

**21st Century Transportation  
Infrastructure Symposium:**

**Linking Regional Planning and  
Operations for Effective ITS  
Deployment**

**Proceedings**

**Sponsored by:**  
**Federal Highway Administration**  
**Federal Transit Administration**  
**Volpe National Transportation System Center**

**December 16-17, 1996**  
**Washington, D.C.**

## **Foreword**

These proceedings are derived from the symposium entitled *21st Century Transportation Infrastructure Symposium: Linking Regional Planning Operations for Effective ITS Deployment: Proceedings* (FHWA-SA-98-002). Until it is published, a photocopy of the forthcoming *Proceedings* may be requested from Ms. Laurel Radow, Federal Highway Administration (FHWA), Office of Traffic Management and ITS Applications, HTV-3, Room 3404, 400 Seventh Street, SW, Washington, DC 20690; fax request with name, address and telephone number to 202-366-8712. The symposium was jointly sponsored by the Federal Highway Administration (FHWA), the Volpe National Transportation Systems Center (VNTSC), and the Federal Transit Administration (FTA).

On December 16-17, 1996, at the Sheraton Washington Hotel in Washington, D.C., more than one hundred regional planning practitioners, systems operators, and others met to examine current practices and to consider how best to adapt those practices to link planning, operations, systems management, and traveler information to obtain the most efficient use of our surface transportation system, and to accelerate the deployment of Intelligent Transportation Systems (ITS). The presenters and respondents were selected to share their insight and experiences.

The purpose of the symposium was to help formulate recommendations for future research, policy, legislative, and administrative actions that may be considered by our offices and other public agencies to implement ITS in a regional setting. The symposium also addressed how best to incorporate improved regional and jurisdictional transportation management and operational practices, and ITS deployment into standard regional and/or statewide planning procedures, processes and practices. Finally, the symposium focused on the important linkages between regional transportation planning and operations of proposed and existing systems to enhance interagency and interjurisdictional information sharing. These linkages will become especially important as more citizens and business and commercial carriers want regional traveler information systems in the 21st Century.

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**Volpe National Transportation System Center**

**21st Century Transportation Infrastructure Symposium:  
Linking Regional Planning and  
Operations for Effective ITS Deployment**

**The Sheraton Washington Hotel  
Delaware Suites  
December 16-17, 1996  
Agenda**

**Monday, December 16**

- 8:45    Opening Remarks:** Wayne Berman, FHWA Office of Traffic Management and ITS Applications, FHWA  
**DOT Representatives:** Dennis Judycki, FHWA, Edward Thomas, FTA, and Dick John, Volpe Center  
**Symposium Overview and Direction:** Tom Horan, CGSRI
- 9:15    Key Policy Challenges and Opportunities to Linking Planning, Operations Systems Management and Traveler Information:** Plenary Session  
Policy and Technology Challenges and Opportunities: Stephen Lockwood, PBFI  
Strategic Planning Issues: Joe Sussman, MIT  
Addressing Externalities of System Performance: Hank Dittmar, STPP  
Private Sector View of Systems Management: John Cox, SCEP
- 11:00    Audience Comments**  
Close morning discussion: Tom Horan
- 11:30    Lunch:** Virginia Suite  
Introduction: Tony Kane, FHWA  
Reauthorization Challenges: Representative James Oberstar (D-MN)
- 1:15    Charge to Policy Breakout Sessions:** Wayne Berman
- 1:30    Breakout Discussions:**  
Breakout 1: Moderator: Gary Ritter, Volpe  
Breakout 2: Moderator: Mark Safford, Volpe  
Breakout 3: Moderator: Dennis Foderberg, UMinn  
Breakout 4: Moderator: Lee Munnich, UMinn
- 3:00    Breakout Sessions—Develop Synthesis for Presentation**
- 3:15    Break**

**3:30 Critique of Policy Challenges and Opportunities by Breakout Sessions:**  
Session Moderators

**4:15 Day's Closing Comments:** Wayne Berman, Sheldon Edner (FHWA), Robert Stout (FTA), and Tom Horan

**4:30 Day 1 Adjourns**

## **Tuesday, December 17**

**8:30 Recap of Monday's Themes and Direction for Tuesday's Panels:** Tom Horan

**8:50 State and Local Challenges to Linking Planning, Operations, Systems Management, and Traveler Information:**

Panel Discussion of State and Local Challenges:

Gene Ofstead (MN DOT), Les Jacobson (WASH DOT), John Duve (SANDAG), and Ginger Gherardi (Ventura County Transportation Commission)

Moderator: George Schoene (FHWA)

**10:00 Break**

**10:15 Panel Discussion of Policy and Re-authorization Implications:**

DOT Representatives: Cindy Burbank (FHWA) and George Schoene (FHWA)

Outside representatives: Bill Hein (MTC) and Hal Kassoff (ITS America)

Moderator: Steve Lockwood

Commentators: Jeff Lindley (FHWA), Robert Stout, and Wayne Berman

**11:15 Open Floor for Comments and Suggestions**

**11:40 Future Directions:** Tom Horan

**12:00 Adjournment of Symposium:** Wayne Berman

Lunch on your own

**1:30 DOT Roundtable: Macro Trends and Research Developments:**

Host: Dick John, Volpe Center

Moderators: Tom Horan and Joe Sussman

Expert Roundtable: Robert Benke, Wayne Berman, David Burwell, Don Chen, John Cox, Robert Dunphy, Emil Frankel, Jonathon Gifford, Linda Howe, Tom Humphrey, Leslie Jacobson, Paul Jovanis, Stephen Lockwood, Mitchell Moss, Dick Mudge, Lee Munnich, Robert Paaswell, Edith Page, Alan Pisarski, Mike Replogle, Mike Shiffer, Stein Weissenberger, Sam Zimmerman, and others.

All symposium participants are invited to attend.

**4:00 DOT Session Ends**





# Introduction

To foster a broader understanding of the issues, the Federal Highway Administration (FHWA), the Federal Transit Administration (FTA), and the Volpe National Transportation System Center sponsored the *21st Century Transportation Infrastructure Symposium: Linking Regional Planning and Operations for Effective ITS Deployment*. The symposium was held December 16-17, 1996, in Washington, DC. An audience of approximately 100 transportation professionals from both the public and private sectors participated in the seminar. Several experts provided presentations, and participants met in breakout group sessions to address various issues. The two-day symposium was moderated by Wayne Berman, Office of Traffic Management and ITS Applications, FHWA, and Tom Horan, Claremont Graduate School Research Institute. The agenda included the following sessions:

- Opening Remarks
- Key Policy Challenges and Opportunities to Linking Planning, Operations, Systems Management, and Traveler Information
- Luncheon Speaker: Representative James Oberstar (D-MN)
- Breakout Group Discussions
- Opening Remarks for Day Two
- State and Local Challenges to Linking Planning, Operations, Systems Management, and Traveler Information
- Panel Discussion of Policy and Reauthorization Implications
- Closing Comments

This document consists of summaries of the presentations from general sessions, participants' questions and comments, and breakout group discussions.



# Proceedings for Day One

## Opening Remarks

Wayne Berman of the Office of Traffic Management and ITS Applications, FHWA, provided a warm welcome to the symposium participants. He reminded the audience of the transportation challenges ahead of us, and urged all participants to contribute input toward solving those challenges. Mr. Berman served as the moderator, along with Tom Horan of the Claremont Graduate School Research Institute. Mr. Horan followed with the opening remarks of the symposium.

### **Susan Lauffer, FHWA**

*Susan Lauffer is with the Federal Highway Administration. She provided comments about the importance of leadership and communication.*

### **Summary of Remarks**

We are challenged to be proactive leaders who work for and with our partners. We should stress the importance of communication and customer service, and be responsive to the needs of our customers and the public. As ITS matures toward deployment, ties to partners are important. ISTEA presents many challenges, which we will discuss today.

### **Edward Thomas, FTA**

*Edward Thomas is the Associate Administrator, Office of Research, Demonstration, and Innovation of the Federal Transit Administration (FTA). He provided comments concerning the importance of various topics that are to be addressed in the symposium.*

### **Summary of Remarks**

We need to develop a stronger bond between transportation planning and operations. This will be essential if we are to realize the benefits of ITS technology. Advanced information and communication systems provide planning professionals with the opportunities to obtain data that is better and more cost-effective; models capable of analyzing short-range, multi modal, and intermodal improvements; and techniques for public involvement.

Planners, operators and system managers have roles to play. Planners have the benefits of new discoveries, such as fast, inexpensive computers; geographic information systems; global positioning satellites; multi modal network models; household and activity-based demand models; and improved optimization algorithms. Transit operators and managers are challenged with gaining a stronger understanding of their various markets, tailoring services and prices accordingly, and generally improving the quality of transit service by reducing travel time and improving safety and security. Local and state system managers are constantly reminded of the need to maintain the highest level of service on our streets, freeways, and toll roads; to provide real-time information on the condition of the system so that travelers can plan their

trips accordingly; and to offer incentives for more effective travel-demand management.

Unless ITS becomes integrated into the systems planning process by demonstrating an ability to improve planning tools and to enhance system performance, ITS risks being confined to the sidelines of transportation decision-making. As Secretary Peña called for in his announcement of Operation TimeSaver, the various ITS technologies must be integrated into a system-wide Intelligent Transportation Infrastructure (ITI). Only then can we realize the full benefits of the advanced technologies and have ITS evaluated as valid alternatives to transportation capacity improvements.

This symposium is a great step toward mainstreaming ITS. ITS integration into the transportation mainstream faces many challenges, some technical and others institutional in nature. But we have the ability to identify the critical issues and find the right solutions. FTA Administrator Linton fully supports the Department's ITS and ITI Initiatives, and is encouraging efforts to mainstream proven systems and technologies. We will work with our colleagues to ensure development of an intermodal seamless transportation system.

In closing, FTA is an important player in the Department's ITS Initiative. We have already demonstrated that information and communication-based technologies can improve safety and security, increase the throughput of transit fleets, enhance the performance of transit equipment and infrastructure, and deliver more specialized and accessible services to low income, elderly, and other transit dependent populations. To make our research, development, and innovation programs effective, our re-authorization proposal is for a joint partnership initiative.

## **Robert C. Ricci**

*Robert C. Ricci is the Deputy Director of the Volpe National Transportation System Center. He provided opening comments about ITS.*

### ***Summary of Remarks***

Intelligent Transportation Systems (ITS) is an important part of 21st century transportation. We will need to conduct more research of ITS for it to function properly. In addition, ITS needs must be compatible with needs of local communities so that local government and the communities feel ownership. Communities may come to understand how ITS can increase mobility options of communications without intruding on community life.

## **Tom Horan**

*Tom Horan is the Executive Director of the Claremont Graduate School Research Institute. Dr. Horan followed with an overview and direction of the symposium.*

### ***Summary of Remarks***

The symposium topic is the interface of ITS with planning and operations. The overall scope of the symposium is tactical and strategic. The tactical changes are centered around the reauthorization of ISTEA. The strategic changes include questions concerning changes in the surface transportation system and the meaning of those changes.



# **Key Policy Challenges and Opportunities to Linking Planning, Operations, Systems Management, and Traveler Information**

## *Policy and Technology Challenges and Opportunities*

### **Stephen Lockwood, PB Farradyne, Inc.**

*Stephen Lockwood, Vice President of PB Farradyne, Inc., opened the session with his analysis of 21st century transportation infrastructure.*

### **Summary of Presentation**

The agenda for 21st century transportation infrastructure is “main-streaming” ITS. The basic assumption behind this agenda is that ITS is the future of service improvements. While this broad interpretation is important, there are multiple levels of interpretation that are relevant, including immediate, programmatic needs as well as long-term, sectoral needs.

Both “evolutionary” and “visionary” points-of-view of 21st century transportation are necessary. The visionary point-of-view provides a vector for the longer-range, more aggressive 21st century transportation development. Elements of the vision need to be reflected in short-range policy such as ISTEA Reauthorization. The short-term evolutionary point-of-view accepts short-run limitations of context. The evolutionary program should consist of modifying the planning/programming process to implement the intelligent transportation infrastructure. The objective of the evolutionary program should be to deploy the intelligent transportation infrastructure nationally as a baseline. This approach assumes existing sectoral roles and complex jurisdictional structure, accepts operations as modest state/local priority, recognizes minor short-run changes, and accepts tradition of arms-length relationships with the private sector. This approach is dependent upon “champions.”

Within the near-term horizon context, potential NEXTEA ITS elements focus on generating visible deployment and capacity building. Some issues for NEXTEA include the following: operations and maintenance funding, ITS planning/programming focus, incentives for systems integration, emphasis on innovative finance, “Op tests” for operations planning, procurement deregulation, training, and research and development at the metro level. These issues are crucial to maintaining program momentum and credibility. The bottom line for NEXTEA is that we need to recognize limits of available Federal aid.

The evolutionary view of ITS is necessary, but not sufficient. There must be a visionary component, a new paradigm for 21st century surface transportation, to set the direction of future change in the “TEAs” beyond NEXTEA. This longer-range horizon vision is based on the presumption that there will be consumer demand for significant “progress” in transportation-related services in the 21st century and that the



general institutional configuration will tend towards the dominant private enterprise model.

The vision presumes a future “transportation” that is quite different from today’s transportation. In future transportation, service is the mission (not just one of many visions). Transportation will be viewed as a new product, which includes a bundle of services. It will be focused on traffic-responsive operations of the upper level network of transportation facilities in real time. It will utilize the full range of supply management tools, be combined with comprehensive in-vehicle information and safety systems, and manage demand through the provision of priced facilities and special service options. This vision implies a large number of new service components organized by information/communications into a consistent systems framework by a market-oriented combination of revenue-driven service providers.

To support the vision, major institutional and financial innovation is required. In our institutions, we will need to prioritize operations and service and develop coordinated metropolitan system operations and management. We will need to introduce enterprise management, obtain highly technical staff, and replace “planning” with performance-based evaluation. In addition, we will need to align intermodal infrastructure with modern freight logistics. In addressing financial changes, we will need to induce consumer demand with service options and prices, utilize private resources for facility operations, supplement on-budget tax funds with a range of beneficiary and customer-based revenues to support private investment, and monetize consumption of valued natural resources.

The institutional and financial changes needed may not be as radical as they seem. The context in which we are working is shifting. Other sectors, such as power and telecommunications, are moving in many of the same directions that transportation needs to move. Privatization is becoming a global trend in transportation. Innovation has been part of the U.S. transportation institution’s history, and there are already bellwether examples of innovation in the U.S. These factors in combination suggest that “progress” is inevitable. The only questions that remain are when and how.

The key barriers to the visionary future are principally institutional and financial. Some key barriers are marginally affected by limited Federal-aid program leverage and “soft” Federal-aid program incentives. Therefore, as we develop an evolutionary policy/program agenda, we also need to incorporate elements that are oriented to laying the groundwork, opening the door for significant institutional and financial change beyond NEXTEA.

The agenda beyond NEXTEA should introduce strong emphasis on evolving a suitable institutional and financial framework that brings the future forward with a focus on getting a best case rather than on raising the lowest common denominator. Transition steps that can be initiated in NEXTEA include the following:

- Raise public and service providers’ expectations through system performance focus, benchmarking, and incentives to prioritize the operational mission.

- Reduce dependence on Highway Trust Fund by permitting tolls on Interstate, and empowering regional development of pricing programs on a network basis.
- Focus on institutional innovation for operations and management through “Institutional Op Tests” such as new incentives through “Metropolitan Operating Authorities” for upper-level systems on an enterprise basis.
- Create strong dialogue toward national cooperation with service provider/players at national level to minimize barriers to in-vehicle and related communications services.
- Promote dialogue concerning cross-sectoral support at the national level of substantial operations and management costs associated with ITS for transportation-related service providers.
- Consider stronger incentives to induce private investment in both facility ownership and service provisions by minimizing public subsidy of potential enterprise-based activities. “Make” markets by developing “take or pay” approaches to activities conventionally provided by the public sector.
- Give incentives to state and local experimentation by bellwether states outside the Federal-aid program context via funded Technical Experiment Program (TE) and “Op tests” that focus on premium-priced services, streamlined procurement, and new types of concessions for both roadway improvements and ITS services.
- Encourage transition to private management by staging through managed competition, shadow prices, and franchises with new “public interest rules.”
- Undertake examination of infrastructure operations implications of contemporary logistics jointly with private freight/intermodal industry.
- Consider ITS requirements on NAFTA/Intercontinental Highway System with ATMS/ATIS requirements and Mexican and Canadian continuity.
- Establish an ITS Academy.

The above concepts should be embodied in policies and programs at both Federal and state levels. In particular, their inclusion in the national Economic Crossroads Transportation Efficiency Act (NEXTEA) will establish some important vectors that subsequent policy and program evolution can build on towards realization of the 21st century vision.

## *Strategic Planning Issues*

### **Joe Sussman, MIT**

*Joe Sussman is a professor at the Massachusetts Institute of Technology (MIT). He presented information concerning the difficulties and challenges associated with ITS.*

### **Summary of Presentation**

ITS at its heart is a simple concept: it is “transportation as a linked vehicle/infrastructure *system*.” Linked systems are evident in the “ITS-4” Technologies, which include technologies for sensing, communicating, processing, and methods. ITS provides many advantages but it also presents several difficulties, which include systemic difficulties, organizational readiness, funding, and political realities.

The very characteristic of being systemic creates difficulties. To function as a system, ITS requires a level of coordination that we’ve never had before. For example, vehicles (which are primarily private sector) and infrastructure (which is primarily public sector) must be considered together as part of the system and must be linked together in a technologically sophisticated way. Resources must come from both the public and the private sectors and be integrated as part of the system. Public and private sector representatives must achieve a level of coordinated decision-making that has not yet been reached.

Another difficulty with ITS is organizational readiness. To reach organizational readiness, we need to create a new cadre of transportation professionals that can deploy new technologies. Many professionals currently place emphasis on operations, maintenance, and construction rather than on ITS. There is evidence of a move in the right direction, but there is much further to go to achieve organizational readiness. To accomplish this goal, academia, the government, and the private sector all will have to play a role. Academia must educate the “New Transportation Professional;” state, local, and Federal governments must evolve to implement ITS methodology; and the private sector must also work to provide organizational readiness.

Funding is a difficulty with ITS. In the current climate, there are limits on funding of transportation. ITS will be competing for a finite amount of funding against more conventional projects, such as construction and maintenance.

Not to be ignored are the difficulties that stem from politics. “ITS’s advantages do not mesh with political realities.” The two principal advantages derived from ITS, intermodalism and regional scale, create problems in the political arena. Federal and state structures for transportation tend to be modal in organization, which make intermodalism a difficult goal. Local political structures are not usually organized by region, and consequently have difficulty working on a regional scale.

Despite the difficulties presented by ITS, we must move forward with a strategic vision. The strategic vision for ITS is as the integrator of transportation,

communications, and intermodalism on a regional scale. To achieve this vision, we must factor the current trend of growing emphasis on communities and regions into ITS deployment by looking at ITS as a regional initiative. Our best hope for long-term deployment is for communities to take the lead for improving strategic planning.

Yet, studies conducted by MIT indicate that we are a long way from achieving better Regional Strategic Transportation Plans. The study found that:

- Plans are still relatively unimodal.
- Strategic plans are dominated by public sector concerns and decision-making.
- Passenger-freight interaction is not there.
- There is a lack of partnership, including warring bureaucracies and fragmented governments in regions.
- The transportation-communication interface has not been effectively considered.
- Regional strategic planning does not have technology scan elements.
- Organizational readiness is a problem: Organizations need to change.
- Technical integration is not being factored into decision-making. Regions are not considering that they will have to develop their systems over long periods of time and will need to integrate technologies in the future.
- It is questionable whether the system architecture of ITS can be used to develop regional architectures to address integration problems. As the key to success for ITS, regional strategic transportation plans must become intermodal, utilize technology as a driver, employ system architecture to provide long-term interoperability, and integrate information/communication with transportation.

## *Addressing Externalities of System Performance*

### **Hank Dittmar, STPP**

*Hank Dittmar is the Executive Director of the Surface Transportation Policy Project (STPP). He presented information concerning design parameters for the 21st century.*

### ***Summary of Presentation***

Design in the 21st century needs to incorporate notions of sustainability. The three principles of design for sustainability are conservation, regeneration, and stewardship. Conservation involves slowing the rate at which things are getting worse. Demand is currently increasing, and we cannot provide capacity concurrent with demand. Regeneration involves repairing and renewing our limited stock of capital. Stewardship

is characterized by frugal spending and wise investment. To achieve sustainability, we need to be aware of current trends, such as changes in manufacturing, use of the Internet, and changes in urban form.

Manufacturing and production have undergone significant change in the last few decades. Manufacturers have tremendously increased in number and have become decentralized. In addition, there is a movement toward home-based selling and just-in-time delivery to homes. These changes have major implications for transportation.

Telnet and Internet/WWW are creating change in many facets of our lives. Internet allows for accuracy of information to almost everyone. It is fostering a linked economy, which will require a faster, greater, and more intensive transportation system. As use of the Internet increases, multiple levels of government will need to deal with more transportation problems. For example, teleshopping and working at home may lead to breakdowns in system in-peak/off-peak periods.

Changes in urban form will also contribute to design challenges. Urban centers/downtowns will continue to be important but will not dominate the agenda. Instead, community-based regionalism will become more dominant. Transportation planning will need to refocus to account for regionalism. Given current trends, the initial formulation of ITS will prove inadequate for needs of the 21st century. The initial plan for a central structure between vehicle and infrastructure needs re-evaluation. The next version of ITS will need to be a technical ITS that can support an integrated, managed network. We need to move toward network transportation that facilitates one's preferred mode of transport. In conclusion, there are several examples of innovation that will move us into the 21st century. Regions and firms will innovate, and those working together will gain. The government has the capacity to facilitate changes needed, and hopefully we can move in that direction.

## *Private Sector View of Systems Management*

### **John Cox, SCEP**

*John Cox is President of the Southern California Economic Partnership (SCEP). He presented a private sector view of ITS.*

### ***Summary of Presentation***

ITS is the process of utilizing information and management to increase the effectiveness of an information system. Yet the role the public sector is playing in ITS is troubling. The public sector is encroaching on areas traditionally belonging to the private sector. The private sector, which understands the complexity of the multitude of issues, is quick to respond to market trends, and is in fact building ITS today.

Navigational devices are an example of the potential for disconnect between the public and private sectors. We expect that 30 percent of vehicles by the year 2000 will have navigators, but we are uncertain whether the public sector will be able to deliver meaningful information for these navigation devices.

Issues in the private sector include the impact of telecommunication, external/internal forces, and social equity/environmental constraints. Telecommunication will create significant changes: by the year 2005, 53 percent of households will have a computer, and there will be 23 million telecommuters. The private sector has focused on telecommunication, but the public sector needs to focus on how telecommunication impacts transportation systems. In a positive step in this direction, public sector agencies have begun to create Web pages, and the private sector is capitalizing on this use of public information.

The private sector is aware of external and internal forces upon it. We have an interest in the consumer's attitude and demands in convenience. We work toward systems that provide timeliness, safety of travel, and the ability to get to work conveniently. We recognize that information needs to be real time, affordable, easy to use, and low maintenance. We also realize that there are constraints of society, equity and the environment. We analyze whether the product delivered did the job it was supposed to do; this is a private sector attitude the public sector must adopt.

There are barriers to effective ITS that need to be addressed such as the concept of ITS as a public works program and the current status of limited core information structures, consumer markets, and funding. To overcome barriers, we need opportunities for new thinking and greater opportunities for toll revenues. The public sector needs to take advantage of private sector specialties and provide more funding to accommodate marketing/informing the public.

To make ITS work, we need to step outside the box. We must recognize the market-based nature of the system, the skills the private sector can provide, the need for innovative financing, the actions that have potential for environmental and transportation benefits, and the need to reduce regulatory costs.

### **Audience Comments for the Policy Session**

The audience focused on several issues, including timing and progress. One participant was concerned about the length of time needed to put policy changes into practice. She asked the questions: Did ISTEA have any effect? How can the public sector think ahead and understand the proper challenges? Another participant responded that there has been five years of progress during which ISTEA has made a difference. He stated that we need to reinforce the move toward strategic planning and ask joint agencies to become accountable. Another participant disagreed that existing institutional structure will be better and advocated instead of a move into the free enterprise system. Some participants focused on technology. One discussed how

technology opens up new possibilities. Another recommended using the telecommunications model, which responds better to the market.

Others gave remarks concerning planning. One participant said that strategic planning should not be mandates. Planning needs to be focused on regions.

A participant noted the dichotomy between sustainability and privatization. He stated that the need to reduce costs and make a profit are inherent in a move toward privatization. Other goals, such as quality of life and air quality are not in the equation of privatization and could be overlooked.

## **Breakout Discussions**

- Group 1 : Planning (Red)
- Group 2 : Information Systems (Green)
- Group 3 : Operations (Orange)
- Group 4 : Urban Form (Blue)

Participants gathered in four breakout groups to provide input on transportation issues in four areas: planning, information systems, operations, and urban form. Each group answered two general questions and then answered breakout-specific questions. The breakout-specific questions are listed underneath each breakout, and the general questions for all groups are listed below:

### ***Question A:***

Given the increased emphasis on operating and managing the existing surface transportation system more efficiently, as opposed to increasing systems capacity through major capital investments, what are the key factors to be considered?

- External and internal forces.
- Barriers.
- Opportunities

### ***Question B:***

With respect to transportation planning, programming, operations, and management for information-intensive transportation, what research gaps exist and what kinds of studies, research, and operational tests are most promising?

- Technical.
- Institutional.
- Financial.
- Organizational/staffing.



## **Breakout Group 1: Planning (Red)**

Group 1 discussed planning issues. The session was moderated by Gary Ritter. Participants included the following: Carol Armstrong, Bob Benke, Wesley Blount, John Cox, John Duve, Gary Euler, David Ewing, Sheldon Edner, Bob Garbacz, Richard Hartman, William Hein, Linda Howe, Melissa Laube, Bruce McDowell, Andrew Meese, Jose-Luis Mesa, Juan Morales, Sigmund Silber, Joe Sussman, Stein Wissenberger, and David Zavattero.

The planning group answered the general questions A and B and also answered the following specific questions:

1. What changes in the planning and programming process are desirable to accommodate regional systems management, operations, and integrated information systems?
2. How should these changes be implemented? (administratively, legislatively, etc.).

### ***Summary of Breakout Group 1 Discussions***

Group 1 discussed the planning process, identified barriers and opportunities, and provided recommendations.

The group characterized the optimal planning process as one that is a multi-level, cascading process with private sector participation. To succeed, both planning *and* operations staff need to be involved in the planning process. Planning must include the concept of transportation as an interconnected system. Planners must include ITS in plan/Transportation Improvement Program (TIP) and coordinate ITI with other plans (communications). The planning process must be facilitated by Metropolitan Planning Organizations (MPOs) that have vision, can generate benefits, and can foster cooperation.

Group 1 also identified planning barriers and opportunities. Barriers included a lack of clear ITS focus, competing jurisdictional interests, competition for limited funding, Federal funding issues, uncertain public intent, and a short planning horizon that focuses on TIP. Planning opportunities included private sector investment and the possibility of building on existing institutions and planning processes.

Group 1's recommendations for planning with ITS included the following: avoid regional authority; develop solutions not mandates; and set result-oriented goals. The group recommended using ITS as a change agent in the areas of regional architecture, deployment commitment, and operations integration.

### ***Recorded Information from Breakout Group 1***

#### **Response to Question: Part A**

- Changed emphasis to manage existing systems more efficiently over adding more capacity.

***Key factors to consider:***

- Need for a clearly focused mission statement, end goals, results/outcomes, vision; i.e., farmers out of mud.
- ITS as “software” to make the existing “hardware” work better.
- Need for different integrated process/documents. (In pencil: operations and plug).
- Outcome oriented, value-added management.
- Product potential of transportation information.
- Reluctance to transfer “hard” infrastructure money into ITS—still waiting for return of interstate funds.
- Allocation of tight funding resources among competing needs.
- Systems deployment tools needed to facilitate spread of implementation projects tied to goals or problems.
- Insufficient financial resources relative to needs.
- “Mandates” are menaces.
- Competing individual, political, and jurisdictional imperatives and their regional vs. individual economic implications.
- Intermodal interface barriers—how to use ITS to achieve “seamless” system.
- Institutional absorption capacities and limits; e.g., Woodrow Wilson Bridge, in which parts are the sum of the whole. Also mass vs. surface area—the growth dilemma.
- Parochial rather than regional view of transportation facilities and system.

### **Response to Question 1: Changes Needed**

- Need for statewide coordination mechanisms, roles, and process.
- Crosscutting conceptual tools and vocabulary.
- ITS tools as a means of integrating information across functional levels.
- Collaborative ways to bring together operating and planning staffs.
- Better modeling tools to capture ITS impacts and benefits.
- Coordination of transportation system with other urban service systems.
- More diversified use of ITS information.

### **Response to Question 2: Implement Changes**

- Conceptual national architecture.
- Mainstream ITS.
- Move beyond short-term maximizing.
- Better coordination of public and private investments - 20:80.
- ITS is a paradigm shift agent.

### **Wrap Up**

- Public sector needs to set infrastructure investment parameters.
- More focused presentation of ITS benefits.

### **Breakout Group 2: Information Systems (Green)**

Group 2 discussed information systems issues. The session was moderated by Tom Mottl and Katie Wyrosdick. Participants included the following: Beth Anne Bower, Stephan Heimburg, Paul Jovanis, John Mason, Mark R. Norman, Henry L. Peyrebrune, Christopher Pie, Robert C. Ricci, Kenneth Voorhies, Doug Wiesig, Kirk D. Fauver, Robert Franklin, Bruce Eisenhart, Brian Elliot, Carol Coleman, Tim McGuckin, C. Kenneth Orski, Daniel Jordan, Tom Horan, and Eva Lerner-Lam.

The Information Systems group answered general questions A and B and also answered the following specific questions:

1. What are the roles of various information systems in improving roadway and transit systems performance and the operations of various agencies?
  - ITS information systems such as operations and traveler information.
  - Geographic Information Systems (GIS).
  - National Information Infrastructure (NII).

2. In what ways can new technologies, systems concepts, and enterprises enable new levels of systems planning and management?
3. What specific issues (barriers, opportunities) need to be addressed before information technologies, systems, and enterprises can deliver maximum benefits?
4. What policy instruments are most appropriate: legislation, regulation, financial incentives, model arrangements, including relationship to new telecommunications law, etc.?

### ***Summary of Breakout Group 2 Discussions***

#### **Key Factors:**

- A system perspective.
- Identify tangible benefits and communicate them to all sectors.
- Build teams.
- Cross-function (exercise/experience).
- Cross-culture (public/public; public/private).

#### **Gaps in Research, Studies, Operational Tests:**

- Understand information impacts on travelers and resultant system impacts.
- Emphasize pilots and studies/local jurisdictions.
- “GIS” as platform.
- Attach assessment and evaluation funding to pilot contracts.
- Enable communication and create a team.

## ***Recorded Information from Breakout Group 2***

### **Response to Question A1: External and Internal Forces**

- Operating agencies think of projects not systems, serving customers. They need to better define users.
- Metropolitan Planning Organization (MPO)—political process problem, i.e., what the user sees—example: potholes, road widening vs. signal retiming. Need tangible benefits for politicians.
- Benefits are not very tangible.
- Need to do evaluations to properly identify the BENEFITS and the REWARDS.

### **Response to Question 2: Opportunities**

- Communication—of the benefits of public investment.
- External—maintenance and operations vs. capitol expenses.
- Training of staff at state level is typically civil.
- State representatives are not equipped to sell their own products in ITS.
- Internet implications? Gets word out—new technologies are making it easier. Questions: what's free, competing with free, i.e., radio, information.
- Need to know how travelers use information, i.e., transit decision, mode switches, etc.
- Unknowns: What product will the consumer pay for? (personalized vs. general). What is the market? Who is the customer? Not necessarily the traveling public (could be telecommunications company).
- Data sharing, public/private partnership, etc.
- Maintenance—into ITS—automated.

### **Response to Question C: NII and ITS**

- ITS has not defined the standard requirements.
- Telecommunications.
- Software and systems integration.
- NII—not being addressed.
- Local people feel NII is pushing down on ITS from the ground up.
- Bringing both together, missing knowledge of both. Developing learning curve on how they fit together.

- Complicated and high level—NII

### **Response to Question C1:**

- State agencies do not recommend alternative routes (liability).
- Technology push vs. customer pull.
- Need new business models.
- Transit does not have the same liability issues as the alternatives route recommendations.
- Metro networks business model using advertisement as customer.
- Areas that have big public investment could be using private funding.
- CVO—Advanced Traveler Information Systems (ATIS) for trucks. Did surveys—economic component of CVO a lot willing to pay for customized traveler information.
- GIS—lifeblood of MPO, operators and planners on same map!

### **Response to Systems Planning and Operations:**

- Maintenance—dynamic data base, proactive.
- MPO—find a way to tailor information for their use. Buy-in, cooperation. Ex. O-D study.
- Measures of Effectiveness (MOEs) for ATM's and APTS—\$\$
- Information rarely being used for planning.
- State codes—resource sharing, public data.
- Systems engineer!

### **Response to Question 4: Legislation—ITE, AASHTO, Professional Society (Resource Sharing):**

- Financial incentives.
- Cannot ignore local needs and goals—cannot force ITS. A buy-in is needed.
- Political implications—WANT BENEFITS.
- Local governments—Mainstreaming! ITS procurement, design build, legislation.

### **Response to Question B. Research Gaps:**

*Left side:*

- How travelers respond to ATIS.
- Can ITS be used to manage demand and the effect on system performance?
- MOEs
- Put some money into planning.
- Need to build the tools for local jurisdictions, e.g., GIS.
- GIS—MPOs, etc.
- Measure operational test impact over a longer term—5-10 years.

*Right side:*

Most promising of these:

- Use separate funding for evaluation. That is not necessarily attached to a project.
- MOEs.
- Put some money into planning.

### **Breakout Group 3: Operations (Orange)**

Group 3 discussed operations issues. The session was moderated by Dennis Foderberg. Participants included the following: Farid Bigdeli, Gerard Cioffi, Paul Cuerdon, Ginger Gherardi, Les Jacobson, David Judd, Stephanie Kolb, Walter Kraft, Steve Lockwood, William Mahorney, John Merritt, Graham Norton, Jon Obenberger, John Olson, James Robinson, Robert Stout, Peggy Tadej, KT Thirumalai, and Edward Thomas.

The Operations group answered general questions A and B and also answered the following specific questions:

1. What institutional and organizational barriers exist that prevent the inclusion of operations in the planning and programming process?
2. What is required in terms of activities, roles, relations, organization, staffing—public and private, etc.—to deploy and manage/operate an information-intensive system which improves operation of the roadway and transit service?

### ***Summary of Breakout Group 3 Discussions***

Group 3 first addressed the increased emphasis on operations and management. They noted that the goal is not either ITS system efficiency or additional capacity, but rather a rational balance between both. The forces that are most impacting operations include the debate between economic development and no-growth opposition groups, existing congestion, using ITS as an opportunity to deal with both current and future congestion, and viewing ITS as a set of operational technologies.

The group addressed several barriers to effective operations. One barrier is that currently mechanisms for effective coordination are not in place. Another barrier is that more education of the public is needed—people do not know what ITS is. A lack of focus on defining the problem is also a barrier. Yet another barrier is that there is a need to develop a shared vision of what we are trying to accomplish. The group identified several institutional barriers which include political boundaries, a lack of consensus on a definition of ITS, lack of flexibility, education, and research sharing.

### ***Recorded Information from Breakout Group 3***

#### **Response to Question A:**

- Capacity NOT a system option, INCORRECT.
- Barriers:
  - Coordination and cooperation system among agencies in place, prior to plan being complete and successful.
  - When and how to involve “other” non-key agency stakeholders.
  - Participation of all stakeholders.
  - Create non-biased environment and/or process.
  - Do we know or understand PROBLEM vs. HOW TO APPLY TECHNOLOGY AS A SOLUTION?
  - Educate first, then get solutions (B2).
  - Incident management focus. For coordination between agency coordination and the result. Cause to meet and start process (catalyst).
  - Right people need to meet and work on a particular issue, even within an agency. To schedule a meeting is time-consuming by itself.
  - Top-down commitment (champion identified). This was debated. Many felt that top-down does not work, and that support at all levels is necessary to move forward.

#### **Response to Questions A and B:**

- Opportunities to get groups together for everyone’s interest. A “group” vs. individual interest.
- Technical level cooperation and champions needed IN ADDITION to top level buy-in.
- Capital investment is not an option, but is required.
- Integration and communication with ITS requires special groups with specific part of a project.



## **Response to Question B:**

- Synthesis of lessons learned from other technology applications. Case studies from other industries.
- Examples to public officials needed for benefits of ITS to build support, use success stories.
- Standards and research need to incorporate and build on communication and information systems applications for transportation.
- Be flexible to respond with issue and how to accomplish a task to get most influence of issue or product.

## **Response to Question B: Research**

- Research component to advance technology.
- Information clearinghouse to get technologies to public with ways to solve current needs.
- Public research being done, which private sector may not be involved with at all.
- Agencies required to train their own staff, which costs money.
- Compatible systems in place for maintenance to be performed on systems.
  1. Core infrastructure identified at state and local level for public sector investment/needs.
  2. How private sector can use public infrastructure output to add value/package and distribution to users and consumers.

## **Response to Question 1: Barriers**

- Barriers are local. Tools are in place to solve but organizations are not reacting to address the barriers.
- MPOs make up mission. Are barriers capital only?
- Large MPOs
- Public need for information from operating groups who are not able to distribute to users.

### ***Institutional:***

- Transit groups left out of process
- Public access to public data.
- Bridge public dialogue to support for systems.

### ***Legislation:***

- Requirements support capital investments to utilize existing Federal funding available.
- ITS improvements do not fit within current Federal guidelines. Non-traditional funding used for ITS.
- Global solutions cannot fit all needs. Local constraints influence.
- Cannot compete now with funding for ITS unless legislation changes. Now incremental build-out required.
- Innovative ways for providing systems through operations and maintenance.
- Operation and management functions need to be addressed in planning processes.
- Smaller urban areas need dedicated funding for ITS to continue.
- ITS needs to work with others in MPO process to educate, receive buy-in, and then compete where funding exists.
- What ultimate systems will look like depends on changing of legislation for operations planning.

## **Response to Question 2:**

- What is meant by INFORMATION-INTENSIVE systems related to ITS and other systems. (Repeating barrier to address real issue or problem?)
- Educate to show examples for how ITS will work and be effective, benefits and in public interest to facilitate this education effort for elected leaders and professionals.
- Coordination and collaboration required due to number of agencies, and takes a lot of time.
- Transition for technology for staff to operate, use and understand through Federal support, training, etc.
- Resource sharing as a leverage to public sector investment commitment.

## **Ability to Understand Impacts:**

### *Forces:*

- Economic development trends vs. other options (no growth).
- Future with ability to maintain and provide services (growth).
- Opportunities outside of traditional transportation projects or options.
- Quality of environment vs. just doing project for congestion.
- Solutions to problems require involvement with ITS projects from other portions of agencies, re: telecommunications groups.
- “Move” to private sector with value added to public sector. Generated, processed, distributed information currently working with both public and private.
- Education of agencies’ staff to support systems is a barrier to plan, implement, operate, etc.—(opportunity) temporal issue.

## **Breakout Group 4: Urban Form (Blue)**

Group 4 discussed urban form issues. The session was moderated by Lee Munnich of the University of Minnesota. John Gerner of FHWA served as the recorder. Participants included the following: Don Chen, Robert Dunphy, Emil Frankel, Robert Hicks, Rich Kuzmyak, Janet Oakley, Gene Ofstead, Edith Page, Tom Horan, and Wayne Berman.

The Urban Form group answered the general questions A and B and also answered the following specific questions:

1. What trends in urban form, land use, and environmental quality are pertinent to providing information-based transportation?

2. How can information be used to help reduce transportation environmental externalities?
3. What are the market, institutional, and political implications?

### ***Summary of Breakout Group 4 Discussions***

Group 4 identified key factors in urban form. One of the key factors was the gap between planning and operations. Another was that new thinking and skills are needed to implement operations and maintenance. Along with this factor comes the idea that we do not yet have the emphasis on operations and maintenance that we need. Also a factor is the limited resources, which will force the need to improve system efficiencies. Finally, a key factor is how we are going to manage chaotic systems: possibilities include tinkering, having a shared vision, and promoting strategic directions.

The group found that current trends in urban form stem from urban sprawl. Our love affair with suburbs is resulting in financial constraints and crumbling infrastructure. Our quality of life will be affected. Other trends in urban form deal with social equity. We need to decide how to incorporate welfare-to-work, Americans with Disabilities Act (ADA), and other social equity topics into our transportation systems.

The group adopted the slogan “Bending the Curve” as an expression of its solution to current urban form issues. Bending the curve, the group noted, is essentially rethinking old ways of solving problems and developing innovative approaches. One participant offered the Minnesota DOT Pricing Policy as an innovative example of bending the curve. Innovative deployment decisions will need to take marketing and individual decisions into account. An example of this was given: if people could have a *predictable* commuting time, they would probably be willing to pay for that benefit. Innovative approaches are needed for information dissemination. We need to get the message out about benefits of ITS. Another example of bending the curve is thinking in a modally blind way; that is, thinking of transportation as a whole, rather than as components of transit, highway, etc. We need to focus on the desired outcomes—mobility and accessibility. We also need to work on using bench marking as a tool to improve our systems. Bending the curve also means developing a successful transportation/communications link.

## ***Recorded Information from Breakout Group 4***

### **Part 1. Operations and Maintenance Considerations in Planning**

- Not an either/or situation. Need capacity and more efficiency.
- Operations. High-Tech is not currently on planning horizon—needs more emphasis.
- Certain operational strategies are known (fare cards, ramp metering).
- Operations. Information systems—need more and better data to consider alternatives.
- Operations. Limited resources force need to improve system efficiency.

### **Operations and Maintenance will require new thinking and skills to implement.**

- Need to show benefits to win funding.
- ITS needs a plan to be effective.
- ITS can improve access to jobs and benefits.
- Concern with long-term results of ITS, e.g., world of speed.
- Freight is a big area for study.
- High capital/short lifecycle.
- Does it shrink or expand the future urban area?
- Question that there is an increase in emphasis on operations and maintenance.
- Transportation is low in priority in housing decisions.
- Need more research into how transportation influences land use decisions.
- Need research into actual tripmaking in the telecommute, 4-day work week situation.
- Operations and maintenance needed to complete comprehensive view of transportation costs and benefit decisions.
- Strategic decision-making is key to maximizing impact.
- Private sector needs to be more active in decision-making and funding.

### **Response to Question—Research Needs**

- Mobility impacts of operations and maintenance improvements.
- Improvements in predictability of transportation services.

- Need deployments to prove results.
- Better information on what type of transportation service people need.
- Impact of information systems (e.g., Internet, telecommunications) on travel demand.
- Outcome focused deployment—not modal deployment.
- Framework to quantify system impacts of improvements.
- What are the “right” things to measure—(e.g. throughput, travel time, v/c).

### **Response to Question—Trends that Impact Land Use**

- Information technologies support suburbanization.
- Single Occupancy Vehicle (SOV) is fastest growing segment of transportation.
- Information can impact decision on route and timing of trip.
- Americans will not accept broad-based pricing options.
- Continued demand—will increase.
- Maintenance needs will increase.
- ITS needed to implement congestion pricing.
- ITS can be used in generating new revenue.
- ITS has an impact on the supply of transportation and also influences individual decisions.
- Fiscally constrained transportation plan is most influential in shaping long-range plans.
- Is there a minimum “free” level of information to be given to all?
- Social equity should NOT be a barrier to pricing.
- Need to have a diverse set of outcome scenarios upon which to base decisions.
- Local performance measures key to shaping local responses.

## **Closing Comments for Day One**

### **Wayne Berman**

Wayne Berman gave summary remarks concerning the day’s discussion of Metropolitan Planning Organizations (MPOs). He noted that participants had a keen interest in MPOs and operations. He recognized that participants thought that too

much control to the MPOs might take away the ability of operators to carry out their programs. Mr. Berman stated that the questions being addressed in this symposium included:

- What is the role of the MPO in a new era of information-intensive transportation?
- How do we speed up deployment through traditional processes?
- How do we communicate standards through an MPO process?

## **Robert Stout**

*Robert Stout is the Director of Planning and Operations, Federal Transit Administration.*

Bob Stout was pleased with day one's discussion of education, coordination, and roles of the MPO. He remarked that his organization is currently working on major investment studies, in which ITS is something to be observed. Regarding research of ITS, he commented that the lack of evaluation tools is a concern. He hoped to see some work done on this issue during day two.

## **Sheldon Edner**

*Sheldon Edner is a Community Planner with the U.S. Department of Transportation.*

Sheldon Edner summarized that it is apparent from the day's discussions that there are lots of inherent contradictions in transportation. He noted that we want to strengthen the planning process, and at the same time address how to deal with the Nation's 339 MPOs. He expressed the need for cross-cultural communications. He concluded, "We need to address where we go in the future."







# Proceedings for Day Two

## State and Local Challenges to Linking Planning, Operations, Systems Management and Traveler Information

### **George Schoene, Moderator**

*George Schoene is Team Coordinator for the U.S. DOT Federal Highway Administration, Office of Traffic Management and ITS Applications. He served as moderator for the panel discussion. After providing a welcome and introductions, Mr. Schoene stated that, "One of the challenges is how do we get operators to be knowledgeable about the planning process? And another is: How do we get planners to appreciate the problems that we have to deal with as operators?" He said that panelists will discuss these issues.*

### **John Duve, (SANDAG)**

*John Duve is with the San Diego Association of Governments' (SANDAG's) Advanced Transportation Group. He presented information on ITS planning issues.*

### **Summary of Presentation**

Southern California has developed its infrastructure and has completed regional plans. The regional plans have given us the opportunity to see exactly what is needed and how systems fit together. Through regional planning, we have seen that the fundamental component of ITS is integration. Integration highlights the fact that "we can not stand alone;" that is, regional plans need a fundamental "spine" to be operable. That spine is part of the National Highway System. The Federal government needs to play a strong leadership role and function as the spine for state and regional programs.

Along with strong leadership, the Federal government needs to develop a national deployment program. We need a national consensus on which systems to deploy. The national plan would be drawn from state/regulatory department plans. There should be a sense of some basic systems that are desirable across the Nation that we could implement. We can select initial systems and get going on implementation. The Federal government could develop a plan to deploy the chosen system; this would allow states to have something to build and focus on. We've done enough work that deployment is essential at this point. ISTEA has been primarily for research and testing, but now we need to apply that research to deploying a particular system. By deploying a system, we will bring the private sector in to contribute to the process and create a national market. The Federal government needs to find something to deploy and begin that process.

To coincide with the National Deployment Program, we also need a State Deployment program that is developed in an open forum in which stakeholders can participate fully. The state plan should be drawn from regional plans, which are fundamental to the ITS planning and deployment process.

Focus should be on the Regional Deployment Plan. There is no consensus concerning who controls the plan's development: some think MPO forums are better and others believe DOT should lead. Wherever everyone is engaged in the planning process is the best place for that process. That could be in the MPO forum or at DOT. The debate of MPOs vs. DOT is not the important issue; rather, the issue is, "What is the path to deployment?"

Going back to the Federal level, another important issue is Federal funding. The Federal straw man that is included in the symposium packets is supportive of things that regions wish to do. ISTEA provides \$200 million for research and testing, and has focused on those issues. We would support an Integrated Deployment Incentive, which is currently given \$200 million, but the Federal funding is not sufficient to support the kind of programs we need just in the San Diego area. The Integrated Deployment Incentive should allow priority corridors to deploy nationally significant systems that would function as prototypes. One of the most essential things that needs to come out of NEXTEA is deployment— a way to fund programs and plans. Planning is of no value without funding. There is no funding mechanism for deployment at present. Many of us have spent the time to clearly decide what we want to build and we need this next step. The Federal government needs to provide a mechanism for funding.

The potential of ITS/ITI is clearly through integration. Nationally, we need a consensus plan to integrate systems. Regionally, we need the ability to show benefit to the public, which will not be possible if systems are not on line from region to region. A plan for integration is not a mandate; rather it is Federal leadership.

## **Les Jacobson, Washington Department of Transportation**

*Les Jacobson is the Traffic Services Manager of the Washington Department of Transportation. He presented information linking planning and operations.*

### ***Summary of Presentation***

Linking planning and operations is accomplished only by overcoming many challenges. One challenge is to view ITS as a transportation element, not a separate program. If it is viewed as separate, it is less likely to be utilized. Another challenge involves collaboration. All applicable organizations must have defined roles in a collaboration process, and we need to find innovative and appropriate approaches to collaboration. Collaboration is not information dissemination; rather, it should be a process of passing on information *while* communicating with various groups and organizations. Yet another challenge is the ability to develop Regional (national) systems that preserve local determination. There is a concern about the dichotomy between total local determination and systems models: obviously there needs to be a balance. Finally, there is the challenge of knowing the performance of systems. This can be accomplished by ensuring that performance monitoring programs are in place and are carried out.

While linking planning and operations, we must also maintain a flexibility of approach. The flexibility will allow for local/regional uniqueness, the ability to lead/respond to trends, and the opportunities to migrate to mature models. Through flexibility and linkage of the ITS Plan with state and Regional policy, a Systems Plan, a Regional Vision, and an MPO, we can bring ITS into the mainstream.

## **Ginger Gherardi, Ventura County Transportation Commission**

*Ginger Gherardi is the Executive Director of the Ventura County Transportation Commission. She presented an alternative view of planning and implementation.*

### ***Summary of Presentation***

I would like to present my view of planning, implementation, and transit issues. Some comments may strike you as heresy. Despite our alternative approach, we have been successful in implementing three key projects.

There are several key planning principles. The first is that there is no such thing as an “ultimate system.” That means that we need to keep in mind that what we do today is disposable, is short-term. In planning we must provide for future technology by incorporating the *concept only* into long-range transportation plans. Another planning principle is that ITSs are “lifestyle tools,” i.e., ways of thinking, acting, managing and operating. How one approaches implementation will determine the amount of success. The following are suggestions for implementation:

- Learn how to communicate in plain English!
- Never, never use words like: ITS, ITI, System architecture, protocols, etc.

- Always use words like: new, better, high-tech, cutting edge—stir imagination, market concepts.
- Do not try to be too global! Have a clear vision.
- Be open to opportunities. You can not have all the answers.
- Do not be afraid to try something new—consider it a work in progress.
- Implement small visible projects with clear public benefit that are easy to implement.
- Remember that success and support are measured by the *public* in perceived personal benefit and convenience.

Ventura County Transportation Commission (VCTC) has three successfully implemented projects and two more in the planning stages. We established on-line transit routing that includes all of Southern California except San Diego. The cost of the project was \$60,000, and we implemented it in three months. We developed a County-wide Passport, also known as a Smart Card. Used on 70 buses and 10 systems, the card features convenience for the public and is viewed as a debit card. The cost was funded through Volpe/CALTRANS and \$150,000 of local money. The Card was implemented in just over two years. The third project was the installment of TTY call boxes for hearing-impaired drivers. The call boxes were designed and manufactured by the private sector. We used a competitive bidding process and received cost proposal of \$0.00. We took the low bid of \$0.00. The call boxes are now being installed at no cost to us. Transit involves different issues for developing ITS. For example, transit operation costs are not treated the same way as highway operation costs. We need to modify or clarify the funding structure to permit operational and maintenance costs of ITS systems. We also need to measure long-term planning benefits and savings. We must develop an operational test to cross the modes of rail/bus/park.

In conclusion, “The public in our county recognizes the value of ITS because we’re doing it.”

### **Gene Ofstead, Minnesota Department of Transportation**

*Gene Ofstead is the Assistant Commissioner of the Minnesota Department of Transportation. He presented materials concerning planning and operations.*

#### ***Summary of Presentation***

For planning and operations to work well together, we need “outside the box” thinking. We must first recognize that we use planning for more than it was designed to do. Operations people put plans in bottom drawers. The big attraction of ITS is that it may be used as the steering mechanism of the ship, that is, as the guiding force.

The transition to effective ITS planning and operations can be viewed in the following four stages of development:

1. Beginning.

2. Maintaining/Growing/Accelerating.
3. Taking the Discontinuous Step (Breakthrough).
4. Moving to Level 2 Technology.

Our current struggle involves transitioning from stage 2, Maintaining/Growing/Accelerating, to stage 3, Taking the Discontinuous Step (Breakthrough). Stage 2 is characterized by maintaining momentum and resources, expanding participation, and keeping a high profile. The transition to stage 3 will involve reorganizing our institutions to get the right people in position and thereby gain acceptance from established organizations. The transition will necessitate fostering trust for new alliances and achieving public acceptance of new ways. It will also require transportation professionals to estimate the growth of product markets.

Stage 3 is the “Discontinuous Step.” During stage 3, transportation partners will have to maintain a strong commitment to mutual goals, focus on outcomes, share control, and develop a synergy based on trust. Organizations will have to reorient themselves to implement new thinking (i.e., “put new wine in the wine skins.”) Stage 3 could be a stage characterized by unconventional taxing methods, which might include product sales as a capital source.

To move to stage 3 we must recognize and overcome the reality of our current situation, which includes several challenging issues. We are far from having the partnerships of stage 3, but rather are still stuck in the national culture “thing” (or generic way of life). We lack “structures” to deal with large issues. There are still major private sector issues that are similar to government issues, such as transit vs. freight. The government gap between operations and strategic initiatives is large, which is evident in Transportation Research Board Special Report #249: “*Momentum for Change: Creating a Strategic Forum for Innovation in Highway Infrastructure.*” The time gap for government process vs. private process is a big problem. And finally, planning may not be the issue or the solution.

Despite the challenges, there are steps we can take to move forward. We can begin by looking at what *is* working, i.e., other models. We can attempt to close the time gap by concentrating on moving from vision to strategy to business plans and by letting the quickest lead. We can pick targets along market driven lines. We shouldn’t get mired down in problems, but rather should keep “doing stuff,” use chaos as an opportunity, and support bellwether efforts. We need to continue to see ITS as a lever for major institutional change.

# Panel Discussion of Policy and Reauthorization Implications

## **Moderator, Steve Lockwood, PB Farradyne, Inc.**

*Steve Lockwood of PB Farradyne, Inc., served as the moderator of this session, which focused on the reauthorization of the ISTEA legislation.*

## **Cindy Burbank**

*Cindy Burbank, Chief, Legislative and Strategic Planning Division, the Federal Highway Administration. The topic of her presentation was the Reauthorization of ISTEA.*

### ***Summary of Presentation***

We are undergoing a shift in planning from developing lists of capital investments to establishing a system of operations. In ISTEA, planning is one of the biggest and most important areas. We want to strengthen the planning process in reauthorization and bring in a broader perspective.

The Department of Transportation was determined to set a broader framework for reauthorization. The Department approach involved extensive outreach to determine what is not right about ISTEA. We heard from participants that ISTEA is basically right, but needs fine-tuning. We used that information in developing legislative language, which we are scheduled to take to Congress in February.

We focused on the questions that will need to be answered with NEXTEA. The only questions in reauthorization of ISTEA are how much money, who gets it, and what can you use it for. The question of how much money is still being debated. It's important to remember that we are working within a "balance the budget" climate, so it will be tough to see an increase. Concerning the question of who gets the money: the donor-donee debate will eclipse everything else. And finally is the question of what can you use it for. The DOT position on usage is still in draft form, but some tendencies include:

- Broaden eligibilities.
- Continue major programs.
- Continue environmental programs.
- Place more emphasis on operations and maintenance and ITS tools.
- Retain planning process and expand to broader priority process.
- Develop methods of providing incentives for ITS deployment.
- Strengthen technology transfer and research.

The bill DOT is submitting will provide greater opportunity for ITS. It will provide a framework for greater management of ITS and promote ITS deployment. While it will promote these ideas, it is unlikely that new mandates will be added.

### **William F. Hein, Metropolitan Transportation Commission**

*William F. Hein is the Deputy Executive Director of the Metropolitan Transportation Commission in Oakland, California. He discussed the need for stasis at this point in the movement toward ITS.*

#### ***Summary of Presentation***

A major change came with ISTEA, and now it is time for a period of stasis. We need to focus on capacity building and partnerships. For capacity building, we need to streamline procurement, train professionals in technology and ITS, provide funding for operations, and conduct research and development. We need to develop horizontal partnerships that provide a regional focus, encompass intermodal issues, assist with funding flexibility, and seek to mainstream ITS. During this period of stasis, ITS becomes the enabling technology to allow partnerships to work.

Using the above model, there are policy implications for NEXTEA. One is that currently, dollars still lead planning, and this needs to change. We must also beware of backsliding into the National Highway System, which would be disastrous. We need to focus on mainstreaming ITS; to accomplish that goal, there should be no categorical funding for ITS, because it should be part of everyday processes.

In conclusion, ITS is good government. “Even Adam Smith assumed there would be some government to moderate the excesses of the free market.”



## **Hal Kassoff, ITS America**

*Hal Kassoff is the Chief Operating Officer of ITS America. He discussed his organization's view of reauthorization issues and the role of MPOs in the future.*

### **Summary of Presentation**

ISTEA was a landmark effort to launch integrated systems. We have conducted research and the technology, which has been demonstrated. The technology does work and it is not the issue; rather, the issue is going about ITS in a systematic way. We now need a deployment system of some kind. To accomplish deployment, we need to build a public sector foundation into one for the private sector.

The Metropolitan Planning Organizations (MPOs) have a critical role to play. The concern is that MPOs may remain aloof, because ITS is not in their comfort zone. The MPO's role is one of education and encouragement. MPOs cannot compel ITS to happen. MPOs will need to provide service in a non-regulatory framework. The role of MPOs should be a case by case approach. "Those MPOs who approach ITS with appreciation for its complexity and recognize the power of their role as regional leaders/facilitators will help ITS to unfold."

From ITS America's point-of-view, reauthorization is a chance to shift gears to full deployment mode. Some of the questions that need to be answered to reach deployment through reauthorization include: Where between mandate and evolution is the role? Do we need to jump start ITS? If the Federal government does not have the funding for a leadership role, will these things happen?

ITS America has eight principles for the Direction of ITS Reauthorization. These include the following:

1. Supporting the national goal to deploy basic ITS services by 2005 with the provision that 5 percent of the program be invested in ITS unless local officials want to modify.

This establishes a central tendency for ITS to come together on a national level. It answers the question: "Will we have a chain or a collection of links?"

2. Continuing support for ITS research.
3. Making funding for ITS more stable and predictable.
4. Encouraging innovative financing and public/private partnerships.
5. Removing barriers to public/private partnerships.
6. Broadening definition of ITS to allow for training, operations and maintaining of ITS technology in addition to ITS capital expenditures.
7. Developing consensus-based standards.

8. Requiring annual reports to Congress.

In conclusion, “If we think of the ITS lifecycle, ISTEA 2 is a once-in-a-life-cycle chance to grow in a more vibrant way.”

### **Federal Commentator: Jeff Lindley, ITS Joint Program Office**

*Jeff Lindley is the Deputy Director, ITS Joint Program Office, U.S. Department of Transportation.*

#### ***Summary of Comments***

The Department of Transportation’s outreach process for the reauthorization of ITS produced two messages: 1) Continue the ITS program—do not mainstream. Provide a Federal role of leadership as well as consensus-building, training, and research and development role, and 2) The slow process of refocusing on deployment was appropriate. Now we need to go further.

The NEXTEA ITS Program is moving toward deployment incentives and provisions. Under consideration are the following initiatives: deployment incentive funding, full Federal aid eligibility for ITI user services (including operations and management costs), required compatibility with national ITS Architecture and applicable national standards, emphasis of ITS within the transportation planning process, public/private partnering, and innovative financing and procurement methods. Although the reauthorization will continue research and development, it will also help get started with deployment and try to remove barriers to Federal aid programs.

As someone involved in the reauthorization process, I offer the following reflections.

- Lots of compromises are being forged and there will be even more compromises ahead.
- The effect of the balanced budget climate is to put pressure against new programs and against flexibility.
- The Department is supporting the vision of deployment *now*.
- Regarding the 5 percent goal mentioned by Hal Kassoff, there is no consensus on this. There is only mixed support for it, and it is not in the Department’s proposal for reauthorization.

The opportunity for deployment will not exist in the same way in five years, so it’s a critical time. We need to use this opportunity to facilitate as much effective deployment of ITS as possible over the next five years, and we will work real hard to do that.

### **Federal Commentator: Robert Stout**

*Robert Stout is with the Federal Transit Administration. His comments focused on transit issues for the FTA.*

### **Summary of Comments**

MPOs and planning have been a focus of discussion. We are currently looking at redesignation of MPOs. The current proposal requires a reaffirmation process in which 75 percent of the members of an MPO must agree to relook at membership. FTA is looking at lowering this threshold. MPOs also need to address issues of inadequate public participation and frequency of meetings.

In the planning process, we are trying to get MPOs more flexibility. We hope MPOs will include ITS as an issue to be considered as part of the planning process. Regarding the proposal of a 5 percent set aside mentioned by Hal Kassoff, this is a good approach, but it may need to be incremented, such as 2 percent in year one, leading up to 5 percent in year six.

### **Federal Commentator: Wayne Berman**

*Wayne Berman is with FHWA. He presented key points from the symposium.*

### **Summary of Comments**

The symposium focused on many issues. I would like to highlight the following three key points:

1. In regional operations planning, the MPO clearly has a role of creating a vision for the future.
2. When seeking to integrate systems, plan smart and buy smart; ask questions about how capital investments can be linked in the future; and establish a regional integrator of systems.
3. An MPO can achieve institutional partnerships.

### **Open Floor for Comments and Suggestions**

One of the main topics of discussion during the open floor session was the 5 percent issue proposed by ITS America's Hal Kassoff. Some felt that specific percentages for ITS should be avoided and that limits should not be put on ITS, or else it will get boxed in and MPOs will not have the flexibility they need. Another praised the 5 percent proposal as an inertia-defeating mechanism and stated that it levels the playing field so that advanced technologies have a possibility of being chosen by local decision makers. Yet another dismissed the 5 percent proposal because he regarded the proposal as creating ITS as a thing, which it is not.

The proposal of reconstitution of MPOs met with opposition from several audience members. One participant stated that it could be disastrous for the Federal government to get involved in such matters: it could lead to chaos and set up a

condition for grants that would move us away from mainstreaming ITS. Another participant agreed with this assessment.

The need for funding was a topic of discussion during the open forum. One participant pointed out that priority corridors have raised the public's expectations, yet new systems are costly to implement. He stated that funding is needed to address this, and that if appropriations fall short, we have created hollow promises. He noted that states may be committing to future costs that will not be covered by Federal programs. His solution was to target funds where traffic is the worst. Several other participants voiced the need for increased funding to implement ITS. One noted that the future costs that will not be covered by Federal programs may lead to innovative ways of paying for ITS that lead to public/private partnerships. Another noted that some people have been left out of funding allocations and that the Federal programs need to be expanded to include those who have been left out.

Operations, maintenance, and management were also discussed. A participant noted that one often hears the abbreviation O&M, but that the M may stand for maintenance or management. He proposed that we should think of the M as management, because it has more importance than maintenance, which is really a side issue. He asked the group: "Do we really need to rethink operations? Is it really totally different?" He concluded by saying that operations is simply anything that keeps the system functioning. Another participant noted an increase in interest in operational issues. He noted that his MPO has not had a single discussion of ITS, and that he is nervous about strengthening the role of MPOs because they tend to focus on the capital side of operations rather than the operating side. A third person countered that there should not be a disconnect between how you operate and how you build: transportation needs to be thought of as a whole system. MPOs need to manage a system and serve as a facilitator.

Other participants had comments concerning ISTEA and NEXTEA. One stated that NEXTEA needs to include provisions for deployment. Another characterized ISTEA 1 as a shift that charted a plan toward the 1970's and 1980's needs; that is, ISTEA is a Federal-aid program that put everything into place just as we reached the point that we do not need that anymore. He stated that now we are shackled with this legislation. Another participant saw a disconnect between ISTEA 1 and 2; specifically, if ITS allows for everything you may want to do, it becomes a local and cultural issue with different demographic groups wanting different things. This participant felt that ISTEA was terrific legislation, but that to implement it, we cannot think in compartmentalized ways.

Public participation and consensus-building was also mentioned. One participant was strongly encouraging participation of the public: she stated that we have to have both public participation and consensus-building. She stated that we should not compromise participation while we are trying to streamline administrative processes. Another participant agreed, and stated that to make effective decisions, we need to be more responsive. He wondered whether there is any way for reauthorization to increase responsiveness and at the same time shorten the approval process.

Regarding planning, one participant noted that communication is needed. He stated that planners must cultivate a system perspective. He also noted the central role of telecommunications for ITS planning. He stated that linked telecommunications/transportation policy should be looked at carefully.

## **Future Directions: Tom Horan**

*Tom Horan provided a synopsis of the symposium.*

### ***Summary of Presentation***

During the symposium, participants and presenters discussed some of the most challenging transportation issues ahead. From their comments, we can identify several macro trends:

- A transition from the interstate to the post-interstate era.
- An overall devolution of government.
- Fiscal constraints.
- Heightened public expectations.
- Rapidly advancing telecommunications.

There was considerable debate of many issues. Points of general agreement include the existence of a gulf between operations and planning, and the potential of systems integration management as a way to bridge that gulf. Points of contention included the degree of faith in the private sector, the need for a reassertion of the public role, and uncertainty concerning which mechanisms are legitimate. The symposium illustrated the strategic challenges faced by transportation. One challenge is the reestablishment of public confidence in quality transportation services. There is a disconnect regarding how to get to that point. We need to rethink how to engage the public and to develop a new platform for dialogue and agreement. Another strategic challenge is defining the roles of institutions. Not only do institutions need to redefine roles, but they also need to reinvent themselves. Linking is yet another strategic challenge. We need to develop how customer service and information technology can form components of a program. For example, FedEx is a linking of transportation and information; it can be seen as a metaphor for an institution's re-linking with a customer.



# Concluding Remarks

## **Wayne Berman**

*Wayne Berman reminded participants that today is a historic day: it's the anniversary of Kitty Hawk. He urged participants to build on the crescendo created at this conference and address the tension between where we are and where we need to go.*





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