

TECHNICAL ASSISTANCE REPORT
SURVEY OF STATEWIDE MULTIMODAL
TRANSPORTATION PLANNING PRACTICES

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EXECUTIVE SUMMARY

Multimodal planning refers to planning for different modes of transportation (e.g., automobile, bus, bicycles, pedestrian, rail) and the connections among them. This study identified states thought to excel in multimodal planning, documented their best practices, and recommended areas for further exploration in Virginia.

Two key reports published under the Transportation Research Board's National Cooperative Highway Research Program and telephone interviews of representatives from Florida, Maine, Maryland, Michigan, Minnesota, New Jersey, North Carolina, Oregon, and Wisconsin revealed a wide range of techniques to improve multimodal planning.

The techniques can be grouped into three categories: (1) organization of the state departments of transportation (DOTs), (2) innovations in multimodal practices, and (3) public outreach efforts. In terms of state DOT organization, the states emphasize cooperation and the sharing of modal-specific information, even though some states concentrate planning in one office and other states give planning authority to each mode (and then ensure that the planners work together on key projects, such as corridor efforts). Innovations in multimodal practices include modally blind performance measures and partnerships among state DOTs and metropolitan planning organizations. In terms of public outreach, tactics to broaden the stakeholder base include the provision of 800 numbers for comments; freight advisory committees; community impact workshop assessments to train staff; and charettes, which are goal-oriented, facilitated workshops that help produce consensus-based direction or targets for studies.

Although the survey results alone are not sufficiently detailed to provide a clear path to implementation, they do suggest several pilot initiatives that the Virginia Department of Transportation should consider exploring. These initiatives include changes to legislation, educational efforts in one suburban district, and application of a set of non-modal specific performance measures in one planning district where state and local interests are likely to be in conflict.

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INTRODUCTION

The Intermodal Surface Transportation Efficiency Act (ISTEA) and the Transportation Equity Act for the 21st Century (TEA-21) established requirements that states give due consideration to transportation modes other than the automobile when planning and programming projects. This “equitable consideration” is also described as “multimodal planning” and reflects the philosophy that there should be a “level playing field” when consideration is given to diverse improvements, such as improved signal timing, turnouts for buses, and roadway widenings.¹ Further, multimodal planning implies better connections among modes, ranging from infrastructure-oriented efforts (e.g., park and ride lots and rail-to-truck transfer facilities such as the Virginia Inland Port) to operations-oriented initiatives (e.g., providing highway travelers real-time parking information for adjacent transit facilities). States have addressed these multimodal requirements in different ways, including:

- changes in the organization of state departments of transportation (DOTs)
- improved methods for assessing needs and recommending projects
- inventive ways of financing multimodal planning
- innovative methods of increasing stakeholder involvement.

Virginia House Bill 290 recently created the Intermodal Office of the Secretary of Transportation. This office is responsible for advising the Secretary and the Commonwealth Transportation Board on issues related to intermodal transportation.

PURPOSE AND SCOPE

The purpose of this study was to identify states that have successfully implemented multimodal planning at the statewide level and to pinpoint the best practices from these states that could be implemented in Virginia.

Data collected were limited to state DOT websites, electronic documents available through the Transportation Research Information Service (TRIS), the Virginia Transportation Research Council (VTRC) Library, and telephone interviews with transportation planning experts in other states.

The scope of this effort was bounded in three ways. First, the research identified only potentially promising practices in other states and did not evaluate Virginia's performance in multimodal planning. It may be the case that initiatives similar to those recommended at the conclusion of this report are already anticipated or underway by staff in the districts or the central office of the Virginia Department of Transportation (VDOT). Second, this effort did not address coordination among the host of agencies involved in transportation planning, notably the Virginia Department of Rail and Public Transportation, the Virginia Department of Aviation, the Virginia Port Authority, the Federal Highway Administration (FHWA), and local jurisdictions. Third, the study was restricted to multimodal surface transportation, with no consideration of aviation and marine modes.

METHODS

Examples of innovative multimodal planning methods from other states were sought through reviewing the literature, examining the websites of state DOTs reputed to excel in multimodal planning, interviewing by telephone available planners from those state DOTs, and synthesizing the results.

Four tasks were used to accomplish this effort.

Task 1. The literature related to statewide multimodal planning was reviewed. Two previous reviews of multimodal planning practices were reviewed to determine the state of the practice in multimodal planning. The literature search also included an examination of state DOT websites.

Task 2. Experts were contacted to identify states with exceptional multimodal planning programs. Members of the American Association of State Highway and Transportation Officials' (AASHTO) Standing Committee on Planning, members of the Transportation Research Board's (TRB) Committee on Statewide Multimodal Planning (A1D01), and personnel from the FHWA's Eastern Resource Center were contacted to determine which states have exemplary programs for multimodal planning. Initial contacts were made with the following representatives:

- Brian Betlyon and Fawn Thompson, FHWA Eastern Resource Center
- Kim Fisher, TRB Staff Liaison
- Susan Mortel, Vice Chair, TRB Committee A1D01 (Statewide Multimodal Planning).

The ten states mentioned most often in this survey were as follows:

1. Florida
2. Maine
3. Maryland
4. Michigan
5. Minnesota
6. New Jersey
7. North Carolina
8. Oregon
9. Washington
10. Wisconsin.

Task 3. Supplemental information was gathered from the states. Representatives from the ten states were interviewed by telephone to obtain more information on their multimodal planning efforts. The questionnaire used for the interview is provided in the Appendix. The final question was tailored to the expertise of the state. For example, an FHWA representative suggested that Oregon had a solid multimodal freight planning approach because of their use of a freight advisory committee (FAC); thus, for Oregon, the interview included details on the committee. Following the telephone conversation, the responses were typed and emailed to the representatives for correction or verification.

Task 4. Summarize programs and identify best practices. The results of the surveys and literature review were summarized, characteristics of exceptional state programs were summarized, and best practices of the programs from these states were compiled.

RESULTS

Literature Review: Characteristics of Multimodal Planning Around the United States

Two recent studies funded by the National Cooperative Highway Research Program (NCHRP) investigated statewide multimodal planning practices in great detail.^{2,3} These studies provided a great deal of information on planning practices and the information summarized in this portion of the report.

NCHRP Synthesis 286 reported the results of a national survey of state DOTs conducted in 1999 to determine the state of the practice in multimodal planning.² A total of 38 states responded to the survey, providing information on agency responsibilities and planning practices. NCHRP Report 404 reported the results of a survey of 90 planning officials from around the nation to assemble a list of best practices in multimodal planning.³ The findings from these reports were summarized across three areas:

1. how the organizational structure of the state DOT affects multimodal planning
2. multimodal planning and programming practices employed by the states
3. promising techniques for increasing public involvement.

Organizational Structure of State DOTs

Many state DOTs were created primarily to build, operate, and maintain highway systems, so some agencies elected to institute organizational changes to accommodate multimodal issues. The NCHRP 286 survey showed that 37 of 38 respondents performed multimodal planning.² These functions were performed in the field offices in 5 states and in both the central office and field office in 6 states. In the remaining 27 states, multimodal planning was performed almost exclusively in the central office.

NCHRP 404 reported common elements in many of the planning programs that had successfully institutionalized multimodal concerns.³ These traits were:

- *DOTs created partnerships with urban metropolitan planning organizations (MPOs).* Large urban areas are often the first locations where multimodal solutions are sought because of congestion and capacity problems. In many states, DOTs reorganized so that the district and central offices have clearly defined support roles in the MPO planning process.
- *Strong modal advocacy groups were created in the DOT.* States with successful programs sometimes charged the modal agencies in the DOT with becoming advocates for their particular mode. This served to ensure that all modes were considered on projects. The modal agencies then also became a significant educational resource for the other arms of the DOT. New personnel were often hired for these agencies to build more modal expertise.
- *District office personnel were educated about the role of multimodal planning and programming.* State DOTs often extended outreach efforts to the districts in an attempt to institutionalize multimodalism within the DOT. This was typically done at an early stage to get “buy-in” from the district offices.
- *Relatively few mode-specific funding restrictions existed.* The availability of funding for multimodal projects was a critical issue in the success of a multimodal planning

program. If funding sources were restricted to a single mode, DOTs encountered more difficulty in planning and programming multimodal and intermodal projects.

The manner in which alternate modes were incorporated into the statewide planning process varies considerably in these states. Some states developed separate modal plans, and others developed a more integrated process whereby all modes were incorporated into a single plan. The approach taken often depended on whether highway funds could be used for different modes. States where funding is allocated to individual modes or there is little flexibility in spending highway trust fund dollars tended to develop separate modal plans.

To a large extent, the survey showed that the general character of a state (rural vs. urban) appeared to play a large role in the degree to which multimodalism was integrated into the state DOT's culture.² Although all states reported that they considered multiple modes in corridor planning projects, states that were predominantly rural sometimes had limited capabilities to consider alternate modes in the statewide planning process.

The extent to which the state DOT needs to cooperate with other agencies is reflected by the fact that only 13 percent of respondents indicated that the DOT was the sole agency responsible for the entire state transportation system, with planning responsibilities usually fragmented among different modal agencies. Respondents indicated that this sometimes acted as an impediment to planning and implementing multimodal projects because the administrative process was difficult to navigate. Although most DOTs have some level of involvement with planning for the highway, transit, and bicycle/pedestrian modes, Table 1 shows variability in the responsibilities assumed by DOTs for waterways; aviation; and, to a lesser extent, rail.²

Table 1. DOT Role for Various Modes (%)

Mode	Own	Operate	Conduct Joint Activities With Other Agencies	Plans/Monitors	No Involvement
Highway	100	100	94.7	100	0
Transit	7.9	7.9	86.8	97.4	2.6
Aviation	31.6	26.3	76.3	81.6	18.4
Rail	34.2	18.4	84.2	86.8	13.2
Waterways/ports	10.5	7.9	60.5	57.9	42.1
Bicycle/pedestrian	50.0	50.0	89.5	92.1	0.0

Multimodal Planning and Programming Practices

Several states also developed innovative methodologies and policies for conducting the planning and programming process. NCHRP 404 identified several concepts and practices in successful and innovative statewide multimodal planning programs.³ Characteristics of successful programs include:³

- *Multimodal planning practices are “modally blind.”* The planning process used evaluates the merit of all modes on an equal footing and is not biased toward a

specific mode. The modal split that comes as an end result of the process is not predetermined. For example, Washington's planning process showed that resources should be concentrated primarily on highways in rural areas of the state but that more funding was allocated to other modes in more urbanized areas. This result came out of an unbiased planning process.

- *All modes are analyzed simultaneously, and interactions between modes are examined.* Ideally, all modes would be examined as part of the same process. This would allow for trade-offs among competing modes and the examination of intermodal facilities.
- *The output of planning models helps decision makers.* The information produced by planning models is relevant to the mode and the people making decisions about project priorities. For example, data for freight planning could be specific to the commodity being shipped.

To achieve these goals, some states are moving toward performance-based planning. The survey reported in NCHRP 286 showed that many states had performance measures for use in a multimodal planning process.² In 1999, 20 of 38 states had performance measures, and 4 states were developing them. Performance measures used included:

- person throughput
- average travel time
- public transit trips
- increase in multimodal accessibility
- link volume to capacity ratio
- user costs
- environmental measures
- safety impacts.

The use of performance measures allows for cross-modal comparisons and a less biased assessment of needs and alternatives.

Methods for Improving Public Involvement

The development of multimodal planning processes has caused state DOTs to seek new ways to reach out to stakeholders. The survey reported in NCHRP 286 showed that common methods for involving stakeholders included:²

- freight/multimodal advisory committees
- creation of new regional planning bodies
- project/study partnerships
- provision of technical assistance and funding to local planning groups
- focus groups.

In NCHRP 404, the survey of state agencies revealed several common themes in successful public involvement in multimodal projects:³

- The public should be involved early in the process of plan development to maintain credibility and improve acceptance.
- Public involvement should be a continuing process to ensure that the proposals in the plan are implemented. This is typically done by forming advisory committees or seeking input from local planning bodies.
- Several methods and locations should be used to get populations that typically do not participate in the planning process involved. These include interacting with other agencies to develop mailing lists that will bring affected parties to public meetings.

Case Studies of Exceptional Statewide Multimodal Planning Programs

Representatives of 9 of the 10 states noted as having exceptional statewide multimodal planning programs were successfully interviewed. Personnel from Washington did not respond to repeated telephone calls.

The representatives successfully surveyed were:

1. David Lee, Office of Policy Planning, Florida DOT
2. Tracy Perez, Office of Passenger Transportation, Maine DOT
3. Dennis Simpson, Regional and Intermodal Planning; Michael Jackson, Bicycle-Pedestrian Coordinator; Ron Spalding, Regional Planning and Programs; and Diane Ratcliffe, Environmental Planning; Maryland DOT
4. Susan Mortel, Planning and Programming Operations, Michigan DOT
5. Abby McKenzie, Statewide Planning and Analysis Section, Minnesota DOT
6. Bill Beetle, Transportation Systems Planning, New Jersey DOT

7. Mike Bruff, Systems Planning Unit, North Carolina DOT
8. Steven Kale, Planning Section, Oregon DOT
9. Kenneth Leonard, Planning Office, Wisconsin DOT.

The information obtained from these surveys represents the opinions of the interviewee and was not compared with information from other sources because of time constraints. The researchers did send interview responses back to interviewees to ensure that the recorded responses were accurate. The level of detail provided by these contacts varied considerably. Time constraints did not permit follow-up interviews to obtain more information.

This section provides brief case studies of multimodal planning activities in these 9 states. The descriptions are based on the results of the telephone survey and the literature review. In the case of the state that did not respond to the telephone survey, the case studies include information on best practices that could be obtained from the literature. To avoid duplication of information, interviewees were asked to focus on multimodal characteristics that they thought were different from those of other states.

The responses are synthesized across four key areas:

1. the organization of the state DOT (and resultant coordination with other entities)
2. multimodal planning practices in the state DOT
3. public outreach to private citizens, interested groups, agencies, and other stakeholders
4. the use of consultants as opposed to state forces to conduct transportation planning.

Florida

Organization and Coordination

FDOT's central and district offices are involved with multimodal planning. FDOT is halfway through a significant reduction in staff (25%) that has triggered changes at the district level, specifically, fewer directors at the local level. Despite these changes, the districts are further along in their adaptation to multimodal planning than the central office is. In the past, planning and modal offices were separate. Now, FDOT is moving toward an organizational structure with less separation between the modal and planning offices.

Florida has 25 MPOs, so the regional planning structure is much more established than in many other states. The MPOs generally have developed good planning methods and techniques for multimodal planning.

Multimodal Planning in the DOT

The Florida Transportation Plan has two goals that directly refer to improving the state's multimodal transportation system. The first goal is to improve the state transportation system in order to improve Florida's economic competitiveness. The multimodal objectives of this goal include:

- Complete the Florida Intra-State Highway System to improve the movement of goods and people.
- Complete a high speed rail system in the state.
- Improve major airports, seaports, railroads, and truck facilities.
- Improve connections between seaports, airports, railroads, and the highway system.

The second goal is to create travel choices. The specific objectives are to do the following:

- Reduce dependency on single-occupant vehicles.
- Accommodate transit, bicycles, and pedestrians on state highways wherever appropriate.
- Increase transit ridership.

FDOT is attempting to improve coordination among modal offices. In the past, highway planning was located primarily in FDOT's systems office. Florida developed the Strategic Intermodal System (SIS) to integrate highway planning with planning for other modes. For example, the central office is responsible for planning the Intra-State Highway System, and the SIS has caused this system to be integrated with planning for other modes.

FDOT attempts to recognize all modes of transportation in their planning process, but they note that they are limited because they do not control all modes. For example, although FDOT includes representatives from the rail industry in the planning process, the rail mode is owned and operated by the private sector. Bicyclists and pedestrians are considered in the planning process and are included in the SIS development process. Florida is developing a statewide model for heavy truck freight movement on external road networks connecting ports.² The Urban Transportation Model System was refined to integrate transit supply and demand modeling.

FDOT has also been a leader in performance-based multimodal planning. The population of Florida has more than doubled since the 1970s. This has generated a great deal of concern that the existing infrastructure will not be able to handle traffic generated by new development projects. To address this concern, the Florida legislature passed growth management legislation in the mid-1980s. This legislation mandated that new infrastructure be opened concurrently with

new developments. The level of service (LOS) of the roads immediately adjacent to the proposed developments was initially selected as the performance measure used to assess the impact of a development. Developers that contributed to LOS F would not be allowed to build, whereas those developments that still allowed the roadway to function at a reasonable LOS were permitted. This criterion had the effect of forcing development into the suburban fringe of cities where existing LOSs were higher, in effect increasing urban sprawl.

Within a few years, it was apparent that the LOS performance measures were not having the desired effect. The first step in the redevelopment of performance measures was creating different criteria for different areas. The LOS requirements were not as strict in urban areas as in rural and suburban areas. These criteria still posed a significant obstacle to development, and the criteria were further relaxed so that they referred to an areawide LOS rather than the LOS for a specific road. The idea was that other roads surrounding the development probably had excess capacity so traffic could use alternate routes if the road that was being developed had a poor LOS. This procedure had a questionable effectiveness in the opinions of those surveyed by Peyrebrune.³

By 1993, the growth management legislation in Florida was seen as inadequate.³ A new system was developed whereby local governments could establish their own requirements for transportation systems. Further, Florida law required that all urban areas with a population over 50,000 develop what are effectively congestion management systems (CMSs). These CMSs are now driving the development of performance measures in Florida.³

CMSs have provided valuable inputs into the short-term planning process used by localities and have provided a medium whereby local governments and planning bodies can consider modes other than the automobile.³ Performance measures have moved away from the use of LOS to locally defined measures. Although there is latitude in how performance measures are defined, the state requires that mobility be examined. Florida defines *mobility* as the ability to complete the desired trip, regardless of the mode used. These mobility measures can take a variety of forms ranging from travel times to lane-miles available for travel.

Public Outreach

FDOT has used outside facilitators to involve stakeholders in the planning process. FDOT feels that outside facilitators are very successful in conflict resolution since they expose FDOT to new ideas and ways of thinking. FDOT has been very active in bringing stakeholders to the table. If a person represents a larger constituent group, FDOT may fund travel expenses for the person to attend meetings. They have found this to be very helpful, and it increases participation in meetings.

When the statewide transportation plan was being updated, a variety of methods were used to obtain public comment. FDOT held workshops, used the Internet, and sent e-mail notifications and updates. Florida has also attempted to encourage input through informational brochures and maps, questionnaire surveys, presentations at partners' scheduled meetings, a dedicated website with all related materials, an automated e-mail notification⁴ of new

information, status reports, etc., and printed copies of materials for those unable to reach the website.⁵ A toll-free number has also been established for questions from the public (1-866-SIS-FDOT).

The Freight Stakeholder Task Force was created in 1998 to provide a forum for better communication between public and private stakeholders.² The task force has helped provide input to FDOT on freight movement issues.

Use of Consultants

As a result of the reductions in staff levels, FDOT is making heavy use of consultants for all aspects of the planning process. The FDOT employee responding to the survey felt that it was important to have a mix of local and national consulting firms aid in the planning process. The local consultants have a better knowledge of the local political and institutional climate, and the national consultants often bring innovative ideas to the table.

Maine

Organization and Coordination

In 1992, Maine voters passed the Sensible Transportation Act, which emphasized road repair over new construction and mandated multimodal planning at the state level. This referendum has the following requirements:

- The Maine DOT must evaluate a full range of alternatives to highway construction and reconstruction.
- A public participation process must be established to seek public and local government input into transportation planning.
- Energy-efficient modes should be emphasized, and modes that increase reliance on foreign oil should be avoided.

The Maine DOT concentrates all multimodal planning activities at the central office. Multimodal planning responsibilities are divided among three offices: the Bureau of Planning, the Office of Freight Transportation, and the Office of Passenger Transportation. Highway planning activities are performed by the Bureau of Planning and coordinated with the other two offices. The Office of Passenger Transportation is responsible for planning for rail, transit, ferry, port, aviation, bicycle, pedestrian, and intermodal facilities. Multimodal planning activities in the DOT are coordinated with local governments through direct contact during projects and ongoing advisory committees.

Multimodal Planning in the DOT

The commissioner of the Maine DOT is very interested in multimodal planning and has embarked on a major reorganization to eliminate some turf issues. The commissioner eliminated the offices for different modes and concentrated all passenger transportation planning in one office. Having different modal experts in close proximity has generated a great deal of interaction and helped to produce more consideration of multimodal projects. The DOT feels that dividing planning responsibilities among modes tended to create an unnecessary layer of administration. The DOT believes that planning activities are more integrated as a result of these changes.

The Maine DOT noted that they initially encountered resistance for multimodal planning. The resistance has dissipated, probably because they are not diverting any highway money for multimodal planning and projects. The DOT is now using funds from the Federal Transit Administration and the Congestion Mitigation Air Quality Program as well as bonds to fund multimodal activities.

Public Outreach

As a result of the Sensible Transportation Act, the Maine DOT designed a public participation process to solicit input from the public and interested stakeholders. New Regional Transportation Advisory Committees (RTACs) were created to handle areas outside the MPO boundaries. The role of the RTACs is to advise the DOT on regional transportation needs and priorities. Each RTAC consists of 24 representatives, who are divided between local governments and citizens representing particular constituencies such as the following:³

- planners
- environmentalists
- business interests
- modal interests
- historic preservationists
- the elderly
- the disabled.

Citizen members were chosen by the Maine DOT based on an open application process. The primary responsibility of the RTAC was to develop a regional transportation plan that would then be used as an input into the state plan. The DOT served in a support role during the development of these plans. The diverse makeup of the RTACs helped ensure discussion of

alternate modes in the development of the regional transportation plans. The regional plans had a much stronger multimodal component than previous plans.

The Sensible Transportation Act also mandated that all projects have public advisory committees, which are heavily involved in the project planning process. Usually, the Maine DOT consults with local government officials to determine who should be on these advisory committees. Generally speaking, Maine DOT personnel felt that public input is very good in Maine. The Maine DOT employee interviewed noted that the presence of project advisory committees sometimes draws the process out but helps get the public involved. The DOT takes the project advisory committees' input into the decision-making process as much as possible.

The Passenger Transportation Advisory Board was also formed to provide the Maine DOT with general guidance on Maine's passenger system. It includes people from all across the state, and getting people involved has been fairly easy. The focus of the board is planning a transportation system with strong multimodal and intermodal connections, with an eye toward handling the large number of out-of-state tourists during the summer.

Use of Consultants

The Maine DOT makes extensive use of consultants. They have pre-qualified a short list of consultants to perform different types of study evaluations. When a particular type of study is on the horizon, the DOT sends Requests for Proposals (RFPs) to the top five pre-qualified consultants in the area. The DOT also received permission to include in the RFP a maximum price for the project. This was needed since small projects that were supposed to cost \$40,000 ended up as \$100,000 proposals. The DOT is making more use of in-house staff and is hiring consultants only to do work for which they have no expertise.

The Maine DOT has also instituted a system called a general contract agreement. Under this arrangement, the DOT hires one or two consultants for a 3- to 5-year period. The DOT can send projects to these consultants without sending out a RFP, which speeds up the process significantly. Under this arrangement, the DOT works out a scope of work with the consultant and then negotiates a price. This was instituted because the DOT was not getting high-quality work through a low-bid process.

Maryland

Organization and Coordination

The Maryland DOT consists of five strong modal administrations and a semi-independent transportation authority.³ The DOT is the owner and operator of highway, transit, airport, and port facilities in the state. The majority of all resources in the DOT are concentrated in the Maryland State Highway Administration, but each modal administration retains a strong identity. The DOT's organization has the following characteristics:

- *Strong modal units.* Modal units in the DOT have a high degree of autonomy, and all have some planning functions for their particular mode. The central office of the modal units retains the planning role, with little planning responsibility delegated to the districts.
- *Multimodal decision making.* The Maryland DOT has started developing multimodal planning teams for corridor projects. This brings together planners from the separate modal administrations. These corridor teams are also bringing in staff from local governments and MPOs to serve on the corridor planning teams.
- *Flexible funding source.* Maryland has a flexible transportation trust fund that may be used to fund all modes. The only restriction on multimodal use of these funds is that fare box revenues must cover at least 50 percent of transit operating expenses.

The statewide transportation plan is coordinated with local plans in several ways. Regional planning organizations are used to provide input to the plan, and representatives of the five modal administrations serve on a variety of regional standing committees. Local governments also directly review planning documents, and the DOT makes an annual tour around the state to present statewide plans.

Maryland faced the challenge of trying to integrate several distinct modal administrations with distinct identities to achieve a multimodal planning process. The flexible transportation fund has helped ease the competition among modal administrations since funding is often readily available for all modes.

Multimodal Planning in the DOT

The Maryland DOT is responsible for planning for all modes. Planning for transit is usually performed regionally and then integrated at the statewide level, whereas planning for other modes occurs at the state level. The employees interviewed noted that it helped to have all of the modes in the same department, and this fostered a spirit of cooperation. The flexible funding source in Maryland also helped to encourage multimodalism and reduce competition among the modal agencies.

Each modal administration in the Maryland DOT keeps an inventory of their capital and operating needs.² Every year, the DOT revenues are compared to their statewide assessment of needs and a multimodal Consolidated Transportation Program is developed. The program is reviewed by state elected officials. Following this review, the plan is finalized and transmitted to the General Assembly for approval.

Maryland also established a series of multimodal performance measures, including the following:²

- accessibility to existing or planned economic development areas

- reduction in travel times between areas
- increase in the efficiency of transportation system
- increase in multimodal options.

Public Outreach

The Maryland DOT has tried a variety of ways to increase public input into the planning process, including developing a public involvement handbook for the DOT. They also produce documents in Spanish if the demographics of an area indicate that it may be worthwhile. Project websites are also used to get information out to the public.

The DOT tries to take a proactive approach to public involvement and does not wait for formalized public meetings to begin. They use focus groups to help get input throughout the course of a projects. The Maryland DOT respondents noted that they are going out in the field more and getting a lot more buy-in from the public on projects.

Use of Consultants

The Maryland DOT uses consultants frequently and had a number of suggestions for dealing with them. The Maryland DOT personnel surveyed recommended that consultants have a great deal of oversight. The DOT has periodic meetings to stay updated on consultants' work, and project managers must review consultant billing statements monthly to ensure that charges are reasonable. One employee who had worked in Delaware and Virginia felt that Maryland kept a much closer watch on their consultants than VDOT or the Delaware DOT. Another employee noted that it is critical during the RFP process to develop criteria up front and grade consultants on the criteria. They also use consultants as staff extensions.

Michigan

Organization and Coordination

In the Michigan DOT, the central office is responsible for all multimodal planning and policy. The DOT is developing a plan to allow the regional offices to perform urban planning work, but this has not yet been implemented.

The DOT's role in coordinating the planning process with local governments varies, depending on the mode being considered. If the DOT has direct responsibility in owning or operating a particular mode, it takes a more active role.

Multimodal Planning in the DOT

The Michigan DOT is responsible for including highways, public transportation, and aviation in the statewide plan. The DOT is also responsible, to a lesser extent, for planning for

rail and ports. Freight planning provides an example of the DOT's philosophy for multimodal planning. The DOT owns the road but not the trucks, so they develop a plan for the road to support the trucks but they cannot plan for freight in the same way as they can plan for the highways on which the trucks will travel.

Although the DOT perceives limitations in planning for modes they do not own, they try to develop objectives for these modes. Rail planning provides a good example. Because railroad companies are so competitive, the DOT must get them involved in planning and make them partners in the planning from the beginning; otherwise there can be problems in the future.

Michigan developed an Intermodal Management System (IMS) to help integrate the management of air, rail, marine, and nonmotorized transportation with the traditional highway mode.⁶ This system was developed as a result of the requirements of ISTEA and was retained after the requirements were removed. The IMS is used to analyze data and identify deficiencies in non-highway facilities. The following types of facilities are included in the IMS:

- public airports
- border crossings
- carpool parking lots
- passenger terminals (bus and rail)
- ports
- ferry services
- passenger rail
- intercity passenger bus routes
- pipeline terminals
- rail junctions
- weigh stations
- non-motorized rights of way.

The items in the IMS are classified into three groups:

1. *Facilities*. These are locations where people or goods can switch between modes or different parts of the same mode.

2. *Segments.* Segments allow the movement of people or goods between different origins and destinations.
3. *Services.* Scheduled services between facilities take place along segments.

In each case, a particular item has a series of attributes assigned to it. The data in the IMS are maintained principally by the Michigan DOT's Bureau of Planning, which works with the Bureau of Aeronautics and the Bureau of Urban and Public Transportation to maintain the accuracy of the data in the IMS. Private service providers and local governments are also consulted to ensure that the information in the IMS remains timely and accurate.

The primary users of the IMS are the Michigan DOT bureaus. These groups use the IMS information to make asset management decisions. The IMS data are also used by regional and local agencies that would not normally have access to this type of information. The IMS was modified to support particular mode-specific goals as well as larger statewide policy documents, such as the Michigan Transportation Policy. An important component of the operation of the IMS is the provision of performance measures. The performance measures are compared to predetermined standards to determine whether an asset is deficient.

The Michigan DOT employee surveyed noted several obstacles to implementing an IMS. It takes a significant amount of money and time to implement the system. It was also observed that the DOT's responsibilities for their highway system are much less than VDOT's responsibilities. The sheer volume of data that VDOT would have to collect for an IMS could impede its application in Virginia.

Public Outreach

To involve stakeholders, the Michigan DOT begins with a focus at the policy level rather than the project level. By starting at the policy level, the DOT can explain to stakeholders at the local level how their project fits into the big scheme of things. The DOT feels they must set the broad context first before getting to the issues of individual projects. No specific methods for implementing the policy level outreach were explicitly mentioned by the Michigan DOT employee surveyed.

Use of Consultants

The Michigan DOT employee surveyed did not recommend using consultants to perform any kind of strategic planning. She felt that using consultants for these tasks would distance DOT management from the planning process. Michigan uses consultants for project-level planning, design of early engineering projects, coordinated studies, studies that require an independent broker (for the purpose of neutrality), and partnerships (such as Michigan's partnership with Canada). They have also used consultants to provide assistance in their long-range planning process.

The Michigan DOT employee surveyed felt that each project must be examined to determine if hiring a consultant would be a viable solution. She noted that it is sometimes

difficult to compare fairly the cost of using consultants to performing work in-house. Although consultants present a single number for the entire contract, it is sometimes difficult to identify all of the hidden costs in using in-house staff.

Minnesota

Organization and Coordination

Prior to the passage of ISTEA, the Minnesota DOT's planning and programming functions were located in the central office and construction and maintenance activities were located in the district.³ Units dealing with other modes were also located in the central office, but they were small. After the passage of ISTEA, the DOT began to restructure the agency from being principally concerned with the highway mode to considering all modes. Some of the key changes included:

- *Formation of a Metro Division to represent the Minneapolis/St. Paul area.* This agency was to work as a partner with the MPO to oversee planning, programming, design, and construction in the Twin Cities area. The MPO's long-range plan is coordinated with the TIP and the state plan in the Metro Division, resulting in a much smoother decision-making process in the area.
- *Grouping of modal units.* The transit, railway, waterway, aeronautics, and highway modes were grouped together under a new division. This brought Minnesota DOT's various modal planning functions under the same administrative group and moved the more highway-centered operations and maintenance functions under the umbrella of the district offices. This reorganization has made it easier for planners to consider other modes in the planning process since there was more direct contact between modal specialists.

Multimodal transportation planning activities are performed in the central office. Coordination between state and regional/local governments is accomplished through participation in state MPO and Regional Development Commission committees.

Multimodal Planning in the DOT

Although the Minnesota DOT is responsible for including most modes in their statewide transportation plan, they have limited responsibility for performing planning with metropolitan areas. The DOT provides funding to local agencies to plan and operate their systems, so they can influence planning by imposing restrictions on how the grant money is spent. One exception is that the DOT is involved in building, planning, and operating a light rail system in the Minneapolis metropolitan area.

The Minnesota DOT is moving toward a performance-based planning process. This process will be used for all modes and will allow for cross-modal analysis. Minnesota developed a series of outcome-based performance measures to assess the effectiveness of the system.²

Multimodal performance measures were established to support the following desirable system performance characteristics:

- *A predictable travel time is maintained so that customer expectations are met.* Performance measures include number of lane-miles that are congested, average travel times and distance, and percentage of residents satisfied with trip time.
- *Services are provided and meet travel and shipping needs.* Performance measures include percentage of residents with acceptable transportation options, posted bridge load capacity, miles of highway with weight restrictions by functional class, and percentage of residents satisfied with travel information.

The Minnesota DOT employee surveyed noted that it took a significant amount of time and commitment to change over to performance-based planning. In Minnesota DOT's case, it took approximately 3 years to develop the program and fully integrate it into the DOT's culture.

The Minnesota DOT noted some resistance to moving toward a multimodal planning approach. For the most part, resistance has come from suburban and rural areas that want to use a traditional highway planning process. The employee contact felt that the best way for dealing with this resistance is for DOT leadership to make a strong stand for multimodalism.

Public Outreach

The Minnesota DOT finds that involving the public in long-range planning is a challenge. Generating public interest in short-range planning and projects is much easier. In these cases, it is easier for the public to see the direct impact of the program on a particular area or system. The DOT has gotten stakeholders involved through Minnesota DOT steering committees. Through steering committees, stakeholders become involved in monthly meetings, and it is easier to keep everyone interested in the process. The Minnesota DOT has had no real successes in generating involvement from the general public, but they are working with a public relations firm to try to improve outreach.

The Minnesota DOT also oversees a FAC. This committee has been very successful in bringing together private sector freight interests to discuss freight planning. The committee meets once each month.

Use of Consultants

The Minnesota DOT uses consultants to perform a majority of their planning work. The DOT maintains in-house resources that serve as inputs into the planning process, and the consultants develop the actual plan. The DOT noted that the maintenance of in-house resources still involves a significant amount of work and represents about 30 percent of the cost of most projects. DOT personnel provide the vision and guidance in the planning process, and the consultants perform most of the planning work. The DOT contact person noted that the widespread use of consultants does not save money, but this is not one of the goals of the program.

New Jersey

Multimodal Planning in the DOT

NJDOT performs multimodal planning in three contexts:

1. *Statewide transportation plan.* The statewide transportation plan examined the impact of different multimodal alternatives on the number of congested vehicle miles traveled (VMT) and vehicle hours of travel. The alternatives examined included investments in highway capacity, transit, and travel demand management (TDM) measures.
2. *Regional transportation plans.* Three MPOs in New Jersey cover the entire state. All regional transportation plans developed by the MPOs have a multimodal element.
3. *Project plans.* Transit, pedestrian, and bicycle alternatives are examined at the project level when conditions are favorable for applying these modes.

NJDOT is using context sensitive design/solutions (CSD/CSS) to increase the consideration of pedestrian and bicycle modes on highway projects. New initiatives are also underway in northeast New Jersey to create more intermodal freight options at ports.

Public Outreach

NJDOT uses several methods to generate stakeholder involvement. They go to recreational and social events to try to expose the public to the planning process. They also conduct stakeholder charettes, which are goal-oriented, facilitated workshops that help produce consensus-based direction or targets for studies.

Use of Consultants

NJDOT uses consultants for every project-level planning effort. This has increased the costs to complete the projects.

North Carolina

Organization and Coordination

Transportation planning activities in North Carolina are concentrated at NCDOT's central office, which provides technical support and resources to the district offices upon request. NCDOT performs modeling for 15 of 17 MPOs in North Carolina; the remaining 2 perform their own modeling. NCDOT is a partner with these 2 MPOs in the model development process and provides between 2.0 and 3.5 person-years of technical support every year.

Most multimodal planning is done in the different modal divisions of NCDOT. There is discussion of centralizing the pure planning aspects of the transit, bicycle, and pedestrian modes within the NCDOT Statewide Planning Branch, with ferry, aviation, and rail planning continuing to reside within those modal divisions.

In the Metrolina (Charlotte, Gastonia, Concord), Triad (Greensboro, High Point, Winston-Salem), and Triangle (Raleigh, Durham) regions, there are transit authorities that are developing and planning for regional rail and bus systems. For HOV planning in the Triangle area, NCDOT is taking the lead. For HOV planning in the Metrolina area, the city of Charlotte is taking the lead.

Multimodal Planning in the DOT

Like most states, North Carolina had traditionally been involved with only highway planning, which emphasized improvements to the roadway network. As recently as 2001, North Carolina's General Statute that mandated long-range planning (GS 136-66.2) dealt exclusively with a "system of streets and highways." North Carolina's current multimodal planning activities differ from their historic methods of highway planning in two key ways:

1. *Incorporation of mode choice into planning models.* Mode choice has been included in the regional models for the Triangle, Triad, and Metrolina areas through the incorporation of logit models. For example, in the Triangle area, logit models are used for the mode choice element to account for pedestrian and transit trips.
2. *Better coordination between planning entities.* The statewide multimodal plan is being updated. NCDOT hopes that the new plan will define their future role in transportation planning, project development, and construction. It is also expected that the responsibilities of MPOs, the Public Transportation Division, the Rail Division, and the three regional transit authorities will be better delineated.

The North Carolina Multimodal Investment Network (NCMIN) is a tool that may help to allocate responsibilities and resources for transportation improvements between the state and the MPO. For example, the widening of I-40 through Durham was blocked for a while because NCDOT wanted to do the widening and the MPO refused to put the project in their TIP. It is a goal of NCMIN to identify which infrastructure elements are the responsibility of the state (such as I-40, since it has a statewide focus) and which are the responsibility of the MPO (those with more of a local focus). The challenge is categorizing these facilities within NCMIN. Functional class probably will not be used for delineating a facility between MPO and DOT authority; rather, aspects such as access level and land use will probably be used. NCMIN is driven by the fact that there are more needs than resources available. NCMIN has yet to be approved, and one of the biggest obstacles has been getting the state board of transportation to yield project programming power to MPOs, the rural planning organizations (RPOs), or local government authorities.

Public Outreach

NCDOT identified two innovative practices for public outreach:

1. *Staff training.* NCDOT planning staff participated in a Community Impact Assessment Workshop, which covered how to get different parts of the community involved in the planning process.
2. *RPOs.* NCDOT funds RPOs and charges them with coordinating public involvement. An RPO is composed of 3 to 10 counties where more than 50,000 of the population are not represented in an MPO. An RPO receives \$80,000 to \$100,000 annually depending on the number of counties and population it represents.

Use of Consultants

North Carolina tries to do most model and transportation plan development in-house. NCDOT has about 35 engineers who do the modeling and development of transportation plans and is planning to add up to 20 engineers and planners to support the additional RPO and MPO planning requirements.

NCDOT has used consultants in some instances. NCDOT staff performed the original version of the statewide transportation plan, and consultants are now working on a \$1.2 million update to the plan. The Office of Statewide Planning also pays consultants to complete about 60 percent of their project level traffic forecasts (for the 20- to 25-year forecasts for specific projects required under the National Environmental Policy Act, which includes some modeling or sketch planning). NCDOT also hires consultants for transportation planning technical assistance when the expertise is not available in-house.

Typically, NCDOT finds that it is too expensive to hire consultants to develop general transportation plans. The NCDOT employee surveyed noted that switching to a consultant-based organization like Kentucky or Florida would require “a totally different management mindset” than what is currently the case. NCDOT believes that using in-house staff is more efficient and provides a cost savings for the level of planning they perform.

Oregon

Organization and Coordination

ODOT multimodal planning activities are performed primarily at the central office. Some planning activities are performed at the five regional offices. The amount of work performed at the regional offices is proportional to the amount of multimodal traffic in the region. ODOT has approximately 30 planners in regional offices. The majority of regional planners are involved with the “development and review” process or the Transportation and Growth Management (TGM) Program; few of them deal primarily with multimodal planning.

The central office has about 30 staff members. The biggest group in the central office is the transportation planning and analysis unit, which does statewide modeling and traffic analysis for project development.

An Oregon Administrative Rule requires counties and larger cities to develop multimodal Transportation System Plans (TSPs).⁷ ODOT and Oregon's TGM program helps fund some of the TSPs.⁸ The purpose of the TGM program is to integrate transportation planning with the statewide land use planning program. The stated goal of the TGM program is to use land use and transportation planning to encourage development that produces pedestrian-, bicycle-, and transit-friendly communities. The TSPs are used to develop the statewide transportation plan.

Many of the more rural jurisdictions have little multimodal traffic, so their level of multimodal planning is consistent with their volume of multimodal traffic. ODOT regional staff assists local governments and MPOs with their multimodal planning (and in some cases, vice versa). ODOT has prepared a guidebook to help local jurisdictions with developing TSPs. Plans must be adopted by local governments or county commissions. These plans are then reviewed and approved by the state Land Conservation and Development Commission.

Multimodal Planning in the DOT

ODOT is responsible for considering automobiles, trucks, rail, transit, pedestrians, and bicycles in their highway planning process. Six major documents describe Oregon's transportation plan. The Oregon Transportation Plan (OTP) provides the statewide transportation plan. Separate modal plans for bicycles and pedestrians, transit, highways, aviation, and rail have also been adopted. Aviation functions were recently spun off into their own agency, and marine planning is handled by the Oregon Economic and Community Development Department.

ODOT has long had a bicycle and pedestrian program with well-established advocacy groups including a Bicycle and Pedestrian Advisory Committee.⁹ This committee meets quarterly to hear comments from the public on bicycle needs and acts as an intermediary between the public and ODOT. In 1971, the legislature passed a "bike bill," which allows for highway funds to be used for bikeways and walkways.¹⁰

ODOT feels that high-level public- and private-sector commitment to multimodal planning and commitment by the citizenry to a diversified transportation system are important to the success of a multimodal planning system. Other important factors identified by ODOT are funding and transportation management/staff expertise. The ODOT planner surveyed felt that sufficient funding for multimodal planning must be present for anything to occur. Capable management and staff were also seen as keys to creating high-quality multimodal planning.

The ODOT representative surveyed noted that funding levels were not keeping up with the need for improvements. Last year, the legislature passed the Oregon Transportation Investment Act, which provided for the issuance of bonds that would be repaid through increased vehicle title and other fees. The last increase in funding options occurred about 10 years earlier

when motor vehicle fuel tax rates were increased. As funding has increasingly fallen short of needs, spending priorities have changed such that spending for planning is relatively less than in the past. The agency has rail and public transit programs that are funded from sources other than the gas tax, which can be used only for roads.

The Oregon DOT has developed a series of performance measures for freight and passenger transportation.³ Although the ultimate purpose of the measures is to quantify how well the entire system is working, the first step was to assess how well individual linkages were performing. Initially, Oregon wanted their performance measures to reflect the systemwide performance. The following performance measures were developed to allow this assessment:

- *cost*, in cost per trip or cost per ton-mile
- *time*, as average travel time per trip
- *accessibility*, determined by capacity restrictions, average transfer time between modes, perceived deficiencies in the system, and availability of services
- *reliability*, measured as delay per VMT, LOS for intermodal facilities, and public perception
- *safety*, measured by number of crashes per year, number of crashes per VMT, amount of delay created by crashes.

These initial performance measures were scaled back to reflect better the performance of specific links or facilities. Typical performance measures might include:

- capacity of the facility or link
- LOS of links connecting to a specific facility
- connectivity of the facility to others
- safety of the facility/link.

These performance measures will eventually be used to provide a systemwide assessment of needs and to select alternatives to fulfill these needs.

ODOT established the Oregon FAC in August 1998. In 2001, the state legislature formally authorized the committee. The purpose of the FAC is to advise ODOT and the Oregon Transportation Commission on issues, policies, and programs that affect multimodal freight mobility in Oregon. The FAC also identifies high-priority freight mobility projects for consideration in the Transportation Improvement Program.¹¹ The ODOT planner surveyed noted that the FAC was successful primarily because of three factors:

1. a committee chair who helps energize committee members

2. high-level ODOT commitment to FAC activities and interests
3. enough ODOT resources and expertise to provide adequate staff support for the committee.

It was noted that the FAC is constantly dealing with issues related to the ongoing time commitment by committee members to government processes and timelines, activities/decisions that are important enough to maintain member involvement over time, and long distances to meetings for members in remote parts of the state.

ODOT's Intermodal Management System (IMS) has also remained active even though the federal requirement for an IMS was repealed in 1995. Most of the IMS work has been folded into ongoing freight and intermodal work. The IMS continues to have a "presence" in the overall Oregon Transportation Management System. The database component of ODOT's IMS is now incorporated into an in-house TransGIS Project. The freight/intermodal component is termed the Freight Information Management System, which includes various types of highway-related information. The ODOT planner surveyed felt that this system is in its infancy and needs a lot of work to be very useful. Keeping the data current enough to be useful has been a major challenge.

Public Outreach

ODOT has developed several techniques and guidance for involving stakeholders. These techniques are documented in a series of guides and procedures:

- *ODOT Public Involvement Guide*.¹² This document provides a guide for developing a public involvement plan, identifying stakeholders, and performing public outreach.
- *STIP Public Involvement Procedures*.¹³ This is a general list of policies for involving the public in the statewide transportation improvement program.

ODOT also established Area Commissions on Transportation (ACTs) to create more public involvement in project selection.¹⁴ ACTs are regional groups that advise ODOT and the Oregon Transportation Commission on a variety of issues, the most important of which often is project selection for the Statewide Transportation Improvement Program (STIP) and other funding programs. ACTs are to examine all modes of transportation included in the state transportation system.

ODOT also established a Stakeholders Committee to review the process by which the STIP is developed and stakeholder input is solicited.¹⁵ This includes clarifying public participation opportunities and identifying new methods to enhance public involvement during the planning and STIP development process.

Use of Consultants

ODOT's use of consultants varies according to planning needs and requirements. Consultants help with most major multimodal and modal plans and with some of the transportation system plans. In the past, consultants were heavily involved with corridor plans, but few of those have been done in recent years. ODOT senior staff are project/contract managers, guide consultants in their work, and are responsible for the final products (plans).

Consultants are now being used less frequently for planning work, primarily because of budget issues. At present, no consultants are being used for freight or intermodal evaluations, and all work is being performed by ODOT staff.

ODOT recommends that DOTs have clear and consistent guidelines for consultants and for transportation agency contract managers. ODOT has developed a guide for working with consultants.¹⁶ Using consultants typically costs more than using in-house staff, which means that consultants are used primarily when insufficient staff exists to do the work, when consultants have expertise that staff does not have, or when an independent outside view is needed.

Washington

Organization and Coordination

WSDOT began to take on more multimodal responsibilities as a result of state legislation.³ In 1990, the legislature passed the Growth Management Act, which mandated that the transportation system in the state function as a single coordinated system. To achieve this, Regional Transportation Planning Organizations (RTPOs) were formed throughout the state. RTPOs plan the development and use of transportation facilities. In 1993, the legislature passed an act that required WSDOT to prepare a policy plan, a statewide multimodal transportation plan, and mode-specific plans. These policy changes caused several changes to the structure of WSDOT:³

- *Creation of the Office of Urban Mobility.* The purpose of this office was to increase coordination between WSDOT and the Puget Sound Regional Planning Body. The Office of Urban Mobility was also responsible for coordinating the regional long-range plan and TIP with WSDOT's modal offices.
- *Creation of Public Transportation and Rail Division and Freight Mobility and Economic Partnerships Division.* Historically, WSDOT was responsible for highways, ferries, and small airports. The creation of these two divisions within WSDOT enhanced their role in the planning process. These divisions served as modal advocates within WSDOT and provided a valuable educational resource for personnel.
- *Expansion of the role of regional offices.* Prior to 1991, no planning was done at the regional level. Regional offices are now required to produce a multimodal regional

transportation plan in conjunction with the MPO and RTPOs. The level of planning expertise has been growing at the regional level, but rural districts still rely on expertise from the central office.

There have been several difficulties in accommodating the change to a multimodal agency. The legislature mandated that change occur in a rapid time frame, which created internal confusion within WSDOT as to the roles of their various branches. Many of the channels for coordination were also not firmly established

Wisconsin

Organization and Coordination

The WisDOT central office is responsible for performing multimodal planning activities. WSDOT has established a series of advisory committees to help coordinate the DOT's plans with plans developed by local and regional planning groups. One-on-one meetings are also used to coordinate with these groups

Multimodal Planning in the DOT

In 1993, WisDOT consulted shippers and carriers to determine how best to integrate freight into the multimodal statewide planning process.³ Wisconsin simulated freight flows based on forecast zonal flows and incorporated these simulations into the state's multimodal transportation plan. All of the modes are analyzed simultaneously, and interactions between modes are examined in this process. The freight planning methodology is based on the characteristics of the particular commodity being transported. A Freight Expert Panel was created from this process and is a key part of the analysis. Some of the innovative practices implemented by WisDOT are:

- *Innovations in freight forecasting and analysis.* WisDOT built a trip table of freight flows within the state. A base case forecast was developed for all modes, and a series of candidate alternatives to handle the forecasted freight flows were developed. These freight flows were then distributed across all available modes based on the forecast attributes of each mode.
- *Development of new statewide planning methods.* The flows for each type of commodity were disaggregated by the county of the facility where the freight would be transferred. Flows were increased by taking the base year trip table and using a growth factor to increase flows for future years.
- *Application of new planning practices.* The Freight Expert Panel provided key input into the development of the model. The panel determined diversion factors to be used to determine when freight would move to an alternate route. The program incorporated a sensitivity analysis to show the effect of the diversion of different amounts of freight from a link.

Public Outreach

In the past, WisDOT has used a combination of advisory committees, regional meetings, topical meetings, local community economic development agency meetings, and one-on-one meetings to generate stakeholder involvement. Stakeholder interviews and focus groups have been used with underrepresented groups to seek their input directly.

Use of Consultants

WisDOT uses consultants only when they do not have the appropriate expertise on staff or they have insufficient staff to perform a project. The representative surveyed noted that this arrangement has worked very well.

SUMMARY AND CONCLUSIONS

The attributes of the multimodal transportation planning programs surveyed in this study are summarized in Table 2. This section summarizes key findings from the survey.

Table 2. Summary of Survey of States with Innovative Multimodal Planning Programs

State	Planning Location	Public Outreach	Consultant Use	Innovative Practices
Florida	Central and district offices	Facilitated meetings, internet sites, e-mail, 800 number, freight task force	Extensive use	Performance measures, widespread use of facilitated meetings
Maine	Central office	Passenger transportation advisory committee, RTACs, project advisory committees	Extensive use when technical expertise not in-house	Function based organizational structure, innovative public outreach
Maryland	Central with some regional planning for transit	Focus groups, Spanish documents	Extensive	Performance measures
Michigan	Central office	Policy level outreach	Avoided for strategic plans, used on project level planning	Intermodal management system
Minnesota	Central office	Freight advisory panel	Used on majority of plans	Coordination with MPOs, performance-based planning
New Jersey		Charettes	Project level planning	Context sensitive design/solutions
North Carolina	Primarily central office	Community impact assessment workshop, RPOs	Statewide plan, project-level forecasts	Multimodal Investment Network (proposed)
Oregon	Centralized, with some planning in regional offices	Involvement manuals, ACTs, STIP advisory committee	Most major multimodal plans	Intermodal management system, freight advisory committee

Organizational Structure

Many of the agencies surveyed changed their organizational structure to incorporate multimodalism into their everyday activities. They adapted to multimodal planning in a variety of ways, including:

- creating new offices to handle planning for passengers and freight (Maine)
- using strong modal units within the DOT as advocacy groups (Maryland, Washington)
- grouping modal units into one division to facilitate interaction (Minnesota)
- delegating planning activities to districts (Oregon, Washington)
- creating new divisions to deal with urban areas (Minnesota, Washington).

There is no single way to accommodate multimodal planning with the DOT. A strong commitment from DOT leadership to institutionalizing multimodal issues within the DOT existed in all of the states surveyed.

Multimodal Planning Practices

The states use a number of innovative planning techniques to consider alternative modes in the planning process. Some of the techniques are:

- modeling of freight traffic (Florida, Wisconsin)
- performance-based planning (Florida, Maryland, Minnesota, Oregon)
- intermodal management systems (Michigan, Oregon)
- context-sensitive design/solutions (New Jersey)
- better delineation of planning responsibilities (North Carolina).

These techniques moved the planning process to a more modally blind procedure. They helped in assessing the needs of the traveler or commodity using the transportation system and in determining how best to accommodate these needs.

Public Outreach

In many cases, ongoing relationships were established with interested parties, rather than only a series of public meetings being held. Some of the techniques developed to improve outreach include:

- facilitated meetings (Florida)
- e-mail notifications (Florida)
- websites (Florida)
- 800 numbers (Florida)
- creation of rural/regional transportation planning committees (Maine, North Carolina, Oregon)
- statewide transportation advisory boards (Maine, Oregon)
- charettes (New Jersey)
- improved staff training (North Carolina, Oregon)
- a FAC (Florida, Minnesota, Oregon).

The creation of standing advisory committees appears to have been successful in most states. By creating regular meetings for a group of stakeholders, it is easier for the DOT to seek their input on a consistent basis.

Use of Consultants

Every state surveyed used consultants for some aspect of the planning process. The most common reasons were insufficient DOT staff to perform the planning and a lack of expertise by DOT staff to handle multimodal issues. In all cases, the DOTs noted that using consultants increased costs.

The individual states listed several techniques they have used to make the most of funds spent on consultant work. Although the techniques were different, they show a formal approach to using consultants rather than a random process. These techniques include:

- Do not use consultants to perform any kind of strategic planning.
- Use consultants only for specialized work where in-house expertise is not available.
- Employ a mixture of local and national consultants.

- Have a list of pre-qualified consultants for specific categories of work.
- Set a maximum price on the proposal.
- Monitor consultants carefully, making certain to follow clear grading criteria developed during the proposal or RFP stage.
- Develop a departmentwide set of guidelines for working with consultants.

RECOMMENDATIONS FOR PILOT PROGRAMS, LEGISLATIVE INITIATIVES, AND CONSULTANT PRACTICES

The diversity of practices employed in the states may appear to yield contradictory suggestions for actions VDOT should take to improve multimodal planning. For example, the Maine representative noted that the consolidation of passenger planning responsibilities into one functional unit served to eliminate “turf issues” and reduce a layer of administration. In contrast, the Maryland representative explained that each of five modal agencies had some responsibility for planning, with coordination being achieved through the use of multimodal “teams” addressing key corridors. Both approaches have a logical appeal, but for different reasons. The survey results suggest that the critical similarity between Maine and Maryland is not the organizational structure but instead how that structure is applied to facilitate multimodal planning. To complete this example, it would appear incorrect for VDOT to conclude that changing their organizational structure will automatically lead to better planning. Instead, VDOT should realize that some initiatives—such as using corridor planning teams representing all modes, eliminating modal competition for funding, and consolidating planning authority—can improve planning provided the goal of the initiatives is not lost.

The diverse set of techniques listed in Table 2 suggests that no “silver bullet” has been found for improving multimodal planning. The clearest examples are in public involvement, where strategies range from activities thought to have wide appeal among experts and laypersons alike (e.g., charettes for the purposes of community vision planning) to activities that may work best with stakeholders with substantial experience in transportation operations (e.g., a FAC composed of shippers and public sector modal representatives). Thus, although the leading states show commonality in their commitment to multimodal principles, they clearly follow different strategies.

Several options look promising but are untested in Virginia. Thus, VDOT could focus on implementing some of the promising initiatives on a pilot basis and then document the problems that arise before deciding whether the initiatives should be replicated. In addition, VDOT could consider studying legislative options for improving multimodal planning. Because the legislative options are not within VDOT’s control, they would need to be examined further to determine their effectiveness in Virginia.

A set of best consultant practices suggested by the states is provided. Although some of the practices differ (e.g., setting a maximum price on an RFP as opposed to negotiating a price with a selected consultant), they all appear to reflect a conscientious effort on behalf of the state to use consultants effectively.

Potential Pilot Programs

Given how planning is done in Virginia, the following series of pilot initiatives should be considered. Implementation would likely require additional staff work to investigate the mechanics of these initiatives and the extent to which their additional cost would be justified by the benefits.

1. *In one planning district where there is a conflict between state priorities and local priorities, implement a decision process that allows a modally blind consideration of alternatives.* As suggested by the Florida representative, the Minnesota representative, and NCHRP Report 404, an approach that simply looked at basic technology-independent performance measures, such as travel time and mobile source emissions, could be appropriate for encouraging full consideration of alternative modes. For an approach such as this to be effective, VDOT would probably need to enter into a partnership with the MPO and revise the Memorandum of Understanding that exists between VDOT and the MPO.
2. *For one corridor in Virginia for which a plan is being updated or developed, document the necessary steps for “planning for all modes simultaneously and the interconnections between modes” as noted in NCHRP 404.* The detailed technical decisions necessary to ensure that bus transit, pedestrians, and bicyclists have adequate right-of-way and connection points, however, may be aspects that can be added to a current study.
3. *In conjunction with Recommendation 2, identify actions that require close coordination between VDOT and other agencies.* Although it can be argued that VDOT already works with other agencies, true multimodal planning may require a higher level of coordination than is currently the case. These “other agencies” could include state agencies (e.g., Virginia Department of Rail and Public Transportation, Virginia Department of Aviation, and Virginia Port Authority), regulatory agencies (e.g., FHWA and Virginia Department of Environmental Quality), local governments, and advocacy groups (e.g., the Piedmont Environmental Council and the American Automobile Association).
4. *For one moderately suburban VDOT district (e.g., Staunton, Culpeper, or Lynchburg), implement a comprehensive education process involving VDOT district staff, county/city planning staff, and the planning district commission/MPO staff.* Although most states had centralized multimodal planning in the DOT’s main office, getting district offices and local governments to buy into the multimodal planning process was important. The Minnesota representative noted that resistance to

multimodal efforts was greatest in rural/suburban areas that wanted to use a “traditional highway planning process.” Further, it has been anecdotally suggested that rural/suburban areas exemplify a planning resources dilemma in that the occasion when transportation planning can be the most beneficial is when the area has not been developed (and hence has a limited planning staff!). By the time an area has been developed, there are limitations on what planning can accomplish, despite the fact that planning resources are significant. The educational efforts would focus on technical aspects (e.g., ways to improve connections between highways and transit) and organizational aspects (e.g., clarifying the roles of VDOT district staff, VDOT central office staff, local governments, and the MPO). It is expected that educational efforts in the districts would help in institutionalizing multimodalism throughout the DOT.

5. *In conjunction with Recommendation 3, graphically illustrate over the web which facilities and geographical areas are within the purview of VDOT, local cities, and counties, respectively.* North Carolina’s Multimodal Investment Network is just getting underway but may suggest some lessons that can be learned in this area. The NCMIN aims to delineate responsibilities among jurisdictions. Although VDOT does not have to allocate responsibilities in the same manner, the idea behind this recommendation is simply that the responsibilities should be made clear.
6. *Apply lessons that may be learned from Oregon’s experience to Virginia’s FAC as appropriate.* Oregon may have suggestions or at least be able to identify problems that may be expected to arise. Specifically, Oregon’s experiences at generating involvement from the DOT and private stakeholders could be very valuable, as would their experiences with management of freight data. For example, the Oregon planner noted that keeping freight data current was a time-consuming task. Armed with this information, VDOT might be able to anticipate some problems before they arose in Virginia.

Potential Legislative Initiatives

Unlike the pilot programs suggested previously, VDOT cannot control the outcome of legislative proposals, but VDOT can consider pursuing at least two options, both of which require further study.

1. *Suggest statutory adjustments to the modal-specific funding requirements currently in place in Virginia.* One concept of multimodal planning is that diverse alternatives (e.g., pedestrian improvements, transit improvements, and a roadway widening) are evaluated based on what the alternative will accomplish in terms of delay, the environment, and cost rather than on having a specific amount of money for each mode. Maryland noted that easing modal restrictions on funding enabled them to consider non-highway solutions to needs.
2. *Determine whether a state land use commission, as used in Oregon, would be effective for coordinating transportation and land use (thereby improving the*

possibility of alternative modes). On the positive side, an organization that focused on land use efforts could be available to provide technical assistance and guidance to localities to help with local plans that allowed for considering multiple modes. A disadvantage is that adding one more functional unit might reduce much needed interaction between VDOT and local planning efforts. A first step should be to define the roles and responsibilities that a state land use commission might fulfill.

Consultant Practices Checklist

The states interviewed offered a variety of good practices for using consultants, with the common denominator being a formalized approach rather than an ad-hoc use of consultants. VDOT currently uses consultants in a wide variety of situations, and this study suggests that when using consultants the following items should be considered:

- Do not use consultants for strategic planning or other types of work where the learning obtained in the process is as important as the product that is created. Following this advice should help the state DOT preserve institutional memory in the planning arena.
- Use consultants for specialized work where state experience is not available and where, logically, the training and hiring costs for obtaining state experience would exceed the use of consultants.
- Employ a diversity of local and national consultants as necessary to ensure an understanding of local issues yet an inclusion of advanced practices that have been shown to be successful elsewhere.
- Consider using techniques to reduce the administrative costs of selecting consultants, such as using a set of pre-qualified consultants who have proven their effectiveness in a particular area; using on-call consultants who have been previously selected for their expertise in a particular area; setting a ceiling on the maximum proposal; and negotiating a price after the consultant has been selected (especially when the true scope of work is still unknown).
- Have and follow a plan for reviewing consultant work once a project is assigned. This plan could be developed in the RFP stage (for very specialized types of work) or could be a department-wide policy for more common types of work (e.g., expectations for consultants who perform regional transportation long-range modeling).
- Retrospectively examine how consultant-based planning studies ultimately influenced program delivery. This suggestion from the literature may allow states to understand better the characteristics of a study that are more likely to lead to implementation.¹⁷ Such an examination may offer insights into the types of studies that are most likely to affect VDOT's construction program.

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APPENDIX: TELEPHONE SURVEY QUESTIONS

1. Where in the organizational structure are multimodal transportation planning activities done: at the DOT central office, the district field units, or a combination of both? How is multimodal planning coordinated between the state and regional/local governments?
2. In your state, how does multimodal planning differ from highway planning? Can you give us a couple of examples? Which modes is your agency responsible for considering in your planning process? Are there any key lessons you have learned over the past three years that would not otherwise be evident except for the fact that you have chosen the route of multimodal planning?
3. Are there practices that most states do not (or probably do not) use that have helped your state accomplish multimodal planning? On a related topic, do you ever have naysayers who indicate that most resources should focus solely on more traditional highway oriented modes, and if so, what have been some successful strategies for resolving this debate?
4. The Virginia DOT has not had very good success with public outreach, and you are probably familiar with the challenges of involving not only the public but also some of the other busy but critical groups, including other branches of state government, local governments, nonprofit organizations, private sector transportation providers, and other key groups. Have you identified any key techniques for involving stakeholders? (These techniques might include ways to bring other groups to the table, neat techniques for presenting information, or key questions that add quality rather than noise to a debate.)
5. To what extent do you use consultants for transportation plan development, and are there any good tips you recommend for overseeing this work or using these consultant services? How does this affect cost?
6. The FHWA mentioned that you have an established intermodal planning process that might be promising for replication elsewhere. Can you tell me a little more about that? What obstacles do you see to other states, such as Virginia, using such a process?