deadline we put in our agreements. Miami is actually looking - they have a Phase I, their first phase should be operational at the end of August, or early September. We have another 40 million next year.

I'd be happy to answer any questions, if you want to know what ITS is getting out of it.

Joseph Averkamp: One of the questions do I have, and this goes to part of the vision about managing demand, is telecommuting is part of the initiative? Is anyone actively pursuing telecommuting?

Brian Cronin: Minnesota is the most active. They have been partnering with Best Buy as a major employment
center. And they have instituted, I can't remember the
name of it, but they have a special program that they're
focused on, and so they've probably taken that and doing
the most advanced amount of telecommuting along their
corridor. San Francisco, Seattle and Miami are all doing
something.

We didn't get as big a response on that element as we
were hoping for, but it is a part of what we are trying to
do.

Robert Peter Denaro: Is VMT tolling part of that?

Brian Cronin: What's that?

Robert Peter Denaro: Is Vehicle Miles Travel Tolling
part of this?

Brian Cronin: No.

Joseph Averkamp: Do we have an urban partners
discussion?

Shelley Row: This is it. These are the urban
partners.

Brian Cronin: Most of the ITS funds are going towards
open road tolling. However, in Seattle, most of the
resources are active traffic management, a sign to look at
how you actively manage that freeway network. And in San
Francisco, there will be a lot of ITS money put into 511
and traveler information enhancements.

Randell Iwasaki: When is Washington going to do the Active Traffic Managing, because we have an 80 million dollar contract that is getting designed right now on Interstate 80, heading toward San Francisco/Oakland Bay Bridge? Are they going to be within a couple of years, because we're within a couple of years of doing that? We can certainly give you information on that when we get it.

Brian Cronin: They're supposed to have everything at this point up and running by September of '09.

Randell Iwasaki: Really?

Brian Cronin: Yes.

Randell Iwasaki: Have they gone through the environmental process yet?

Brian Cronin: I'm not sure, yet, to be honest with you.

Michael Replogle: There is also a component of, in the San Francisco EPA that deals with parking pricing and parking management in the downtown. Is there an ITS component to that?

Brian Cronin: Yes, there is no ITS money, but it is a massive ITS implementation. It's just sort of using different money. So, they have both on-street and off-
street parking. They have 26,000 spaces that are publicly
owned and operated.

Actually, I was just there last week, and they are
piloting, just even before they get our money basically,
parking which uses mesh networks, and communication with
in-space centers to monitor the space availability, and
then be able to go with various different payment options.

But to look at how they take that information and put
it into the Trip Planner, or different outreach mechanisms.

Dr. Kenneth Button: Just the public sector parking?

Brian Cronin: Yes.

Dr. Kenneth Button: Why not private?

Brian Cronin: Why not? They would love to have the
private. There are a few major private operators trying to
get in.

Dr. Kenneth Button: Well, it's simple. Just put the
monitor on the road, outside the car park so they can
measure the cars going in, and the cars coming out. You
don't need the private sector to participate.

Robert Peter Denaro: There's actually a story that
goes back fifteen years ago. The first system that did
that was in Gothenburg, Sweden, and they actually went in
and dug up the road in front of all the parking lots, and
put the sensors in there, and then they were done with it.

Dr. Kenneth Button: Exactly, you don't need the private sector's participation.

Shelley Row: We will have to tell San Francisco.

Michael Replogle: And parking management pricing is really the centerpiece in Chicago, where there is no roadway pricing. So, is there an ITS component that you expect to be funding in Chicago dealing with that, as well?

Brian Cronin: No. I mean, essentially, in Chicago, we've provided transit money as a negotiation. They're doing the partner pricing, and they're hiring a concessionaire. So, we have some money going for evaluation, and we have some money as part of the transit. That's it.

Michael Replogle: As a part of these evaluations plans, I'm thinking back to, this goes, probably it dates me, actually, back in the last 70s and early 80s, US DOT used to have something called the Service and Methods Demonstration Program, which basically tried to promote best practices and gave money for innovative strategies to local governments' transit agencies and transportation.

And, there was a US DOT funded component called Service and Methods Demonstration Briefs, which worked with
the evaluation contractors on these initiatives to, basically, fund monthly reports for the public around the country on what was the progress in these projects, and what could others learn from these best practices as they were being evaluated, and as these initiatives were being designed, and as they unfolded.

So others in other states and communities could see, what does it take to get one of these up and going, what are the factors in evaluating, and what is being learned as it is being learned? So, it was more of a cooperative learning progress.

I'm wondering if there is any potential for that kind of a framework here, so that you could make sure that the evaluation plans and frameworks that you're helping to fund for these partnership initiatives, get properly disseminated and provide for this kind of collective work?

Brian Cronin: We have a communication plan as part of the evaluation scope. That's something we're looking at, how much we do and in this next year versus a couple of years out. We're trying to put on the grid, now on the website, as much information as we have. We have fact sheets about each of the urban partners, and what they're trying to do. But, that is a good idea, to look a little
Dr. Joseph Sussman: Is it worth looking at any of the political side of this, why it went down in flames in New York, to try to understand some of the impediments to implementing these kinds of schemes? Or, do you view it as so obvious that it's not worth studying?

Brian Cronin: I think New York is looking at – we aren't finding anything specifically at the moment, as to evaluating why New York didn't get the necessary authority, I think New York is looking at that. And maybe, our pricing office, I haven’t talked to, their document is something on the side. A lot of it was a political issue.

Dr. Joseph Sussman: If we're interested in barriers to deployment, obviously, there was a pretty big barrier to deployment.

Michael Replogle: It was really a failure of deal making. It was a problem in the relationship between the mayor and the legislature, more than anything else.

Shelley Row: Just so you know, a little more background here, too. One of the real challenges with the whole UPA Congestion Initiative is how many different pots of money went into this?

Brian Cronin: At least ten.
Shelley Row: Okay, and each one of those, you can probably appreciate, have different requirements on the type of money. So, when the applications came in, then the team had to go through the applications and figure out what was a worthy project, and then mix and match pots of money to fund different things. Nobody had evaluation money but us. And then, of course, there was much more money requested than what was available. So, we had to be very strong in carving off money to do evaluation.

And our question was, what do you evaluate? Do you evaluate the ITS portion since it's ITS money, or do you evaluate the initiative? And a lot of the questions are about, really, about did the premise work? And so, we're actually kind of evaluating the whole premise. The difficulty is that the money we have for the evaluation is going to be stretched pretty thin to do the evaluations. So, we're trying to stick to the netting, and that's why you see us really focus on those specific locations.

Michael Replogle: How big is the evaluation budget?

Brian Cronin: It's now up to about 6.9 million, but you've really got to look at that, out of 8 million dollars. Don't look at it out of a hundred.

Dr. Kenneth Button: By evaluation, evaluation means
you're putting a money value on it? Basically, what do you mean by evaluation? How are you defining evaluation?

Brian Cronin: We have four key objectives, and what's the impact on congestion by the implementation, mainly, of the pricing? And that is question one.

Question two is the associated impacts to transit to ridership go up? Does the arterial run better? What was the impact on the environment? What was the impact on the freight goods movement? And the question, what is the associated impact, is the same. The sublevel under that and what we are going to focus on is going to differ, site by site.

The third question was, the lessons learned and not the outreach, but certainly the communications and policy related to the decision making.

And the fourth one is cost benefit. I'll just leave it at that. I was here in the morning.

(A bit of laughter)

Dr. Kenneth Button: It's politicians taking on a particular piece of jargon, which they particularly like the sound of.

Robert Peter Denaro: Any other comments from the Committee on the state of the art, or the deployment?
Brian Cronin: I think you will see, if you've read
the Secretary's announcement on the new plan, the Urban
Partnership, and the pooling of resources, and the multi-
modal nature, is all sort of stemming from this idea.

Scott Belcher: From my standpoint, I think the real
value of this is that, as we go into reauthorization of the
transportation bill, one of the great challenges is really
being able to articulate deployments and benefits, where
things have actually happened, and what the results of
those are. And, this gives you some very large, very
visible case studies that you can point to. So, I think
that's the greatest value, in my book.

Michael Replogle: I would agree with Scott, and I
think this initiative, perhaps, more than any other in US
DOT is kind of breaking the ice of looking at integrated
holistic approaches to managing transportation networks for
high productivity and high system performance, and doing so
in an effort to try and get at a better cost effectiveness
and trying to break through some of the political log jams
around more integrated approaches.

And at the same time, I think there have been some
real challenges in conveying the benefits and the
attributes of this program to the Congress, in particular.
And so, I think we've seen some signs that congressional support for this program has been less than strong.

I think one of the biggest challenges, going into the coming year or two, is how to convey the benefits of this in a way that shows that this isn't a partisan thing, and this isn't about privatization. It isn't about trying destroy transit, or this isn't anti-rail, this isn't anti-Smart Growth.

This is something that can, in fact, be used as an effective instrument for harnessing federal transportation resources in a way that, again, focuses on the fundamental purpose of the program, getting good value for the customer and the tax payer out of that.

So, figuring out a way to sell this more effectively on Capitol Hill, I think, remains a challenge for US DOT, and I would encourage you to redouble efforts in that arena.

Dr. Joseph Sussman: Shelley, is there anything instructive, and I'm not trying to be facetious about this, to ask about how the monies were coupled together to do this? It's sort of unusual in the context.

Shelley Row: It was very unusual. I've never seen anything like it in my career. It could not have happened,
had it not been for such strong leadership out of the Secretary's office. That is the only way you could get around a billion dollars.

So, it was that, and then we had the continuing resolution that freed up a lot of money. So, those two factors came together at one time, that enabled the Department to put so much money together in one spot.

Brian Cronin: It started just with ITS and Value Pricing. So, you had 130 million in discretionary money. Then basically, the rest of the money was earmarked. Then you had 550 million in Transit money, you had another 100 million in Federal Highway money.

Shelley Row: That was freed up. And then the Secretary's office remains heavily involved, and that has been the glue that has made this work, because it would have been extremely difficult for all those modes and all those different kinds of money to come together, and sort it all out.

Joseph Averkamp: If we focus on the safety initiative, as we talked about in the vision, how does this initiative fit in?

Shelley Row: Well, the funding for it ends in 2009, so the last bit of money that we provide is in the next
fiscal year. So, that's all the money we will have in this program.

Michael Replogle: I guess I think that's a concern, because this has been, to my mind, perhaps one of the most promising initiatives. So, I would hate to see that lost in the translation of this program, to focus on safety. I think the safety focus is a good one, but it shouldn't be the sole focus.

I guess I would very much hope that this kind of integrated, holistic initiative, and say ITS needs to be embedded as a part of how we think about smart transportation systems, and networks and services. That is part of the vision right there.

Brian Cronin: I would agree, but also say, while there is some advancement in research in ITS, most of this is pre-existing technology, so it is really a function of, is there a venue or a mechanism, for looking at how to get the money to implement these? So, hopefully, these demonstrations will prove that this strategy works. Then, it's just a mechanism of money.

I mean, there will be some new ways to do pricing, or new ways to get traveler information out, which we may still want to do some research on. I mean, I would agree.
You don't want to just give up on safety, but the premise behind this is really, it's more a funding availability issue.

Dr. Kenneth Button: I take your point about the demonstrations. To be honest, we've got congestion pricing and things in place in many parts of the world. We've had it successfully implemented in some environments in this country. I'm not sure, I mean, you can do as many demonstrations as you like, but I think there needs to be a change in political will, which I think, possibly, Joe is, in some sense, hinting at.

I mean, I think this is in favor of it, but I wouldn't be too optimistic about changing a great deal of minds because there's a lot of experience out there that congestion pricing works, that technology works, the whole lot.

I think it is useful, as I say, but I'm not so optimistic that it actually moves you forward, in terms of actual applications, in the long run.

Brian Cronin: And I would say that the political conversation that has been had in this country over the last year has probably happened ten years sooner than it ever would have happened. And so, I think that is an
impetus for moving things forward.

Michael Replogle: And, I think the conversation, particularly in New York, did more to advance the conversation in the nation. And we got, for the first time, an elected city council body of the largest city in the country, voting 30 to 20 in favor of implementing a congestion charge to enter downtown, and to reduce traffic by over 6%, and to fund better transit. So, that is a major achievement. We actually had two governors and one house of the state legislature supporting it. New York may come back in the wake of the Ravitch Commission, to revisit this.

And, I think it is not a done deal yet in California, as to whether they will be able to secure state legislative support in the next month.

Robert Peter Denaro: We probably should move on.

**Integrated Corridor Management (ICM)**

Brian Cronin: In Integrated Corridor Management, this is really the premise that states, and transit agencies, and cities have implemented ITS over the last many years, and have sort of optimized the highway arterial and the transit system.

But for a user, and operating the system, how can we
integrate the operations and management of a multi-modal corridor to make and improve reliable person and goods through-put? So, it's looking at, how do we from a management perspective, share data information, mostly from existing systems between freeway, arterial, and transit operators? And then, how do we take that information and make it also available to the traveler?

So, over the last year, we've been focused on working with eight sites across the country to define, really, what is the concept of this system, and what are the requirements, and what will it do, what will these systems be able to achieve, and what are some gaps? And, we've completed that.

We are starting to looking at where we completed the testing and modeling of a test corridor. We're looking at how does a locality assess, or what sort of strategies make sense? What are the interdependencies between those strategies, to sort of make that analysis before we jump into a demonstration? So, we've completed that.

And, we're just finishing up the process of completing the selection of three of the sites to do this modeling. When we look at the ultimate outcomes of this initiative, it is that we've demonstrated this ICM concept, and that we
have tools available for localities to make decisions on, what are the sort of strategies they want to implement? How much management improvement can we get? And so, that is where we're going through that process.

We obligated just under 2.8 million so far this year. Let me go to the next one and then we'll take questions. The next year, we will be completing this modeling, this simulation activity, with three different sites, and then we will be selecting up to three pioneer sites to actually demonstrate. They'll be bringing in their partners to, basically, implement and design their system. And that is a proposed budget of 7.8 million, mainly reflecting the cost to do demonstrations.

Randell Iwasaki: When you say, "select up to three pioneer sites," are you actually talking about the three pioneer sites you mentioned on the previous page, or are these different sites?

Brian Cronin: We made the decision that at the start, and we had eight we were working with, that we're limiting it to those eight. But, we will open it back up to all eight from a demonstration perspective. With that said, they've got to have good costs, and requirements, and data.

Randell Iwasaki: So, should we be producing an AMS
for one of the pioneer sites you didn't select?

Brian Cronin: Well, we have several cities in the mix, but we have sort of committed to a process where we want these sites to define their performance objectives and goals, archive data, and collect it and make sure you can measure it against the goals, and do the modeling simulations to make sure you can actually do the analysis. And so, when we collected and decided on the analysis modeling simulation sites, we needed sites who have a good requirements. So, they decided on their goals and have the available now, or maybe just a limited amount of data they had to go and collect so we could do the modeling in a year, and then have models available to, hopefully, calibrate it and validate it so we can use it.

What we're trying to do in this phase is, sort of, prove that out, this analysis process. When we get to the demonstration, we have to model again, because what we're ultimately trying to do at the end of the game, is have this modeling approach that has been used, that's reliable, and that has information that we're using in this next year, to predict and use as assumptions for modeling. We want the demonstrations to validate that those assumptions are correct.
So, we will be collecting and evaluating the information. If we didn't model the site now, and we picked them at the demonstration phase, that would mean modeling them then.

Michael Replogle: What does "AMS" stand for?

Brian Cronin: Analysis Modeling and Simulation.

Dr. Joseph Sussman: Can you say a few words about the kinds of models you're anticipating here?

Brian Cronin: We're using a demand model. There are, sort of, three classes of models. There's macroscopic travel demand, which puts trips at a regional level, and you have to use that. Then, there's mesoscopic, which looks more at the corridor, in and of itself. And then, there's microscopic, which would look at the arterials.

And in the traffic sense, we're using all three, because you're trying to look at how trip choices are made, how they distribute it through the network, and the ultimate results? We're not creating new models. We're using the existing models. What we are doing in the research phase is how you bring these things together to make the appropriate decision making?

Dr. Joseph Sussman: Whose models are you using?

Brian Cronin: Lots of different vendors.
Dr. Joseph Sussman: Are you using many mesoscopic and many microscopic?

Brian Cronin: Yes. On microscopic, we have SynchPro. For traffic signal, we have Visa. We've got mesoscopic in a direct model, which is related to DynoSmart Transmodeler. As a demand model, we have a few different names. So, we're bringing in private partners to work with us a little bit. One of our key things is, we're trying to be vendor neutral. We're trying to provide a process and test it.

Michael Replogle: Is there an objective here of being able to do these things, sort of, generically, or to match them up with real time traffic observations, so that you can anticipate, that you're going to have a degraded level of service a half an hour from now if you don't take action now?

Brian Cronin: Several sites are contemplating that. The modeling that we're going to do initially is at the planning level, to help in choice of strategy. Several of the sites are thinking ahead and trying to make it more of a real-time predictive model than is out there yet. So, it is something that we might include as a part of the demonstration, but we'll see.

Dr. Adrian Lund: I'm going to ask a question that
really shows my ignorance. Is a good outcome that you
increase the number of completed trips through your
corridor, or are you decreasing?

Brian Cronin: That is a good question. We talk
about, really, increasing reliable data throughput. So,
the question is, is part of it increasing it, or providing
more a transit service? Part if it is just getting the
same amount of cars through more reliably.

Dr. Adrian Lund: So, the corridors you're looking at,
you've got alternative forms of transportation, as well as
alternative routes?

Brian Cronin: Yes.

Randell Iwasaki: We did this in the Bay area back in
2000. It's a lot of work. It's a tremendous amount of
work, and most DOTs won't do it because it costs too much.
But we broke up Interstate 80, because it has parallel
routes and it has parallel transit opportunities.

So, we looked at number one, how do we sequence our
investment so it won't cause a problem somewhere else, by
doing an improvement here? And then, it's not less strips,
it's moving more people through that corridor more
reliably. So, if there's capacity here, how do we then use
ITS or other methods, to tie people into other modes, or on
a different street?

So, you can't take a location where you have
interstate X, and there are absolutely no parallel routes
or transit. It just doesn't work there. But, where you
have highly urbanized areas and multiple options, then how
do you put a parking lot in the right location or use
transitory development? What are those impacts that allow
you to get more people through the system more reliably,
and make that permanent mode shift?

Dr. Adrian Lund: So, it's decreasing in one mode, and
increasing in another?

Randell Iwasaki: It could be, yes.

Michael Replogle: Is this work integrated with the
Travel Model Improvement Program that is funded out of the
Federal Highway Administration Office of Planning?

Brian Cronin: Somewhat. We are doing model
coordination work, but there is not a direct funding link,
or anything.

Michael Replogle: I guess I would just suggest that
there is value in trying to coordinate those efforts as
closely as you can, because they're trying to advance these
same kinds of tools, and help MPOs and state DOTs make use
of these tools. So, I think there's room for a lot of
cross-fertilization.

Dr. Joseph Sussman: I hear you saying, though, that you're starting with other people's models, a broad variety of them, and that the contribution here would simply be the integration of these models at various scales to produce some kind of integrated tool. Is that what you are proposing?

Brian Cronin: We're not going to create a tool. We will work with some of the tools if there is a piece that's not capable of doing, and we need to do that if we need to get the interface to enable that analysis. But, we're not trying to come and create this massive model, or tool, that we will go sell, or just make available.

What we're trying to do is work with the model suppliers and agencies, to identify, sort of, whether we need enhance the capability and test the approach?

Michael Replogle: You know, as we step back and look at the major questions we're asked about, I'm struck, just looking at your budget numbers. I think the budget that you have here in the JPO program for this initiative is about equal to the budget of the entire Travel Model Improvement Program in the Federal Highway Administration, which is aimed at four hundred MPOs across the country and
fifty state DOTs, many of whom are lagging terribly in their modeling practices and using really old, and not very workable, schemes that don’t take into account things like time of day or travel.

So, I guess it seems to me that there is a compelling case to be made to look at how, I mean, if you have 21 million dollars remaining in this program as you go forward, to try to make sure that the results from this program aren't concentrated only in the test sites, but that they really are rapidly disseminated into looking at where are the gaps in all the four hundred MPOs in the country that have a potential benefit of looking at better modeling to support traffic system management, and taking results from what you do here and to raise their own state of practice?

Dr. Kenneth Button: Can I ask a question? There's a huge modeling exercise going on, involving massive numbers of redundant physicists, in California somewhere.

Michael Replogle: You're talking about the Los Alamos effort?

Dr. Kenneth Button: Yes, it's a huge exercise.

Michael Replogle: That's a Domenici Special – Senator Domenici.
Dr. Kenneth Button: It's just a huge exercise. It's totally wrong, of course, but huge.

Scott Belcher: One of the things that I like about, both, this program, as well as the other one, Brian, and I think you've got two good ones, is the fact that they are multi-modal. When I look at a lot of what is RITA is doing right now, and JPO is doing right now, it is highway-centric.

And as we go forward, ITS has got to find its way into transit, it's got to find its way into railroads, it's got to find its way into freight management. And so, I like that part of the emphasis. So, if I have a comment, it's that as you continue to refine the safety vision, let it go beyond, because that is important as we go forward.

Robert Peter Denaro: Alright, we probably should move on. Thank you, Brian.

**Mobility Services for All Americans (MSAA)**

Shelley Row: This is Mobility Services for All Americans. Yehuda Gross leads this program for our office. Yehuda has been managing the program for quite some time. He comes from the transit world, that's his background.

So, Yehuda Gross.

Yehuda Gross: I have my notes, but Mobility Services
for All Americans is a product which has a goal, and the mobility product is really, travel management coordination-centric.

So, let me give you a very quick background of what mobility service is, why we're doing it, and why did it becomes a project with a lot of visibility for the sixty four federal programs that paid for transportation and human services?

Because of this, each one of the agencies is doing their own thing, with their own clients, and there's never coordination between the transportation that is provided through those agencies.

We have established a partnership with nine federal departments, and four of them are very close, because fifty two of the sixty four programs are within four, the Department of Transportation, HHS, Education, and Labor.

So, it is a partnership between us and the DOT, and other departments, and a partnership between us and the FTA, which contributed funds in order for us to achieve our goals.

The sites that were selected through an RFP process, are eight. We had in mind five. We got 1.25 million dollars from FTA, so we could increase it to eight. And
they're going through a structured process of developing a design for TMCC, which is the Travel Management Coordination Center.

What we have seen from the very beginning is, we have learned an awful lot. We have met with the human service users through listening groups and focus groups, and we've listened to what they need. So that our concept from the very beginning kept changing as we met with those groups. And this took a period of time.

One thing that we concluded is that users want to be treated nice. They said, "We're not being treated nice. We're a specialty transportation and we're not being treated nice. We want to be treated as people." And that's why the Aid All Americans helps anyone who uses transportation.

We have also shown that once we guide and we provide technical assistance, we can use a system engineering approaches with the non-classic users of transportation. Of the providers of transportation, only three out of the eight are the classic transit groups, and this is in the big cities. When you go away from the big cities, those are not.

And in fact we look at our leadership, there is MPO, a
COG, a Work Force Coalition, and they're leading it. So, they're not really being used to design and provide transportation. The agencies, themselves, became users of transportation that was provided by others.

So, in order to be able to coordinate between agencies, we have held their hands and shown that they can get really very good results, and, I'll show you in a minute, from every one of those agencies in designing a technical approach, using ITS to solve their transportation problems.

Let me go back to what we have achieved in '08. And, I won't be fair if I don't go to the very end of '07, because the concept of operations was delivered in December of '07, which was the basis of where data built afterwards is their design.

We have seen that the diversity of approaches was totally different from what we thought, from a transportation provision. We thought we could have a center that was either virtual, or physical.

A virtual center is where each agency sits in their own office, and they are somehow connected in the right area network, and they can share information. This is a virtual center or a physical one, where you build a place
and people sit there, and really manage and coordinate.

Shelley Row: Excuse me, but if I could just interrupt you. I just want to make sure the Committee is connecting with you. I want to make sure you all are getting that you have a whole bunch of human services providers of transportation services. You call on each one individually. And what this project is trying to do is synch them all up. What is your slogan?

Yehuda Gross: One vision, one call.

Shelley Row: One vision, one call. This synchs them all up, optimizes it, and makes it much easier for the customer, but also makes a much more optimal system. So we're talking about lots of little service providers.

Robert Peter Denaro: What are some examples of the different kinds of service providers?

Shelley Row: A couple of examples are, who are some of the individual service providers?

Yehuda Gross: Well, you look at the individual providers? Brokers provide transportation, so they avoid the legality.

Shelley Row: They are like a hospital, or a nursing home, or, help me?

Yehuda Gross: ParaTransit is one of the contractors.
ParaTransit is a part of it in the area. However, I'll
give you an example in Pittsburgh. There are over two
hundred contractors that are providing transportation, two
hundred.

Robert Peter Denaro: What kinds of transportation?
Sick and elderly?
Yehuda Gross: Sick and elderly, handicapped,
specialty children. Again, the irony is that tenants will
provide a van ride for somebody who is going to a train,
rather than provide a pass and send the person on a bus.
So again, that aid, looking at it from a holistic approach
to solve the transportation problems of all those that are
using and needing transportation.

Shelley Row: It's massively inefficient today.

Robert Peter Denaro: So, what's inefficient? I guess
I'm still not understanding.

Yehuda Gross: Very simple.

Robert Peter Denaro: If I'm a person who needs to go
from point A to point B, I have lots of choices. I pick
one and I'm going to get to where I want to go.

Yehuda Gross: In human service, they reserve rides,
because some of it is entitlement and some of it is just
provided as a service to the community. In rural areas,
there is no public transportation, so they use the brokers or the services locally, which are community generated, in order to provide some transportation, but not all transportation.

Let me give you an example. You've asked for an example. I have to take an elderly to the doctor, okay? The elderly reserves a ride, okay? Before we did any coordination, it started to take effect in some areas that we request, seventy hours before, a ride. Actually, it was they would be scheduled on every third Wednesday to the doctor. So, they become eligible through documentation. So, that is one of them.

Now, you can have, and I've heard it from the aid, three vans then starting in the same neighborhood, going to the same hospital from different agencies with one person.

Scott Belcher: Isn't part of the issue also that there is also an insufficient supply of services for the handicapped and the elderly? And so, part of this is coordinating not only the private sector, but the NGOs and other folks? Because you do have people who will give you two or three hours on this day for these certain types of people, or this certain type of category of people, but they may not have funding for that?
So it is a coordination effort of multiple people with very small agendas. Many of these people will only service a certain category of needy folks.

Shelley Row: And, the busses are virtually empty. It's very inefficient.

Yehuda Gross: In Camden, for instance, there are twenty six faith based organizations that have volunteered, and are joining that coalition there to provide the transportation. So, it is not just depending on the pay as you go, but also the volunteers that are providing the transportation. Today, they're coordinating with them to become partners, as part of the providers of the transportation.

Dr. Kenneth Button: I've confronted this problem back in England, where we have an equally chaotic problem, so I'm quite familiar with it. There's another side to it, then, that is also the health workers that go around, rather than the patient or the person with some disability going somewhere. There's also a delivery of service in the house, in the sense that you get nurses, and cleaners, and auxiliary workers.

Is this just for purely for moving around, let's use the word "patient," as it's a generic word to use. I'm not
in any way being derogatory, I just need a single word. Is this for moving the patient around, or can it also bring services to the home?

Yehuda Gross: We haven’t encountered yet, where somebody who delivered a service was entitled to a specialty ride. However, we have encountered where there is an official guide, or help, that can go with the patient, and both are covered under a certain entitlement.

So, let me go what we have done in '08. So, I start at the end of '07, which was the concept of operations. Again, they didn't understand what a concept of operations was, so we used different words in order to send a message to "Tell us your story." Then we told them, "Okay, once you have your concept of operations, what is your requirement? You have told your story, so what are your requirements?" Then, we went to, "What are your gaps between your requirements and what you want to do?" And eventually, they could provide a design.

June 30 was the due date for all of the designs from eight sites. Yesterday, close of business, was their proposals. They had to give the proposal of how they used their design in order to really build one of those sectors. So this is what we have done in '08.

The obligation of $400,000.00 is for some management
assistance and technical assistance. And, the 2.25 million
dollars was committed. It is now in the tubes to the FTA.
They have added a million dollars to this, so that we will
be able to go from two demonstrations into four.

Joseph Averkamp: So, the Coordination Center attempts
to coordinate rides? Does this consist of, like, is it an
800 number, with a database?

Yehuda Gross: It's much more than a number.

Joseph Averkamp: But, it's a number, with a database
that coordinates all these schedules of these various
vehicles, so I can do a look-up?

Yehuda Gross: What is done today, which is very
interesting, in rural areas, because of their needs, they
coordinate via telephone. They don't have the funds,
really, to establish anything that is similar, or
resembles, a center.

In the big cities, it's the reverse. They have the
funds, but the coordination is not very well. Somewhere in
the city, a solution will be found, which will be very
interesting. So, in the big cities, we have to get them
together, to talk to each other, to agree we're going to be
working together. So, it's more of a policy than the
technology.
Now what happens is, what is done today, is each one takes care of their own patients. So, if it's paid by the AOA, which is for the elderly, they take in their region for the elderly only. And the specialty children was only their own clients. Now, we're looking at seats.

Joseph Averkamp: I understand there are these different agencies. I'm trying to get at the specifics of the program. What are we paid to get?

Yehuda Gross: So, what we're paid to get is, how do I know it will work if I have to deal with other agencies? How do I see that my money gets service to my customers, and we start putting everything together? We are building a place that is tactile, that you can touch and see, and share it with others. We're taking the total risk. They're giving us money and time.

Joseph Averkamp: Does the Center consist of call center operators? Is it a data center?

Yehuda Gross: Well, remember, I started virtual or physical? Here's the place where there's two hundred providers, not brokers. It's only one broker, but providers there's a different approach. They've classified them by price. Once a month, they have to put their price for a given route that they're going to serve. So, they
are classified, the lower ones, the middle ones, and the higher ones. They put every ride that comes in, as a request for bids.

So, from the two hundred, from that layer, they bid. If they can't find anybody, they go to the more expensive layer to provide the transportation, between all of those that either are entitled, or are in the community, the ones that are willing to pay.

Another place is very simple. You give us your money, they take it to the leadership. The leadership's approach is, "Give us your money and we will provide your customers all of their needs. The risk is ours." So, it is a dictatorial way to a partnership.

Everything is done together. There are six of us. We sit together. We meet on a monthly basis. Right now, there is one agency that leads. So, what we do is we have a database that is shared in some places already, between all of the users of that system. It is not really the riders, but they are providers of the transportation.

And then, the users get either one number. There's no wrong door. If you call your agency, you get the answer because they're on the network. You get a central number for that region. So, we really didn't force the 511 or the
800, each one is the way they want. One of them decided they were going to have a phone number which is, in fact, in Paducah, one number to serve all.

Robert Peter Denaro: Let me ask you a question that we're supposed to answer. From your experience, at this point, what do you see as the barriers to deploying this?

Yehuda Gross: You want an honest answer? Political.

Robert Peter Denaro: Can you elaborate on that?

Yehuda Gross: The same type of a question.

Dr. Kenneth Button: My question is different. The same thing happens in the taxi cab industry. There are a lot of little taxi cab operators, and some person comes along with a clearing house, and sends people and takes bookings, and does things. So, it works pretty well in the private sector, in the taxi cab industry.

I'm just coming back to your point. Why is it working in these types of services?

Yehuda Gross: Why? Because there's no politics involved in taxi cabs. It's a market. Here, it is entitlements, it's provision of transportation which is coming from the top down. The community does not have any rights. Everybody is using it. If they have a car - and there are a whole lot of people that don't have a way to go
from point A to point B, whether it's work, entertainment, etcetera. So, you can't really compare the two. Different things drive it.

And, by the way, the taxi industry is also a supplier of rides by contract, as needed. So, in Paducah by the way, Paducah has established a taxi service, because there was no taxi service.

Michael Replogle: So, a lot of this is the challenge of trying to develop interagency cooperation agreements, to try and better coordinate fragmented provision of services in a framework that enables higher productivity out of whatever resources are in the community for these services, through a tendering process or through other kinds of arrangements? And that is what you're trying to demonstrate, that there are multiple ways of developing these cooperative agreements?

Yehuda Gross: It's very interesting. Two big vendors came in and said, "You really have established a new industry." Because, what they did is, they scheduled and were able to put people into cars, not into seats, but into cars, okay? Now, they're also doing between one agency to another. So, they have had to change their software and hardware approach, in order to accommodate this concept.
Scott Belcher: This seems like a very obvious federal role, because there's not a market there.

Robert Peter Denaro: There's not a national center to do this, otherwise.

Scott Belcher: Yet, my only observation, and it's just not clear, is how much cost sharing is going on between the other relevant agencies? I see you all have committed 2.2. How much are you getting from HHS, and Labor, and Energy?

Yehuda Gross: That's politics, too. They have never worked together with anyone else, so we said we will take the risk, okay? Now, by the way, HHS has given us money. There is a memorandum of cooperation between HHS, and AOA, and FTA, which was a sign. So, they worked together and they've given us money. Education has given us money, and they have sent people with details to work with us on our internal plan. So, there was a commitment.

Remember, once I prove it, then their money becomes good money. Because once they realized their money can go much further than it is going today, and they start to coordinate. More than this, we're working with the transits, too. The transits complain all the time. They're sending me a $30.00 patient that I can only charge
$2.00, okay, while the broker can get $30.00. So, there's cooperation there, too.

Dr. Adrian Lund: What is a broker?

Yehuda Gross: A broker is an area manager for the authorities, for the political authority that is managing transportation. So, what they do is then they go and hire paratransits, small operators, to provide the actual transportation. So, the broker really, in some areas they provide some, then it's really global. If there are "x" amount of people in my community that deserve, or are entitled to, rides, I'm going to give you the amount of dollars for your business. You provide the rides, and I'm going to inspect and see that you're really doing it. And if you lose money, it's your problem. So, there are different ways that brokers work.

Shelley Row: This program, just so you know, this is the only program we have, where another agency is contributing money to it.

Michael Replogle: I think it's a great program, but here are the challenges to communicate this effectively.

Yehuda Gross: So, we have two evaluations. One of them is the standard one, which is the impact. The other one is a process. Is this a good way for a developmental
Dr. Kenneth Button: Dissemination is not necessarily producing results. It is getting them out into the world. What is the marketing strategy, and what is the marketing plan? I find there's a bit of a problem with many of these projects. What is your marketing? Who markets your program?

Yehuda Gross: Here it is. We have a steering group that represents academia, transit, brokers, vendors. There are seven of them, and we have a committee chair, and we are developing a strategic plan of how to market this whole thing.

Michael Replogle: It seems to me, this is the kind of thing that, particularly given the scarcity of government funding for health and human services programs, there's an opportunity here to increase the productivity of how funds get spent, so the results from this need to be disseminated in ways that gets to Congress, that gets through the General Accounting Office, reporting on this, or whatever, so that it is highlighted as an opportunity for increasing the effectiveness of service delivery.

Robert Peter Denaro: Okay, Yehuda, thank you. We need to move on to the last one. Thank you very much. And
Electronic Freight Management (EFM)

Shelley Row: It is Electronic Freight Management. Kate Hartman manages the EFM Program. She also manages quite a number of things in the office. This project completed it's operational test this year. Kate, go ahead.

Kate Hartman: Last, but hopefully, not least, although I'm kind of used to being an outliner in the office with this program. It is not a safety program. It is not a mobility program. It's an efficiency and global connectivity program. It's very much focused on the private sector. And, based upon the questions you've been asking, you're going to have quite a few when I go through this.

It also doesn't deal with the infrastructure, it doesn’t deal with vehicles. It deals with information and about goods moving through the system. It's also probably the only departmental program that deals with Victoria's Secret underwear and Chinet paper plates. So, it's been an interesting project.

The accomplishments in 2008 are that we completed the actual operational test. The adoption task was awarded - the funding was awarded almost 600K. You have to do a
couple of dollars under.

The evaluation final report was delivered in June. If anyone wants a copy, I can provide it to you. I haven’t gotten it up on the web, because we're dealing with 508 compliance issues before we post it.

And then, the most interesting thing that's happened this summer is, we sent out a Request for Information, and this gets to the marketing of a project. You take a step back here, and let me tell you a little bit about the project.

It is likened to a FEDEX or a UPS system, in terms of tracking freight through the system. FEDEX and UPS are vertically integrated closed systems. You ship a package, you get on the internet, you check and see where your package is, and that's about where the analogy stops.

What this project has done is taken web services, service oriented architecture, information processing and applied it to a supply chain. And the CEFM is the Columbus Electronic Freight Management Project. It was a project done with Limited Brands. They are located in Columbus, Ohio and they have a large distribution center there.

And believe it or not, underwear is time-sensitive, and with the design process and the manufacturer, they need
to get it shipped in order to meet holidays and fashion
trends. And, I'm trying to say this with as straight a
face as I can.

Dr. Kenneth Button: It's time sensitive because it
gets delivered quickly.

Kate Hartman: It's February 14, Valentine's Day, and
all of a sudden something hits the market that they want
their designers try to hit. You wait for the ship to come
over, and you've missed the time from the sales end. And
it's also with Limited Brands, they find it efficient for
them to ship through Air Cargo.

Anyhow, they will issue – Limited Brands will issue a
purchase order in Columbus to a manufacturer in China, to
produce whatever the goods are. They then truck it to an
Air Cargo handling facility in Hong Kong. Their customs
brokers, freight forwarders, and airlines would all be
involved in getting the product onto the belly of an
airplane that flies it to the United States.

When it lands in the U.S., it has to be processed by
U.S. Customs. Their cargo handlers, again, have to touch
it, freight forwarders have to touch it, and brokers have
to touch it. It has to go to distribution. Trucking
companies get into the distributions. Every time somebody
touches it, they are processing information about the
What this project has done is try to get this information entered once, and then it follows it through the system. One of the things about this project is it's tracking the information, not the goods. So, there's not an RFID shipper tag on the product. There's nothing being scanned.

But what happens a lot of times is the trucking company that wants to pick up the goods from the airport would like to know if the goods actually got on the airplane in Hong Kong? What they have done in the past is sent faxes, emails, phone calls, text messages, what have you.

What the web services technology does is allow the Air Cargo folks to input their information that they've sent it, and then the trucking company can shoot out a message, and pull from the Air Cargo services information, without having to call them up and say, "Can you look in your database and see if it got sent?"

Web services allows for authorization and authentication over the web to share information to track the product through the system.

Shelley Row: One thing, Kate, if I can interject, one
point is that there are shippers who do similar things
today in proprietary closed networks, which was the FEDEX
analysis. This one will be non-proprietary, so it is a
web-based service, non-proprietary, which allows those
customers like Limited Brands, to use a variety of
shippers, where before they would have been locked in to
certain ones and brokers.

Kate Hartman: And Limited Brands competes their
supply chain every quarter, in order to drive the costs
down.

Flip to the next slide. This is going into what we're
expecting to do in '09. Like I said, we have completed the
project. It was successful. It showed that labor hours -
actually one of the brokers could reassign an employee to
more complex tasks because they didn't have to have this
one person sending faxes and making phone calls.

It also decreased the shipment time by a 12% reduction
in the time it took to get from point A to the distribution
house. It reduced data entry errors, because there weren't
multiple people entering the same information. It also
reduced time in the Customs processing, because they could
get documentation to the brokers sooner, and get the
filings made earlier. So, we think it was somewhat
successful. We are now into the adoption phase.

Robert Peter Denaro: The user of this is, I'm not completely getting it, is the trucking company?

Kate Hartman: No, it's anyone throughout the supply chain. Limited Brands can also, if it chooses, to check without having to figure out where in the system it is, and whether they call the Air Cargo handler in Hong Kong, or whether to call the trucking company in Columbus. And actually, they do that. They have these daily status reports, and they go out and pull the information, and they can see.

Robert Peter Denaro: So, help me with more of the scenario, because you mentioned, okay, somebody is going to enter some information in Hong Kong, and it got on an airplane. Is somebody else entering information that it was received in New York, or whatever?

Kate Hartman: They have to do that anyway, but now, further down the supply chain, they can check their cargo handler. It's usually a one to one relationship. The Air Cargo handler in Hong Kong is sending them communications with their cargo handler in Columbus. The trucking company's relationship is with the Air Cargo handler in Columbus, not with the Air Cargo handler in Hong Kong.
Robert Peter Denaro: So, now it's just visible to everybody?

Dr. Kenneth Button: It's got some security advantages or disadvantages.

Kate Hartman: Computer security, or homeland security?

Dr. Kenneth Button: Homeland.

Kate Hartman: Actually, I could tell you stories about working with Customs. Yes, because it could have some positive, in that it goes further into the supply chain. The further into the supply chain you go, though, the more nefarious activities happen. So yes, it could, and Customs folks are interested and aware of this.

We're also working with the World Customs Organization to document this and promote it, especially on standards. That's one of the things that is global. We have to have standards that are global. We're working with international standards organizations.

Scott Belcher: Kate, is there a reason DOT is doing this? I'm trying to figure out why DOT is doing this?

Kate Hartman: It was a different world when we started.

Scott Belcher: And maybe, is another reason, because
you're targeting a different part of the market that
doesn't have the financial resources to build this kind of
system?

Kate Hartman: It's small and medium people within the
supply chain, and some of the smaller trucking companies.
And that's actually where we got the biggest success. ODW
is the trucking company in Ohio that does most of the
Limited Brands shuttling of their goods to their
distribution center. And, they have actually taken this
and tried to connect it with some of the other supply chain
partners outside of Limited.

So, it's people who aren't the UPS and FEDEX companies
of the world. The have lots of different partners and
supply chains. It's the Limited or Eddie Bauer, Demdako,
which is an importer of figurines that are sold in
Hallmark. And, this is part of the adoption strategy that
we're going into.

We're starting some case studies, because the Limited
Brands project was basically a test case, and it was an Air
Cargo case. It was an Air Cargo supply chain. We have
branched out into rail and ship, and these are what the
case studies are that we've been trying to do, to document
the internal investment for adopting this kind of system.
The cost to the individual company is basically configuring in connecting to the system. The EFM system is available on a website. What you need to connect to is, you can do it internally, if you have the IT resources, is to connect to the web services, and have your supply chain partners all connect to the web services.

We think there is a potential business model here for translation service providers to do this, and configure and connect. But it is available now if a company wanted to do it and had the IT resources to do their existing information systems and their supply chain partners.

Robert Peter Denaro: So, Kate, who implements this?

Kate Hartman: Well, it would be a couple of different scenarios. Right now, the adoption got picked up by Kansas City Smart Board, which is a trade development group in Kansas City. And they are promoting it, and they are taking on some of the costs to provide translation services in partnership with us, to a number of Kansas City based shippers.

Robert Peter Denaro: How do they fund it?

Kate Hartman: They think it's important enough that they're using some of their own internal money. We are also providing some funding to do some of these, the engine
to start doing a registry, and then to document it.

Robert Peter Denaro: You didn't get me far enough yet. I got Kansas City.

Shelley Row: Let me just try to do a summary here. The end customers are all of those people who are involved in the supply chain, targeted mostly at the small and medium ones. This would enable many more players to be in the mix at a lower cost to everybody, which is good for the whole supply chain.

One of the measures of effectiveness, then, is does anybody care? So, we put out this RFI to say, "Does anybody want to work with us? Do you care enough to want to work with us on these case studies?" And, we were happy and pleased to see a very strong response from a range of companies that covered big to small, from products to service providers, from brokers to shippers.

They were all over the supply chain, who came to us saying, "Yes, we think this is interesting and think this could be useful to us. And, we do want to work with you on how we could adopt it, and work with you to make that transition," that Kate is talking about, to use the web services.

Kate Hartman: I'm seeing all these faces that have
questions.

Dr. Kenneth Button: I have a fairly simple question. What is the market failure which prevents the private sector doing this?

Robert Peter Denaro: Why didn't the private sector just do it?

Kate Hartman: They are. They're starting to adopt it.

Robert Peter Denaro: So then, why are you doing it?

Shelley Row: Why wouldn't it have happened without this project?

Kate Hartman: That is the government's convener of the standards, and bringing partners together to start operational test that usually take several years to do. We started this a number of years ago, and technology has advanced to the point where it makes - I mean, a lot of people can take it on.

Robert Peter Denaro: So, is this one of those projects or ideas where you've kind of had to get it started, but once people see the vision, you can go away?

Kate Hartman: That is what we're hoping. That's the plan.

Michael Replogle: So, is there a potential here to
walk away earlier than originally envisioned, given that
there's lots of interest in the marketplace, and the money
isn't exactly growing on trees, and maybe there are other
things that need the funding more?

Kate Hartman: I'm not sure, earlier than envisioned,
because I think the envisioning was that we would continue
dabbling in this for years to come, as any good researchers
like to do. But yes, ending it soon.

Another case study or two, to just really nail down—

Shelley Row: Our internal discussions talk a lot
about exit strategies.

Kate Hartman: And that is what we are aiming towards,
to get out of this. This project really doesn't have much
of a life past next year, or so.

Robert Peter Denaro: Any more questions from the
Committee on this? Thank you, Kate. Are we done?

Shelley Row: That's all of it. Those are all of the
major initiatives. That's certainly not all of the
programs. You can see from the budget, other things are on
here.

General Discussion

Robert Peter Denaro: Thank you. That was very
useful. Thank you to all of you. We have two or three
things left here. One is, we allow time for general
discussion of our three questions across all of these, if
there are any other comments, although we got a lot of
comments during this, so we'll see.

And then, maybe just a summary, and then wrap up, and
then in general for this meeting is kind of the next
steps. How do we wrap this up?

And then, there are a few administrative details that
we want to do before we leave. Then, there is an informal,
optional light lunch from 1:00 to 2:00. If your experience
was good with the light lunch yesterday, you might want to
indulge again today.

So, let's spend a few minutes just kind of opening it
up here. Now that we've been able to look at all of these
projects in general, we can go two ways. We can either
jump into some specific comments you wish you would have
said before and want to get out, or we can talk more in
general about the three questions of what the JPO is doing,
in terms of likely to advance, and deployment.

Dr. Joseph Sussman: I would advance the question of,
we've heard a lot of different things that are very, very
different. Is there some kind of integrating theme to all
of this? Is there some kind of base that things can be
tested against, to understand whether a particular project makes sense? There is a lot of good stuff, but I fail to see the commonality in many cases.

Bryan Mistele: To add to that, you mentioned last night, as a part of this money, there are some Congressional comments on what it should be spent for. Can you talk to that?

Shelley Row: I'm not sure if we included the legislation on that. We included the Advisory Committee legislation. And no, there's not.

In some of your previous materials we gave you, actually, the legislation for the programs. I would start there, and then go to Joe's question.

The legislation has some level of specificity in it, actually. If you trace the history of it, it looks a whole lot like the previous legislation which included not only a research program, but a deployment program. So, the legislation reads like, in my view, a deployment program.

But in this legislation, they kept the old language, but eliminated the deployment program funding. So, what we have is legislation that sounds a lot like deployment, and has specific goals related to deployment, and yet is a research program. So, it's a little bit difficult.
And in the legislation, it requires a whole host of things. It requires a Road/Weather Program. It requires us to do a long list, and it says we should give priority to things that reduce congestion, that I don't remember now all of the things, but it is a long list of things. Oh, 501, which we didn't talk about today, but a lot of things are in there that we have to give priority to. It says we should be educating people. It says we should be doing architecture. It says we should be doing standards. And, it says we should be doing evaluation. So, it gives you a smorgasbord of things we should be doing. Within that, there's latitude to pick and choose, and how to focus some money on research.

Now, Joe, I'm actually getting to your question. Several years ago, long before I was here, they went through - the thought process that the program of today has been more of a peanut butter approach. We ought to focus the funding on a few significant areas of research. And, they went through an extensive process, with all the modes and came up with these specific projects you heard briefed today. And, they were intended to be problem driven, but they were in certain segments, all of which aligned with the departmental goals.
So, they all aligned with the departmental goals, okay? So, that’s probably only the unifying theme across all of them, even though some are very specific to safety, and specific to automotive, and specific to track engineering, specific to transit, specific to freight.

So, there's no, in my view, unifying theme within the ITS Program across all of them, other than how can technology advance transportation? But, they all align to a departmental goal.

Dr. Joseph Sussman: In many cases, it seems to me it wasn't so much a technology question. The question on the elderly and handicapped was mostly an administrative question. It doesn't make it not meaningful.

Shelley Row: Technology is the enabler. Actually, I'm not sure, with the exception of VII and maybe a little bit of IVBSS, the technology is there. We're trying to do some things to enhance it. In many of these examples, the role is the convener role. A lot of it is about getting the right people in the role to figure out how you can use the technology to bring it all together, and then evaluate it and get it out to people.

Ken, you made some really good points, and we've talked about a lot. We do pretty well in identifying the
problem, getting the stakeholders together, working the
problem, and getting the product, but we're not so great
yet, with that market transition piece. And, that is very
difficult. And that is, I think, an area of opportunity
for the Program.

Dr. Joseph Sussman: But, is it fair to say, Shelley,
that we're evaluating a program that, at least in
principle, is really in its twilight period? That we're
seeing a substantial proposed shift in the way you're
going?

Shelley Row: Yes, I think that is the opportunity of
it, and that is why I think it is so exciting. These
programs, many of which you've seen either end their
funding this year, or have a little bit of funding next
year. But, only three of them, two of them, are really
linked together, VII and ICM, that have life in 2010.

So, we've got the perfect storm. We have an
authorization coming up. We have a series of major
programs coming to an end, opening up new opportunities for
new programs. So, we have opportunity for strategic
direction, new legislation, and a whole new set of research
agendas that are open to us.

It is a perfect opportunity to be on an Advisory
Committee, for example, to think about not only what we should do, but what is the process for getting to what we should do?

Michael Replogle: That is why I think setting the goal here is so important. And as Administrator Brubaker laid out yesterday, it's been articulated as sort of, safety as the overarching goal, which has a compelling narrative to it, but I think it is only one aspect of what intelligent transportation systems are about, and about what a reasonable set of attributes of what is the national purpose of the federal transportation program as it focuses on ITS.

And so, when I think about an important piece of ITS, it is also getting information so that if I want to plan my day, and I want to go from my home to somewhere in the country that I've never been before, on a business trip, and I don't want to have to rent a car, I want to be able to get seamless information so that I'm not forced into renting a car every time at an airport, because I know I won't have a break in the trip chain.

If I go to Europe, I know I can generally do a business trip without having to rent a car. But, when I go in America, I have to rent a car. That is something that
ITS can make a difference about.

Shelley Row: And, a seamless payment all the way across.

Michael Repogle: But, that has nothing to do with safety, and that's just one of a number of attributes I think we do need to have on the table as we focus on what this should be about?

Robert Peter Denaro: However, if you look at the goals in general, safety, mobility and environment, I think all three are there. And what I heard Administrator Brubaker saying is, he wants a very, very strong emphasis on safety, but I don't think it implies the other two go away.

I think the challenge is, what we're talking about here is the overarching goal, and how are things linked and integrated together? The challenge is going forward, how do you come up with a set of programs which are strongly sold by safety, but don't totally ignore those other two pieces, which are still in there, and of course, the decision on relative funding, and so forth?

Shelley Row: If I might take you back to your last meeting. In hindsight, I think we would have flipped the meeting orders. Last time, we talked about strategic
direction and this is why, because we have all of these things that are ending, and this great opportunity. And the things we talked about and you commented to us on, was the environmental goal, the safety goal, all about 360 awareness, about the vehicle, everything that would be in safety. We talked about the value of real time information, that linking, Michael, what you just articulated, an integrated payment linking. And those were the four things we talked about as strategic directions, moving forward.

Where we are now is that it's safety, and then the other ones are still there, but with a preponderance of energy funding intended go toward the safety piece.

Scott Belcher: We started on a strategic planning process, and it kind of got stalled for all of those reasons. Is there an intention to re-engage in that process at some point?

Shelley Row: That is a good question. Two answers. One is that it has shifted now, obviously, and so we needed to pause while it shifted. The other reason we're paused right now is because we actually have to write a report that has to be delivered to Congress. We are separating it into two documents.
One of them is a Program Plan, that will be a report on the current program and the research results, and that's being written right now. The other will be a Strategic Direction Plan, that will be reframed, mostly around the safety goal, but with the work you all contributed to the last time on those other goal areas, as well.

So, our intent is to include everything you talked about last time in that Strategic Document, but again, greatly expanding the safety piece, and greatly collapsing the other pieces.

So, we're working on that in parallel, and until that is done, we really aren't in a position, frankly, to re-engage the Committee with the kind of next steps for strategic planning.

Dr. Joseph Sussman: Shelley, you mentioned reauthorization, which is of course a critical opportunity, but what is the time frame within which the JPO and DOT, more broadly, puts together its proposal for a reauthorized bill?

Shelley Row: That's also a good question, and I'm not going to have a good answer for you on that one, Joe. We, at the JPO, have not been involved in the reauthorization. That's in the building at this point. So, I actually don't
know where that stands.

You have an interesting dilemma, not a dilemma, but just a situation where you have authorization that is coming up at the same time the administration is changing. So, this administration you just saw put forward the document you saw the Secretary just released which is, I think, their parting shot on what they think the direction of the program should be.

But frankly, others, AASHTO, ITS America, and others, are developing authorization proposals now. We have not really engaged that much, to my knowledge, in the building.

Scott Belcher: There have been a number of initiatives being done by different modes, trying to be coordinated.

Shelley Row: We have not been a part of that.

Randell Iwasaki: Historically, you don't lobby for positions in a reauthorization bill.

Shelley Row: Historically, the administration would put forward an authorization proposal. It's just that right now, the administration is changing. So, I don't think they intend to put forward the kind of detail you would typically do. It will be a new administration who will be working on that.
Dr. Joseph Sussman: I guess people read into documents what they want to read into them, to a certain extent. But, at least from my perspective, the statement of Secretary Peters on, her perspectives on the core issues of transportation, did not seem to me to conform very well with what Administrator Brubaker was laying on the table for the ITS Program. Now, that may or may not be a problem, but I'm pretty convinced there's a misalignment there.

Robert Peter Denaro: Or different timing. They're not synched together.

Scott Belcher: Joe, that might be something the Committee, in our note back or in our letter back, might want to recognize. I don't think Shelley is in a position to be able to answer that.

Dr. Joseph Sussman: I understand. I'm speaking now to the Committee that will presumably do another Advice Memo, and go through a process, Bob and I, working on drafting it for the approval of the Committee. But it seems to me that the key question to provide advice on is whether the focus on safety is, in fact, the most productive way forward?

Shelley Row: I'm not going to comment. That is your
decision.

Joseph Averkamp: I think, clearly, the Secretary, I mean, it probably should be part of the Advice Memo, that we request clarification and alignment of the objectives. I do think, I mean, the Secretary clearly has safety as among her objectives, so it's really a matter of, I guess "emphasis" is the word I would use versus "alignment."

It's a matter of emphasis. When Paul talks about 70% devoted to safety, I don't know if that's the amount of emphasis the Secretary would place on it.

Dr. Kenneth Button: I was going to say that it seems to me that the budget is quite small in total. I don't know how much Toyota spends on research and development each year, but I suspect the budget here is actually very small. And I think having a focus is a good idea.

Spreading your peanut butter everywhere is not a good idea, in my view, because you don't get a very big bang for the buck, and the actual marketing problem comes in to this. One reason you have a marketing issue is because you've got diversity of products. If you have a lot of integrated products, it's much easier to integrate them, and sell them, and get people out there to use them, because it's easier to get a brand image, if you will.
I mean, some of these projects are extremely interesting and extremely important. But marketing, I think, is very difficult. And therefore, I think you're going to have to say, well how much do you want to put in one area, and how much do you want to put it on?

Given the amount of resources, you've got to talk about plipping, I would say, 70% somewhere. And it seems to me that safety might be the one which you can get the biggest bang for. That the environment has to be brought into account in the assessment procedure, I'm not sure how ITS actually moves it forward.

And also, it should be taken up by other departments, as well. You have the main bulk of DOT dealing with mobility. That's its main function in life. That's what they do, move people around. So, it does leave safety as a nice area. It's an area ITS has historically been very good at, and some of these projects indicate this.

So, I'm not too uneasy with this 70%. I would market it differently, though. I would not say 70% of resources are on this. I would say, 70% of resources are perhaps on safety, but in safety improvement, we also have A, B, C, D, E, additional benefits on the environment, on mobility, and to get them in place where you actually have to have
complimentarity with these other areas.

So, I don’t see it as a bigger problem here. I think it is a case where we're couching it and putting it into place.

Dr. Joseph Sussman: I think that will take some crafting and wordsmanship.

Dr. Kenneth Button: You may disagree with my view on that.

Dr. Joseph Sussman: You commented earlier today, though, that making an artificial distinction between safety and mobility, and throwing out the mobility, I think you used the word "dumb."

Dr. Kenneth Button: To get them in place, you've got to pay for them. Safety is one thing which, in the private sector, I think you can sell. Volvo has demonstrated that it can be sold. But the public sector side of safety is to get resources in the private sector, and get money for application, not on the research or development side.

But, I think you have to piggyback it all the way around - a lot of it, and I think you can do that. It's a bit like the stuff on congestion tolling. I think the way to piggyback that is on the information system, that you are paying a toll, but you're getting information about
congestion levels in different parts of the city, and where you go. That is a product, and the product is multi-dimensional.

Dr. Adrian Lund: I would like to suggest that if we talk about this issue of focusing on safety and the other areas, that we not, in our advice document, get into disagreements between the Administrator and the Secretary. That is not the point. I think what we're asked to do, Congress has asked the Department to look at how new technology can be used to improve transportation, and I think it is transportation, generally, it's not just safety.

I think that our job is to ask, do we think that the relevant technologies are being looked at? And if not, what are the technologies that we think have just been missed, somehow? Are they being looked at correctly? Are the proposed programs, in fact, addressing the logical uses?

I'm hearing some concern in the Committee that focusing in on safety is going to ignore that. It would be good if we had specific examples of what's going to be left out of this equation if safety becomes the target. That it would be within our purview to list what we think is being
left out of that, not to get into any comment about whether they should or shouldn't, in some global sense, be limited to safety, but rather, what is it that we think would be left out if that happened? I think that's appropriate for us to comment on.

Joseph Averkamp: I think Adrian makes a good point, that maybe in my mind there are two things we need to solicit for, and that is, what are the needs? What are the areas we need to focus, where is the market failure, and what are the technologies that are available?

What we're trying to do is match the unmet need with the available technology piece. And I don't know what the mechanism for that solicitation is, or what the process is. Shelley, I'm sure your organization knows how to do that. But for me, I think that's what you're looking to accomplish.

Robert Peter Denaro: As a Committee, we have to come to some level of consensus. That is a charge, I believe, so we'll have to do that. But I would just say, I'm not totally in agreement with what I'm hearing about the concern about safety, because my view is, when we started out two meetings ago, this committee said, "There's not enough emphasis on safety. Where is safety?"
So, the pendulum was over on the side of the case over here, and now we're sitting here, two meetings later, and saying, "Whoa, what happened? Now the pendulum is over here on this side of the case. What happened to all of that?"

So, while I hear us saying it's just a matter of degree, and frankly, I like the idea of a central focus. And I, frankly, support Paul's concern about how you sell a program, and so forth, and have something that is really central to that focus.

So, I like those things. We are merely, in my opinion, now discussing how do we assure – look, if it's 30%, and everything else is 70%, is 30% enough? Should it be 60/40? I think what we're really talking about degrees here, or making sure these other things don't disappear.

Michael Replogle: One of the things that Paul's memo set out is, it's okay, let's have a clear focus on safety – a clear metric to reduce crashes by 90% by X year. I guess that I would personally feel more comfortable if a focus was something along the lines of, say, the ITS Program, should enhance safety while improving mobility, reducing the environmental footprint of transportation, and
enhancing the overall system efficiency, or something like that?

This gives you a consolidated mission statement that gives you a central focus, but also gives you a clear framework that says you've got to also perform in these other dimensions. And I think there should be clearly articulated criteria for performance on those other dimensions.

I would suggest, for example, that ITS could play a significant role in improving the greenhouse gas efficiency of transportation networks, and also managing travel demands, mode shifting, and other factors, managing the overall price and other information to users through seamless fares and seamless information.

So those functions also have a role to play. And we could say, this program should also reduce greenhouse gas emissions, or contribute to a reduction of 30% greenhouse reduction by 2030, or something like that, whichever goals might be articulated in the future by the Congress, for example.

Robert Peter Denaro: I would completely agree with what you just said. That's why I said we're leading with safety, and by the way, safety creates benefits in both the
environment and mobility for the very reasons we know. But
given that, there are still additional things that need to
be done in each of those categories, and here's what they
are.

And, I also like the idea that you just proposed, that
in addition to 90% fatality reduction, we have similar,
call it bold, audacious goals in the other areas, as well.

Dr. Kenneth Button: I think the reason safety was
chosen is because it's easiest to put a number on it and
measure it. I think it is much more difficult having to
contribute to global warming. There are all sorts of
policies out there contributing to it, and figuring out how
much ITS contributes, as a percentage, is extraordinarily
difficult, and the same thing with mobility. It is
difficult. It is possibly easier to measure things.

And maybe that is why I'm suggesting, in a sense,
leading with safety. As I said just now, I think that if
you put these others, and articulated it much more clearly
than I did, but put these other things in as being
important.

Dr. Joseph Sussman: What Michael has advanced, I
think, is what we said in the previous Advice Memo, that is
once you take a systems approach, which applies a multi-
dimensional approach to enhancing the transportation system. It is a nuanced difference, but I think an important one.

Dr. Kenneth Button: I would just like to add one thing. The last, or penultimate one, the mobility I feel like, or what I would call, impatient, let's use the same word. That seems to be something also to be mentioned, giving wider access to transportation.

Dr. Joseph Sussman: Well, we had that as our initial goal. We put that forward in the previous Advice Memo.

Michael Replogle: Access for all is one way of expressing it.

Dr. Joseph Sussman: As I say, that was the initial goal that we requested, that JPO look at.

Michael Replogle: If you want to weigh a formulary way for accessing all framework, one way that I was actually working with a number of members of the Congressional Black Caucus on framing this in the late years of the Clinton administration, working on how to insure the transportation system delivers, or makes timely progress, to ensure equal access to jobs in public facilities for all, without undue time and cost burdens. And, that's a way of, basically, saying we're trying to
make sure that everybody can get around to places.

And, ITS does have a potential to deliver that, particularly through enabling things like more effective para-transit, which is another area we really haven't talked about. We started to talk about it with social service delivery systems, but new kinds of real-time ride matching services and para-transit services could easily be enabled by a focus on, how do we use some of these new approaches to information management and logistics management for people and freight, in order to reduce travel demand by delivering better mobility?

Robert Peter Denaro: What I would like to ask, as I said before, since we need to reach consensus eventually is, on this topic, we're talking right now about the emphasis on safety, and the degree to which we're more explicit about mobility and the environment, and we're doing a lot of talking. How about the rest? I would like to understand where you are, so can we kind of go around the table with those who haven’t talked too much? And, Tomi, if we could start with you, what is your take on this issue, about the emphasis on safety versus the others?

Tomiji Sugimoto: I think anything that can contribute to the public with the ITS technology, but of course, ITS
technology has many capabilities to improve our society, or our lives. But of course, we should ask of the Administrator, what is the most important thing so far in the U.S.?

Anyway, my perspective is that the safety is an essential issue. Also, the greenhouse gas is the same, for emissions is one of the environmental issues. And so, always, we have to think about the sustainability issue.

Therefore, personally, I would like to focus on the safety. My background is safety, so it's easy to follow the discussion about safety, but safety and the environment are the most important things.

Robert Peter Denaro: Thank you. Bryan?

Bryan Mistele: I'm thinking about leading with the safety mission. That's because Ken has said it's been the most measurable and demonstrably impacted by ITS in the past.

Having said that, to your point, the Secretary's focus. In this recent memo there was a lot of talk about congestion, so let's make sure when we list a focus on X, Y, and Z, that congestion is also one of those three things.

Robert Peter Denaro: Okay.
Randell Iwasaki: Safety is our top priority at Caltrans, but we do a lot of different research. I hear a lot about deployment, and I don't think that really in your bylaws to deploy, right Shelley?

Shelley Row: It's not a deployment program. It's part of the research title.

Randell Iwasaki: So, JPO's job is to do the research? What we like, at least from a Caltrans perspective, is taking those things that work well, and trying to deploy them in California. We're in partnership, with JPO being the deployment arm, which is even better because then they help pay for some of that.

But, safety is essential. The problem using ITS is that a lot of your causes of crashes are generally in the driver behavior realm. So, you can put all the signs you want out there, but people that are intent on the cell phone, how do you get your way out of that?

Robert Peter Denaro: Some of it is ITS involved attention.

Randell Iwasaki: You're right. But, about 90% of the causes of crashes in California are driver behavior related, if you take a look at the Venn diagram. Safety is our top priority. We have to continue to do safety
research, which I like the idea of ITS.

I think where ITS really helps is in the area of the environment. As Tomi was saying, the environment, safety, and then one of the side benefits is mobility.

Joseph Averkamp: I liked Michael's articulation, when he talked about focusing on safety, while simultaneously achieving the other goals. I think it is a very appealing position, and it should be what one of our major thrusts is. But, I also think you include ancillary activities around mobility and the environment. I do think those are also quite appealing to the legislators and the public, and because they're needed.

Randell Iwasaki: Can I add something? The other benefit of safety is that it is not an urban or rural issue. You start getting into more mobility research, and the rural states or the rural counties start wondering, "What's in it for us?"

Robert Peter Denaro: Good point. Alfred?

Alfred Foxx: I agree with what Michael said. It's hard to say that safety is not the priority in any jurisdiction, because then you're saying that you really don't care. But safety is a priority, particularly at the local level.
But as Michael indicated, you have safety as a focus, and the are other thing you are concerned about, too, is the mobility, and those issues that you have to deal with on a day to day basis. So, I agree with the focus on safety, but as a matter of degree, is safety 90% of the effort, or is it 70%, or 60%?

Wrap-up

Robert Peter Denaro: I hear pretty good alignment here. I think what I heard is, we're all saying look, one of the reasons safety wants to be the focus, but maybe what we want to do in our Advice Memo is, let's make sure we find a convincing way to say, let's not lose these other areas. In fact, let's make sure we do a good job in these other areas, as well.

Dr. Adrian Lund: Let's not just be aware, but measure it.

Robert Peter Denaro: Okay, that's what I wanted to be sure of.

Tomiji Sugimoto: I have one question that we should discuss, about the business, itself, because even though we focus on the 70%, sometimes on some technology, in order to deploy the technology, and to build into the market, we have to think about the business model, especially if the
customer has to pay some money.

Basically, the customer has a right to feel the value of everything. But, for the safety, I don't know.

Robert Peter Denaro: What I think I hear you saying is, this is—

Tomiji Sugimoto: This would be useful.

Robert Peter Denaro: So, the business model could be one of our biggest barriers to go into research is something that really returns some benefit? So, I guess our question is, what is DOT's role, or JPO's role, in worrying about the business model?

Dr. Kenneth Button: Can I ask a question? Being a humble economist, I think safety is usually dealt with in the economic system for the insurance market. There are two problems, risk and uncertainty. Risk is something you can attach a probability to, and therefore, the insurance market has to cope with it. Uncertainty is something which you can't attach a probability to, and therefore, the market can't cope with it. There's an intellectual distinction.

And it may be worthwhile thinking in terms of safety, and trying to look for areas which are not really the risk issue, but more the uncertainty issue, because that's where
you have the problem.

It's a bit like security in a sense. There are some things we can do to protect ourselves. We don't walk down dark streets and things. But there's a public role, as well. We know that there's a good probability that if you walk through Northeast Washington at 2:00 in the morning, your survival is in doubt, so you don't do it. But, there are a lot of things that we are uncertain about, and that is where the government provides security.

And it's the same thing with safety, a distinction between risk, which is a probability-based thing. Insurance companies will pay to reduce that risk, because it reduces the difficulty, or it will increase the premium to cover it the other way around.

But, on uncertainty, it's different, and I think it's an intellectual distinction that might be worth thinking about, in terms of where the public sector role is.

Next Steps

Robert Peter Denaro: What I'd like to do now is turn it back over to Joe, and he can talk about our next steps. And, we do have some administrative things to take care of.

Joe, do you want to take over?

Dr. Joseph Sussman: Yes. First, let me thank
everybody for their diligence at this lengthy and intense meeting. We learned a lot. I hope that in what we can write up, we can make a contribution to JPO's future programs. This has been a very interesting discussion.

The process that we used the last time is that Bob and I, basically, wrote the Advice Memo and sent it out to the Committee for their review. We came up with a date certain by which we wanted responses, and we got responses from over half of you. We took the assumption that if we hadn't heard from you, you agreed. And since no one howled in anguish once it went out, I assumed you did.

And, if that process is one that is comfortable, I think it can work well. In this instance, it can work particularly well, because if we can keep both Bob and me on the reservation, on the same Advice Memo, I think we'll have everybody else on that reservation, since he and I have some points of agreement, but also some points of different emphasis on some perspectives. So, if that process is okay, we would continue with it.

Bob, I don't know how you wanted to - did you want to collect this material? I know I've been diligently writing down answers to the questions for each of the twelve or so projects. I don't know if other people have been doing
that, or not, but we need to collate those.

Robert Peter Denaro: I'm not sure, if people hand
them to us, if we can read their writing.

Shelley Row: I'm happy to help. I'd love to see what
you wrote. If you're comfortable with that, I'd be happy
to collect them on behalf of the Committee, and see if we
can transcribe them, if we can read the handwriting, and to
send it back out to the Committee.

Robert Peter Denaro: I think that would be the best,
if people wrote it down, I know I integrated my notes all
in one place, and then send it back out and let people make
qualifications or modifications.

Shelley Row: We will just try to transcribe what you
wrote and send it back to you, and it will be yours to
incorporate as you will. But in the meantime, we get to
see what you wrote.

Dr. Joseph Sussman: What I did is, for each of the
three questions, I wrote a sentence or two for each of the
projects.

Shelley Row: It's your call, if you want to keep your
notes.

Robert Peter Denaro: I'm going to have to send you my
notes. I have other things on them.
Dr. Joseph Sussman: I'm happy, in my case, to pass it on. So, if people will do whatever they feel they want to do, in terms of giving this to Shelley, she and her staff will take the responsibility for passing it on.

The other thing that I had left over from last time was the question of meeting during the World Congress, itself. One of the reasons we met now was to have a meeting before the World Congress, to give some comfort with what was going to be presented at the World Congress. I think we all now have a good sense of that.

The notion of meeting at the World Congress, itself, was something that had been discussed. Is that something, Shelley, from your point of view, is sensible, or something that is workable, I guess?

Shelley Row: Let me start with the workable part, and then we'll go to the sensible part. We have been working with ITS America, and I'm sorry Scott had to leave. We have been working with ITS America on the logistics. According to Scott, he believes he can find us space in some of the local hotels.

The problem we're having right now is finding a time to have a day-long meeting, either in one day, or two half days, that either doesn’t conflict with an ITS America
board meeting, which is immediately after the Congress, or that doesn't substantially overlap with the program. We really hate taking people away from the program. So right now, it is a time availability issue. We've been looking for a day block, again, to split some way. Dr. Joseph Sussman: It's nowhere written in stone that it has to be a full day. Shelley Row: It is not, and that's one of the questions I have back to the Committee. Dr. Joseph Sussman: We ought to ask how many people are planning to be there? If it's not a substantial cost, I know I am. I know Bob is. Shelley Row: Well, one of the motives here was that if you were planning to be there, we would be paying for you to get there, to come for this. So, it was a way to get some of the members to be able to attend World Congress. We can't pay for the registration if it was a half day meeting. I'm not sure, given the cost of hotels, I'm not sure that we could really cover the hotel rooms. But, that was one of our thoughts. Dr. Joseph Sussman: How many people are planning to be at the World Congress? How about a show of hands?
So, there is a reasonable number.

Robert Peter Denaro: Assuming this is a reasonable representation of the Committee. We're missing a lot of members here.

Shelley Row: The other question that you pose, Joe, was is it sensible? And I think it gets to, what is the mission of the Committee for that meeting, and is it doable in half a day, instead of a full day? And, what would you like to accomplish?

Dr. Adrian Lund: I think it would be better to meet, and this is partly self serving because I'm currently not planning to go, but there's an advantage to meeting not at the conference, because it's a huge distraction for you guys, for one thing. And so, if you meet around it, I have a feeling you're going to be talking more about what you saw around the Congress and things like that. Maybe that's the right thing. I don't know, but it doesn't necessarily get us, as I was trying to say before, what I think is the thing that we can offer to JPO in advice is to ask the question, "Are there technologies that are glaring in the fact that they have been left out of the research program, or are there applications of the technology that are glaring by their omission from the
current plan?"

Shelley Row: Adrian, that's a very good articulation.

I would add to that, "and is there a clear federal role?"

That is the part that always makes me squeamish, is to make
sure that there is a clear federal role, that we're
serving, and we're not stepping on somebody else's world.

Robert Peter Denaro: Another alternative for meeting
at the Congress, along the lines of what you said, would
maybe be, because I agree with you, carving out two days,
or even one day, would be difficult.

Maybe a better purpose is to sign us up for a
dedicated period, to look at some of these demos, and
experience some of the results and so forth, to get a real
first hand view, so that we become better informed when we
do have that meeting.

Shelley Row: So, sort of like a tour of ITS America
for the Committee? And, whomever was there, you could get
together?

Robert Peter Denaro: We could go in there and, boom,
get done.

Dr. Adrian Lund: A VIP pass.

Dr. Kenneth Button: There's a British literature
writer who was asked to review seven or eight books a week.
He said, "Read them? That would impair my objectivity."

(A bit of laughter)

Dr. Joseph Sussman: That might well be a good idea. The "agenda" could be getting us some shared understanding of what was going on at the World Congress, as opposed to deliberating, if you will.

Shelley Row: Here's the thing I have to go back and check on. You guys are a federal advisory committee, and anytime you officially meet, it has to be published, with an agenda, and we'll have to have a transcriber and minutes provided, since it's a public meeting. So, I need to check on that. I don't think you could meet – I mean, we could say we're going to take this group of people. I just need to check and make sure that it is not a problem.

Robert Peter Denaro: A tour doesn't sound like a meeting.

Shelley Row: But, to just have you there, you're anywhere and we would just help you. I will just verify that.

Dr. Joseph Sussman: I guess, following on, it does make sense to schedule another meeting of this Advisory Committee, maybe a month after the ITS World Congress, so that we can reflect on what we have picked up from that,
and this whole set of strategic questions.

Robert Peter Denaro: So, we could meet in early December?

Shelley Row: At that point, we will have published the Program Plan and the Strategic Plan Document, and maybe we could have you guys help us go to the next level of depth?

Dr. Joseph Sussman: The kind of rule of thumb that we've been working toward is something on the order of three, at most four, meetings a year. So that would put us on a four month center, and that would work out.

Shelley Row: So, I'm hearing early December?

Dr. Kenneth Button: This is after the election.

Dr. Joseph Sussman: The World Congress will be after the election, as well.

Shelley Row: Let us look at, we'll send out emails and start looking at dates in early December, we will explore the tour thing and make sure we're not crossing any lines there, and we'll work with Joe on follow up.

Dr. Joseph Sussman: Thank you all for your participation.

Robert Peter Denaro: Before we depart, Charlie did have some administrative things.
Carlos Velez: We have some written instructions specific to this meeting, including specifics of the deductions for the meals provided. Paragraph 1B also includes the URL.

Shelley Row: For those of you who didn’t get lunch yesterday, don't feel you have to take it off your per diem.

Carlos Velez: These instructions will also be on the Committee web page and the ITS/JPO website. That URL is at Paragraph 1B. If you have any questions about filling out the expense sheet, at the bottom, on the last line on Page 4, it has a number you can call for assistance.

Shelley Row: We need them by the end of the fiscal year.

Robert Peter Denaro: So, the first and last day, you get 25% of the per diem, if you were here both days? Okay.

Dr. Joseph Sussman: I hope I pass this course.

(Laughter)

Robert Peter Denaro: This is bringing back bad memories for me.

(Laughter)

Shelley Row: May I make a quick remark? I just wanted you to know, we had all the staff come in and do
those briefings. I should have mentioned it while they were all here. I hope that the implicit message you got was that they are extremely talented people, and they do a really good job. They are articulate, they care about their programs, and they love their program.

So, any nice words you have to say about them when you see them the next time would be much appreciated.

Dr. Kenneth Button: They kept to time, as well.

Dr. Joseph Sussman: Thank you all.

Adjournment

(Adjourned at 1:05)