Advisory Memo to USDOT

Prepared by the ITS/JPO Advisory Committee
August 6, 2010

Introduction

The reconstituted ITS/JPO Advisory Committee had its first meeting on April 7, 2010 at USDOT HQ in Washington. The agenda is attached. The committee is composed of seven holdovers from the earlier committee and thirteen new members. This committee is mandated by SAFETEA-LU and its membership conforms to the slot allocation in SAFETEA-LU. We note the SAFETEA-LU requires JPO to inform the Congress of its response to the various letter reports submitted by this committee.

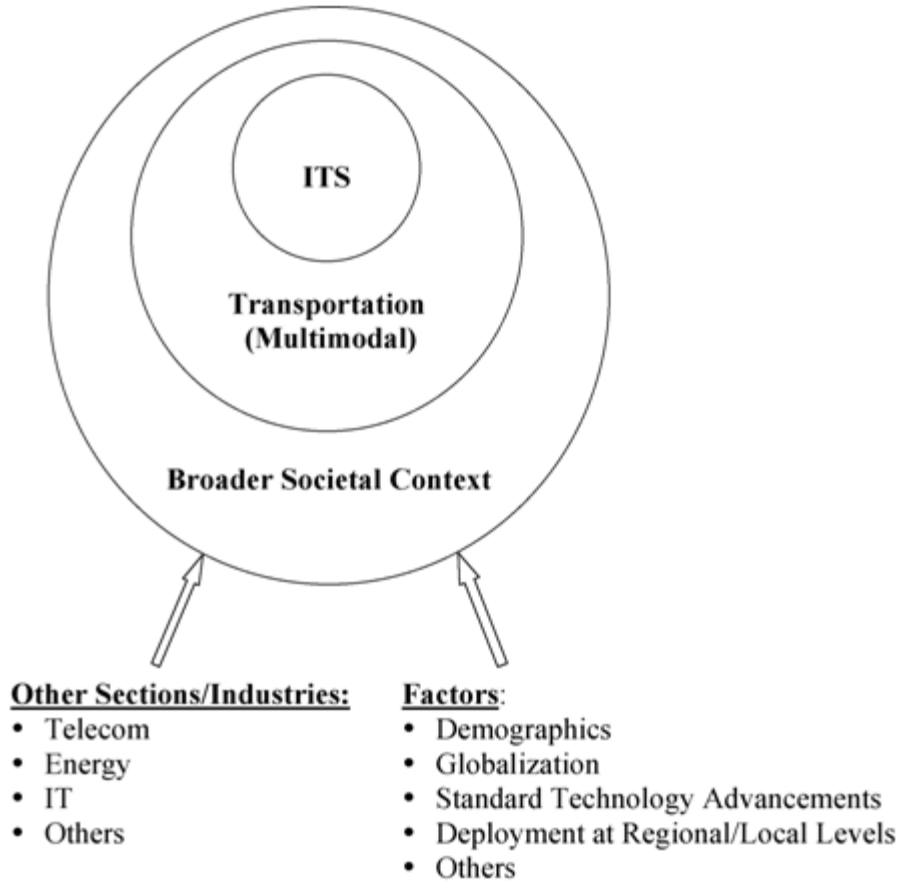
The meeting provided an opportunity for the committee members to meet each other and to give everyone a sense of what the views of various committee members are in the ITS domain. Further the committee had the opportunity to be briefed on the current status of the ITS program at JPO and to be introduced to the new RITA leadership, Administrator Peter Appel and Deputy Administrator Robert Bertini. Mr. Bertini is serving as the interim director of the JPO, while the director, Shelley Row, is on personal leave. Also, we note that John Augustine has moved into the post of managing director of JPO.

The committee was happy to hear from the senior management of RITA, to learn of their strong interest in the ITS program and especially to hear of the important role they saw for the committee.

This first meeting was largely concerned with raising issues from the disparate viewpoints of the members and getting a first order sense of the relative importance of the issues facing JPO. As such, this report sets out an agenda for the committee as it deals with these issues in subsequent meetings; it makes some observations on the state of the program but makes few recommendations beyond suggestions for important areas for future meetings. It is our goal to derive a consensus of recommendations from those future meetings as we progress in our understanding of the JPO program and objectives. We are working on a number of issues which we expect to flesh out and reach consensus on after our next meeting.

Background

We conceptualize ITS in the following diagram:



ITS is embedded within the broader field of multimodal transportation, which is in turn embedded in the broader context in which ITS and transportation relate to our overall complex environment. For example, we have sectors, such as telecommunications, energy, IT, and others.

ITS and transportation must deal with many factors including critical contemporary issues (CCIs) such as an aging population in the developed world and an increasingly urbanized world in all regions. It is also a world where globalization and the competitiveness of the U.S. in global markets are vital issues and a world dealing with a global downturn and some fundamental economic restructuring (e.g. market capitalism vs. state capitalism). This necessitates better incorporation of environmental externalities, for example, global climate change (GCC) which is shaping our views of what needs to be done.

Of course, technology is advancing dramatically both on a national scale, such as the smart grid and the incentives for electric vehicles, and on an individual scale such as the virtual explosion of consumer device and social networking technology which may establish both opportunities and consumer expectations. A particular challenge of the Nation's ITS program will be to appropriately integrate these technologies. Further, success in ITS requires effective cooperation between levels of government—federal, state and local—between the public and private sectors, and a balance

between vehicle-based and infrastructure-based technologies. It is clear the field of transportation needs to transform itself as it operates within this more complex environment.

The question of the federal government's role in ITS is a matter of continuing discussion going back to the very earliest years of ITS in the US in the late 1980s. It seems clear given the need for transformation, change and innovative practices, USDOT and JPO should take on a leadership role. Of course, there are other players---including other federal agencies (FCC, HUD, EPA, DOE and others), the public sector at the state, regional and local levels, the private sector, the academic community, the research community, and the international community--- with vital roles to play. By its leadership, the JPO should set the national agenda for ITS encompassing all of these constituencies, given sufficient resources, with direct research in areas appropriate for the DOT and possibly coordination and tracking in areas best researched and developed by other organizations. The big picture of how it all comes together in a comprehensive treatment of ITS is the responsibility of the JPO, in our opinion, and an appropriate role for USDOT and JPO. It is not clear that this big picture has been adequately developed and communicated.

The transportation system at large, and ITS in particular, has objectives on many dimensions, including safety, mobility, environmental stewardship, and social equity. It is essential to maintain a balance of these dimensions and ensure effective communication about them both within the DOT and outside, including eventual reach to the consumer. The JPO should consider effective packaging of this message and maintaining consistency to ensure that all constituencies are aligned.

Given these multiple dimensions and the broad transportation and ITS community with which we deal, it is clear that a *systems approach* to thinking through what JPO should be contributing is vital. Recognizing the interactions in the complex sociotechnical systems (CSS) context within which we work will be vital for future success.

As part of this systems approach, one needs metrics of transportation systems performance. During this meeting, the committee saw few. Developing a consistent and coherent set of metrics and gathering statistics on the metrics can be an important contribution by the JPO. These statistics often exist but can be overlapping and inconsistent. The DOT should develop and maintain, or coordinate with other organizations who can do so, consistent databases for safety, fuel economy and CO2 emissions, lack of efficiency in transport, access by all communities of transportation users, and others. Then the elements of the systems approach to transportation improvement can be assessed for their predicted relative contribution to these metrics, and progress can be consistently measured.

There is important research to be done in ITS. IntelliDrive, with its V2X benefits, is an important component of overall safety, mobility, environmental stewardship, and social equity. But it is one of several components, and the committee feels that the ITS JPO must demonstrate leadership and stewardship across the other elements of transportation advancement, including in-vehicle technology, rural transportation, public transportation, and freight transportation. What is needed is a balanced program that addresses each of these, and possibly other elements, in a comprehensive systems approach considering the interactions of these elements and their contributions to safety, mobility, environmental stewardship, and social equity. The approach to each of these elements may be different, where JPO-directed R&D is appropriate in some but in

others, different methods of involvement, such as incentives for private investment and the creation of technology sharing forums may be appropriate.

JPO's research program is a vital component of what it does, but it is not its only responsibility. A key metric should be the deployment of technology. This goes beyond model deployments to actual adoption by local authorities and the private sector. The committee expresses a growing impatience with the slowness in moving innovations that have been developed through research into actual advances in our surface transportation system as deployed. The committee feels that JPO, and the ITS community more broadly, should focus efforts on how achieve deployment through interaction with other organizations and be accountable for results.

Issues and Questions

With all this in mind, the committee identified some issues and questions that should be on the agenda of JPO and should be the topics of subsequent advisory committee meetings.

Multimodalism - The committee believes that ITS/JPO's programs must be fundamentally *multimodal* in its approach. While there are components of the JPO program that go beyond highway transportation, the budget of JPO is overwhelmingly highway oriented. We recommend that JPO clearly articulate their multimodal goals and the manner in which their program addresses these goals including those for public transportation and freight in modes other than highway.

The Platform Approach and IntelliDrive - Does JPO's research program provide a platform upon which others can build to advance the field? The questions of data access and shared data, open versus closed devices, and the creation of applications in an open platform manner can be helpful in accelerating deployment of more effective systems. JPO has made IntelliDrive the lynchpin of its program. The questions: does JPO's IntelliDrive initiative provide an open platform for further development by others? Does it leverage advances and investments being made in other sectors of the economy? And does IntelliDrive provide an environment in which non-highway applications can flourish, including even pedestrians?

Communications - The JPO program has emphasized DSRC is its communications mode. We observe that recently JPO has considered other technologies for V2V and reserved DSRC for latency critical communications for intersection safety. This is a step in the right direction by JPO since it provides an open platform for communications. Further, we observe that DSRC can be expensive and sole reliance on it might constrain development of a multimodal program. Communications, as a central ITS technology, should be the subject of continued emphasis at JPO.

Technology - The committee worries that ITS is already substantially behind – one member said ten years behind—in the technologies it is applying. If so, what does this imply for the ultimate efficacy and viability of ITS? How can transportation keep up with the rest of the world? What might JPO do to remedy this situation?

Transformation - It is clear that given the pressures the world of transportation faces, and that ITS faces as a component of that world, transformational change and innovation is an imperative. We need new institutions, new deployment mechanisms, new mechanisms for funding, and so

forth. The question we ask is what role can ITS JPO play in creating a positive transformation? Among the areas in which transformation may be appropriate are the following:

The Federal/States Interface - A major challenge within the US transportation system is the relative responsibility for implementation by the Federal Government and the States. While the Federal Government cannot drive implementation other than by cooperation by the States, it can provide the leadership and incentives to accelerate State implementation, and it certainly can track deployment success. Only by tracking ultimate deployment can we learn which programs and initiatives are effective and successful. JPO has a vital role to play here. How can it best contribute to making this relationship more effective?

The Public/Private Interface - From its birth, ITS in the U.S. has had to deal with the relationship between the public and private sectors—who does what and how to share best practices? Mechanisms for cooperation? Standards setting? This comes to the fore in the question of vehicle technology and infrastructure technology and how they relate in ITS deployment. It is vital that the public/private interface be made more efficient and effective, to the benefit of all. How does JPO best address this issue?

Closing

The above topics have identified the important areas identified by the committee and lay out a series of questions that JPO should address and which we expect will be the topics of subsequent meetings. The committee leadership together with JPO leadership will draw on this letter to create our meeting agendas. Further, we are considering having some of these meetings in venues "outside the beltway" that support the topics under discussion. For example we are considering a meeting in San Francisco focused on ITS and public transportation and a meeting in Detroit focused on V2V technologies and the relationship between the private sector and the public sector in advancing ITS research and deployment.

We hope the JPO finds these initial thoughts of value. Any comments you have are more than welcome and we look forward to the next meeting.

The meeting agenda and a committee roster including an indication of who attended the April 7, 2010 meeting follows:

ITS Advisory Committee Meeting
April 7, 2010
Agenda

8:00 - 8:10 USDOT Welcome: Peter Appel and Rob Bertini

8:10 - 8:20 Opening Remarks: Dr. Joseph Sussman, Chair

- Meeting Purpose and Agenda Review

8:20 - 9:45 Advisory Committee Members Interest Areas: Dr. Joseph Sussman, Chair

- We'd like to hear your thoughts on the DOT ITS Program. Please come prepared to give a short, 5 minute, perspective on ITS as you see it. You might consider the following questions:

- What is your background and focus in ITS?
- What is the most compelling ITS need in the US?
- What gaps do you see in our DOT ITS Program?
- How can we be most productive in our roles on this Committee?
- How do we measure success?

9:45 - 10:00 Break

10:00 - 10:10 USDOT Governance: Rob Bertini, RITA Deputy Administrator & Acting Director/JPO

- Overview of USDOT governance through the ITS Management Council and Strategic Planning Group
- JPO management plan

10:10 - 10:30 Committee membership discussion / Q&A

10:30 - 10:45 Evolution of IntelliDrive [SM] : John Augustine, Managing Director

- Committee membership please comment on the following:
- Clarity of the IntelliDrive vision
- Appropriate substance to achieve the desired objectives
- The ITS JPO's planned execution of the Program

10:45 - 12:00 Committee membership discussion / Q&A

12:00 - 1:00 Lunch

1:00 - 1:15 ITS Five-Year Strategic Plan: Brian Cronin, Research and Demonstration Team Lead

1:15 - 2:00 Committee membership discussion / Q&A

2:00 - 2:15 UTC Engagement: Mac Lister, ITS Professional Capacity Building Program Manager

2:15 - 3:00 Committee membership discussion / Q&A

3:00 - 3:10 AERIS: Marcia Pincus, AERIS Program Manager

3:10 - 3:30 Committee membership discussion / Q&A

3:30 - 3:40 ITS America Annual Meeting: John Augustine, Managing Director

- Committee attendance and exhibition tour

3:40 - 4:00 Committee membership discussion / Q&A

4:00 - 4:30 Committee Governance – Staying Connected: Dr. Joseph Sussman, Chair

4:30 Adjourn

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

Committee members present:

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

Committee members absent:

Mr. Peter Kissinger; President and CEO, AAA Foundation for Traffic Safety
Mr. Bryan Mistele; CEO, INRIX