

INTRODUCTION AND EXECUTIVE SUMMARY

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INTRODUCTION

What we as transportation professionals do most often reflects the demands and influences placed upon us by events external to the profession. The clearest manifestation of this is found in the laws and regulations that guide the planning and design of transportation systems. And over the past 10 years, much has happened in this regard. We are in many ways at a turning point in the evolution of transportation. For 50 years the primary focus and attention of our professional interest and resources have been on building a highway system without comparison in the world. For financial, environmental, political, and technological reasons, we are no longer in a massive road-building era. The critical question thus becomes, what do we do next?

Legislatively, the first collective answer to this question came with the passage of the Intermodal Surface Transportation Efficiency Act (ISTEA) in 1991. This legislation provided a vision for a post-Interstate transportation system and importantly took the first steps in adjusting the process of planning and funding this system. ISTEA, however, was just an initial step in defining this future. It "opened the door" for some new and different ways of doing things. And as could be expected, some people liked what they saw, and others did not. In this context then, ISTEA must be viewed as the first of many legislative initiatives that will over several years lay out the structure for transportation programs over the next several decades.

One of the important elements of ISTEA was the federal requirement for states to have a statewide transportation planning process. Although many state departments of transportation (DOTs) had been doing so for years, all states were now required to have such a planning process. ISTEA also prescribed the desired characteristics and products of statewide planning. In 1992, TRB's Committee on Statewide Multimodal Transportation Planning sponsored a national conference in Seattle to outline and discuss what these new requirements meant to the states. However, very little time had elapsed from the passage of ISTEA for there to be many examples of how states had been conducting ISTEA-era statewide planning. Instead, the conference focussed on exchanging ideas of how to respond to these new requirements.

Four years later, in June 1996, the TRB Committee once again sponsored a national conference on statewide transportation planning that was held in Coeur d'Alene, Idaho. The purpose of this conference was to examine the state experience with ISTEA-mandated statewide planning and to discuss potential changes to the planning requirements in the forthcoming ISTEA reauthorization. The meeting was held in conjunction with the mid-year meeting of the Standing Committee on Planning of the American Association of State Highway and Transportation Officials. Over 100 people attended the conference with 40 states represented.

The conference was organized to promote as much dialogue as possible. Breakout discussion groups and plenary discussion sessions were structured to provide opportunities for input. The conference formal program consisted of six plenary sessions that provided a focus for the discussion. The first session included presentations from three DOT chief administrative officers who were asked to discuss how transportation planning was used in their organizations and to discuss potential changes in the regulations that would enhance this role. The second session focussed on reauthorization and consisted of speakers from many different perspectives offering their suggestions. The third session examined one of the key themes of the ISTEA planning vision-linking planning to programming and finance. The fourth session reflected the growing importance and interest in system management and operations, and how to incorporate such concerns into the transportation planning process. The fifth session discussed alternative analytical tools that are being used in statewide planning, and improvements to the current state-of-practice in analysis methodology. The final session presented examples of states where all of these elements were "brought together" in a coordinated and comprehensive manner. The following proceedings reflect the key themes and concepts that surfaced from this conference.

EXECUTIVE SUMMARY

This executive summary represents an overview of the key concepts and themes discussed at this conference. Given the many different perspectives found at the conference, one cannot claim that the following summary issues would

be unanimously accepted by those attending. However, this summary does represent what was perceived as a majority view; in those cases where vocal disagreements occurred, both perspectives are presented.

Points of Departure

There were several statements made by participants that were accepted as common points of departure for the discussions that occurred during the conference. These points of departure included:

ISTEA Is A Good First Step.... The planning elements of ISTEA and the requirements for public involvement were generally considered a good foundation for transportation planning activities. Conference participants generally applauded the initiative to invite more groups and stakeholders to be "at the table." In addition, the intermodal focus of the transportation policy and resulting planning process was considered to be a step in the right direction. Some elements of ISTEA (e.g., the required management systems) did not receive universal support, but generally the feeling was that ISTEA reauthorization should be an exercise in "fine tuning" the planning requirements, not starting over.

Planning As Decision Support.... Transportation planning can serve many purposes, and in fact the first round of statewide transportation plans varied significantly. Some were merely statements of policy, whereas others provided detailed lists of specific projects implemented. Conference participants agreed, however, that the primary purpose of planning is to provide information to decision makers. This necessarily requires an awareness of what information is desired and needed for such decisions, and how to present this information in an understandable way. Many participants talked about "user-friendly" planning and about orienting the planning process and products to a more understandable format.

Context Is Important.... Throughout the conference, speakers continually referred to the political context within which transportation decisions were made and the importance of this context to the outcomes of these decisions. State DOT officials commented that the generally conservative swing in the political environment meant greater difficulty in raising gas taxes and a higher level of cynicism toward government programs. This creates a challenge to transportation planners not only in developing plans and programs that reflect likely financial resources, but also in motivating the public and key stakeholders to participate in the planning process.

Partnerships Are A Key.... One of the important concepts that has characterized transportation planning and finance over the past five years has been partnerships.

Almost every state represented at the conference had an example of how the DOT had worked together with some group to develop, implement, and/or finance a transportation project. This concept of partnership, however, was extended to more than just the typical public/private partnership arrangements to include partnerships among government agencies and even a broadened partnership arrangement among divisions within an agency. Conference participants agreed that partnerships are an excellent foundation for effective transportation planning and program development, and will likely characterize state DOT activities over the next several years.

Private Sector Role Is Critical.... Within the more general concept of partnerships, conference participants felt that one of the most important positive developments of ISTEA was a greater emphasis on private sector involvement in transportation. This involvement most noticeably occurred in those activities that were considered to be intermodal and freight-oriented. It seemed clear to many that the customers of transportation agency products and services needed to be part of the planning of the transportation system. This customer base very much includes private sector companies and groups.

Public Involvement In Planning Is A Useful Part of the Process.... ISTEA required a proactive program of public involvement as part of the planning process. There were many examples of successful programs discussed at the conference, and there was a general sense that such involvement is an important part of the planning process. Not only does public involvement provide for a broader consensus on the transportation plan, but in some cases, it was portrayed as an important step in developing a constituency for new financing programs.

A Focus On System Preservation.... Many of the states commented that the most important focus of their transportation programs is preserving the condition and performance of the system. Put in broader terms of asset management, this focus implies improved means of monitoring system characteristics and of having the funding flexibility to support these types of improvements. In the context of statewide transportation planning, a focus on system preservation means a close interaction with operations and maintenance staff and not insignificant challenges in motivating public officials and private sector participants in the planning process to be excited about this type of investment.

No One Best Way.... Not surprisingly, state DOT representatives argued that federal rules and regulations concerning statewide transportation planning should be flexible enough to allow states to develop a planning process most appropriate for their needs. This approach

is consistent with the perspective on planning as primarily a decision support process. Every state has its own unique political and institutional structure for decision making. Thus, a planning process linked to such decision making will also exhibit its own unique characteristics. The federal role certainly entails articulating national goals, and establishing minimal requirements for achieving these goals, but how these are achieved at the state level should be left largely to the states.

These eight points of departure provided a set of commonly accepted concepts and assumptions for the discussion that occurred at the conference. The following sections present more detail on discussions that occurred on specific topics, usually related to the plenary sessions.

Linking Planning, Programming, Finance

There was general agreement that the planning process should be strongly linked to the development of a program. This, after all, has been a requirement at the metropolitan level for some time. There was less consensus on the linkage between planning and finance, most notably because these responsibilities are often found in different organizational units within a state DOT. The development of a finance strategy for the implementation of a plan and program is clearly related to the scope and credibility of the transportation plan. In fact, several participants mentioned that having a credible plan was critical in convincing legislative bodies and private investors to raise revenues for a program or project.

There were two key issues that received most attention on this topic - financial constraint and organizational structure.

1. Financial Constraint - ISTEA required that plans and programs be financially constrained. The interpretation of "financial constraint" seemed to vary among the participants. Some interpreted this to mean little or no possibility of including more projects in the plan than there were revenues. Others suggested that such a limited constraint could in fact be one scenario under which a plan is evaluated. The issue of financial constraint varied in controversy by whether it was applied to a plan or a program. There was general agreement that a program document should be financially realistic and only include those projects for which there are revenues. However, even here there was a general consensus that some flexibility for over-programming should be allowed to account for project development delays or other project needs that might move some projects ahead of others.

The strongest disagreement occurred with the concept of a financially constrained plan. A majority of state representatives felt that requiring a plan to include only those projects for which revenues are identified reduces the visionary characteristic of transportation planning. As noted by one state official, most of the urban rail systems in U.S. urban areas would not have been built if such a requirement had existed previously. There was a sense on the part of many participants that the financial constraint limitation should be relaxed. Others felt that having such a constraint provided credibility to the process and to the plan. In some sense, financial constraint provided a level of reality to the plan.

2. Organizational Structure - Some states had reorganized their departments to combine planning and programming, whereas others had left the two separated organizationally. The Wisconsin DOT had refocused its planning, programming, and finance efforts into an "investment management process." This was viewed as a better approach toward building investment planning and financing capability within the organization. There was no general agreement on a best way of organizationally linking planning, programming, and finance. As noted by one participant, these functions do not have to be in one unit, all you need is for those responsible to talk to one another. Each DOT will be different in how it handles the three. What seems clear though is that planning, programming and finance will become more integrally connected in future years and in many cases this could entail organizational change.

Performance-Based Planning

One of the most controversial topics at the conference was the concept of performance-based planning. The discussion of this type of planning often focussed on performance measures, outcomes versus outputs, and management systems. Performance-based planning simply implies that the planning process identifies key performance and/or condition measures that are monitored over time to determine trends in system performance and to identify the impact of improvements made to this system. There were two key components of the discussion that merit attention.

1. Outputs versus Outcomes - Outputs relate to the actual production of an organization, whereas outcome means how this production affects areas or issues of concern. For example, an output measure for a state DOT might be number of lane-miles repaved or number of bridges rehabilitated. An outcome measure might be number of accidents or level of air pollution, hopefully in

these cases, a reduction in both. There was a great deal of concern that performance measures would be defined as outputs and thus be used for comparing one state to another. It was strongly felt that such comparisons are not valid given the numerous contextual elements in each state that influence these outputs.

Many participants argued that outcome measures were the appropriate types of performance measures. This type of information is desired by decision makers and by the public who want to know how transportation investment affects the world they live in. What impact does our program of investment have on economic development? on air quality? on mobility? on safety? Are we in fact seeing achievement in these areas from our previous investment? However, many also agreed that these measures are often difficult to quantify and that the causal link between transportation investment and the activity of interest is difficult to establish.

Becoming accountable for dollars spent and maintaining credibility in the eyes of those who provide financial resources for transportation investment will likely mean a continuing trend toward performance-based planning. Other sectors such as health, education, and safety have been under increasing scrutiny to justify expenditures with regard to ultimate outcomes. Transportation will, and in some cases already is, facing similar pressures. As a profession, we need the ability to answer the question of what society gets for investment in the transportation system. Performance-based planning is a means of doing that.

2. Management Systems - The ISTEA-required management systems were viewed by many as an example of one form of performance-based planning that was implemented in an inappropriate way. They were viewed as being too prescriptive in defining what performance measures were appropriate, and too cumbersome and data intensive. Making these management systems voluntary (as the NHS legislation did) was viewed by some as the end of performance-based planning in transportation. However, as was noted by several participants, even with these management systems now being voluntary, many states are continuing with their development, albeit targeted to their needs and available resources. The general sense was that having some systematic process of providing information to decision makers was desirable. Having this system linked to state-defined performance measures was also desirable. Management systems are one way of doing this. The key, however, is providing flexibility to the users of the management systems to design them in a way that best fits the decision making context of their agency.

Linking Planning and Operations

As transportation investment shifts more to system preservation and enhancing operational efficiency and safety, planning needs to better reflect these concerns in the process and in the plan. One of the examples used throughout this discussion was the difficulty in getting intelligent transportation systems (ITS) strategies considered as part of planning and project development activities. Other examples included safety improvements, transit operational changes, demand management, and traffic engineering options. Not only was there a disconnect between the traditional planning process (which tended to focus on new capacity projects) and these types of actions, but there were often organizational barriers. Operations-oriented projects are usually the purview of traffic engineering and/or maintenance units, two groups that do not often actively participate in statewide planning activities.

Incorporating system operations concerns into other parts of an agency's activities can be done in different ways. The following strategies were discussed:

- System operations strategies should be considered as valid alternatives in planning efforts. This means that operational strategies should be viewed as a means of enhancing capacity as much as physically expanding the capacity. This also implies that operations units should be an active participant in the planning process.
- Operability of a facility or service should be incorporated into project design. This means again that those most familiar with the operations of a particular facility should be actively involved in the design of that facility.
- Operational responsibilities should be determined before the project development process proceeds too far. This will allow those ultimately responsible to participate in design.
- Operational characteristics of different alternatives should influence the choice of projects. The effectiveness of different options will be directly linked to such characteristics, therefore project prioritization should consciously reflect operations.
- In order to have such influence, we need better estimates of benefits and costs for system operations strategies. This is particularly true for estimates of benefits. As was noted by several participants, we still don't have a good sense of what benefits will accrue from ITS projects, especially as they relate to outcomes. With systemwide ITS strategies often being quite costly, this lack of information is a real barrier to convincing officials to allocate resources in such a direction.

The discussion on operations also led to several points on the importance of freight issues in transportation planning.

Incorporating Freight Concerns Into Planning

If there was one area that most participants felt had been neglected by state transportation planners for many years, it was freight. ISTEA provided greater emphasis on such concerns in the transportation planning process which was considered a major contribution. And several examples were given at the conference which illustrated how freight movement was being incorporated into planning. However, even with this progress, conference participants agreed that much had yet to be done. In particular, the following issues seemed to dominate this conversation.

Many Influencing Trends – One of the key planning challenges with freight movement is anticipating the major technological and market changes that could have a dramatic impact on a state's transportation system. For example, ever larger container ships serving world trade will severely tax the ability of U.S. ports, and more importantly access to these ports, to quickly handle this level of cargo. Information technology is allowing rapid movement of goods around the world. And trade agreements like NAFTA could have significant implications for freight movement through a state, most certainly for border states. All of these needs to be part of the planning process.

Geographic Scale – By its very nature, much of freight movement transcends state boundaries. Thus, freight moving through the midwest could be significantly affected by what happens at coastal ports. Global markets necessarily widen the planning focus to beyond a state boundary. And yet in only a few instances have states looked beyond their jurisdiction to examine the international, national, and regional nature of freight movement. It seems likely that in future years more states will be participating in multi-state planning efforts that focus on transportation activities such as freight movement that cross state boundaries.

Tools – Much of the forecasting and economic estimation capability used in the freight sector has not been closely tied to the transportation planning process. Forecasting applications are often proprietary and thus not available to public agencies. Logistics models do not consider network performance at a state level as a key issue. Thus, there is a significant need for better tools that can examine statewide freight issues. Several examples of freight planning were discussed at the conference, but none included very sophisticated analysis tools that could

provide insight into freight trends or market changes. This was considered an important area for further research and development.

Data – Similar to tools, data availability was considered a serious problem. It was noted that efforts such as the Bureau of Transportation Statistics' Commodity Flow Survey would provide useful data to transportation planners, but the more useful data, that which indicates market growth and likely freight provider response, is and will likely remain proprietary. This is a significant challenge to statewide transportation planning.

Analysis Tools

There was much discussion on the role and current state-of-practice of analysis tools. Importantly, analysis was linked to the fundamental purpose of planning - providing information to decision makers. Therefore, as we develop better and more sophisticated analysis tools, we need to first ask ourselves the question of what information is needed and desired by those responsible for decision making.

Several topics surfaced in this discussion on analysis tools that merit attention.

"What If" Scenarios – There was a general agreement that one of the most desirable characteristics of analysis tools to be applied at the state level is the capability to conduct "what if?" scenarios. The example mentioned most frequently was the important information that would be produced by looking at the impact on mode diversions of investment in one state corridor versus another. This type of analysis could also be usefully extended to an assessment of such investment on economic activity (the outcome). There is a need for the development of analysis tools that provided such capability.

Integrated Data Sets/Geographic Information Systems – Analysis at a statewide level requires extensive amounts of data which are often collected by different units within a state DOT and by organizations other than the DOT. This data is not only necessary as input into the analysis of alternative system improvements, but also as a means of monitoring system performance. Many states are undertaking efforts to integrate the many different data sets available to state planners. One of the more common approaches is the use of geographic information systems which provide both data management capability as well as data analysis. Many conference participants felt that handling the multitude of data sets that provide important input into the transportation

planning process is one of the key technical challenges over the next several years.

System Monitoring – Linked to the concept of performance-based planning, system monitoring is an important element in statewide transportation planning. Providing some sense of how the transportation system is performing becomes a critical point of departure for identifying needed improvements. Such monitoring requires the identification of measures or indicators that have meaning for decision makers and for the analysis process. Analysis tools can then use this data to determine what effects changes to the transportation system will have on system performance. Many conference participants felt that state DOTs will be devoting more energy and resources in the future to system monitoring. Another aspect of such monitoring is the changing technology of data collection, perhaps as suggested by some piggy-backing off of ITS programs to collect realtime, dynamic data on system conditions.

Linked to Outcomes – Given the importance of outcomes to the decision making process, analysis tools should not just predict or assess the immediate impacts of changes to the system, i.e., number of vehicles, passengers, or tonnage that would now use an alternate route. Instead, analysis should provide some sense of what these changes will mean to such things as economic development, air quality, safety, and the distributional effects of moving traffic flows from one region to another. Most participants agreed that this linkage to the outcomes of investment is very poorly defined in current analysis approaches. In some sense, we do not yet understand the causal relationships, let alone have the models to analyze impacts. To be relevant to decision making, however, analysis tools must be able to provide such information.

Other Conference Issues

Three other issues were discussed at the conference that weren't easily categorized in the previous sections.

Corridor Preservation – Conference participants felt strongly that the ability to preserve rights-of-way for future transportation improvements was a critical element of a state's planning process. Suggested changes that would make the process easier ranged from adding flexibility to the financial constraint limitation to modifications of environmental laws that would permit corridor preservation. To many, being able to set aside right-of-way for the future was the best example of what statewide planning was all about.

Rural Issues – Some conference participants felt that more attention needed to be paid to rural issues in the

planning process. Others felt that such issues were already adequately addressed in the manner state DOTs were organized by districts and by the way the planning process occurred. To some extent, this issue was portrayed as primarily a distributional one, that is, are rural areas receiving their fair share of state transportation resources? Most participants agreed that such distributional issues needed to be part of the statewide transportation planning process. Similarly, concerns for Tribal Nations should also be part of this process.

Professional Skills – As state DOTs evolve from road building agencies to transportation system management agencies, the types of skills needed for this new role will be different from those in the past. These new skills include strong analytical (broadly defined) capability, consensus-building and negotiation abilities, system management and operations perspectives, understanding of technology, and strong communications abilities.

Chairman's Closure

This conference provided transportation professionals with a timely opportunity to assess the impact of ISTEA-mandated statewide transportation planning and to identify changes. Although state experiences varied across the country, there was general agreement that ISTEA-mandated statewide transportation planning has been very useful. Perhaps the best example of the importance of such planning was provided by Jeff Squires, Deputy Secretary of the Vermont Agency of Transportation. According to Mr. Squires, the statewide transportation planning process in Vermont helped clarify and focus the mission of the Agency, helped identify customers, and documented the financial limits and costs of needed improvements. The mark of success of this effort was the use of the plan by the legislature in developing the finance program for the Agency. In addition, Mr. Squires stated that based on Vermont's experience he would recommend that state DOT officials rethink the traditional focus on projects, extend the concept of partnership to implementation, collaborate with resource agencies at the program development stage, and adopt a multi-state approach to planning for goods movement.

The importance of these comments lie not so much in the substantive recommendations (which are quite innovative), but rather in the admission that the statewide planning process helped the state DOT learn more about itself and how it can be more effective. Several other state examples illustrated the same point. This is a true test of the value of planning.

ISTEA reauthorization provides a wonderful opportunity to fine tune the foundation for statewide

transportation planning that was established by Congress in ISTEA. This conference concluded that there is no need for massive changes in the general planning provisions. However, planning by its very nature as support for decision makers must be tailored to the specific characteristics of each state. This means that federal mandates should be flexible enough to allow such tailoring within the general construct of national purpose established by Congress.

Finally, although not explicitly discussed at this conference, I would argue that we are entering an era where many transportation issues are no longer just state issues. Rather, issues such as trade flows, air quality, and economic development often transcend state boundaries. We have already seen several instances where several states have come together to examine issues of mutual concern, e.g., the I-95 Coalition, the New England Freight Study, NAFTA Corridor studies, and the Crescent Study. We will increasingly need to look at transportation from a multi-state perspective. There is a role for the federal government in such an approach. This role could be as a catalyst, convener, funder of pilot studies, provider of technical guidance, or even as the study coordinator. However, it seems likely that the multiple state perspective will become a challenge to the transportation community, and to the institutional structure we have in place for such a perspective.

The following three quotations were taken from presentations made by three state DOT chief administrative officers. They provide a useful picture on the role for statewide transportation planning as seen by the users of the information provided. They also reflect the challenge and the importance of planning. If there was one theme heard throughout the conference presentations it was the need for public officials and agencies to be credible and accountable for the use of the resources entrusted to their hands. These quotes represent what three of our nation's key transportation decision makers

believe planning must do to achieve high levels of credibility and accountability with our customers.

Robert Martinez, Virginia DOT

"Collectively, we will need to learn how to plan for a much more market-oriented, market-based arena. In many respects, this will result in greater efficiencies of outcomes, more dynamism and greater depth, creativity, innovation, and a great robustness and availability of information, but it also means becoming comfortable with more uncertainty than what we have had to deal with in the past and learning to live with risk which is in the nature of the marketplace."

Sid Morrison, Washington DOT

"For me, the response to unparalleled cynicism is better plans . . . and we cannot forget partnerships with local governments. I am convinced that we are not going to build anything in the future that does not reflect the partnership with the regional plans that have been prepared under ISTEA."

Dwight Bower, Idaho DOT

"So what I am suggesting to you is that as you begin to look at needs, you have to set priorities. You have to be able to set priorities. You have to be able to talk in terms of outcomes. And you have to be able to make a commitment to those people who are going to pay that you are going to produce the outcome they expect. Now, that sounds real simple, doesn't it? But the fact is, most of us have said, give us more money and we will do more good things for you. That doesn't sell. At least, it doesn't sell in Idaho, and I don't believe it sells too well anywhere."